Economic History as a Science,
Fundamentals of Economics, Economic Theories,
Economic Ethics, Money, Cycles and Crises

Volume I

Financial Perspectives of Economic History

László Vértesy

Gazdaságelemző Intézet
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Preface

Lectorem meum, saluto!

John Hicks, the Nobel-awarded economist, makes it clear at the beginning of his book (A Theory of Economic History, 1969) that he does not consider himself an economic historian, but he has long been interested in economic history, and there are some of the most eminent economic historians from whom he could learn. Max Weber's Economic History is an anthology of his meaningful university lectures, compiled posthumously by colleagues and students. The concept and the composition of this book grew out of these inspirations. At the heart of this exploration is a commitment to scholarly rigor and intellectual curiosity.

In the quest to understand the complex dynamics that have shaped our economy, we often find ourselves entangled in a rich tapestry of historical threads. Hence the title suggests that the book is not a comprehensive general tome on the entire economic history, but a well-crafted compilation of selected diverse themes that show our economic past through financial perspectives. Just as a tapestry is made up of countless individual threads, our economic history is woven from a myriad of interconnected factors and forces. We can learn to appreciate the richness and depth of our economic heritage by unraveling these threads and considering their significance. To better guide the readers, each chapter begins with a brief economic introduction that provides the essential basics of the subject and the necessary theoretical information. The chronology starts from antiquity, continues through the Middle Ages, the modern centuries and ends with current day, reflecting current trends. Another characteristic of the writing is the numerous footnotes, which contain not only the relevant sources and references, but also serve as recommended and supplementary literature for further reading or research. In some cases, we have also included a shorter quote, anecdote or joke to make the book more readable. This volume covers the following topics: the science of economic history, the fundamentals of economics, the development of economic thoughts, economic ethics, money and finally economic cycles with some notable crises.

In the following chapters, readers are kindly invited to join this intellectual odyssey – a journey through time and space led by this companion to economic history.

László Vértesy
December 2023, January 2024

INTRODUCTION

> Regents, statesmen, peoples are referred primarily to the instruction of the experience of history. But what experience and history teach is this, that peoples and governments have never learned anything from history and acted according to lessons that could have been drawn from it. Every time has such peculiar circumstances, is such an individual condition, that in it must be decided and can be decided alone.
>
> Georg Wilhelm Friedrich Hegel
> Lectures on the Philosophy
> of World-history (1822-31), Preface

From the commonly phrased Hegel statement, the unique circumstances and individual conditions of each period are rather important than who learns or not from the previous historical examples.[1] It emphasizes that when analyzing and evaluating a specific event and the responses and solutions given, all the historical, political, social, and economic components of the given age and era must be examined together. Economic history serves as a lens through which we can understand the complex interplay between economic forces and historical events. In this introduction, we will explore the evolution of economic history as a discipline, delve into its fundamental concepts, and highlight key literature and events that have shaped its development. We examine economic history as a science, tracing its development from its roots to contemporary trends; and explore the emergence of methodologies such as cliometrics and the study of the history of capitalism, which have revolutionized our understanding of economic phenomena over time. Additionally, we will survey significant contributions to the field through monographs authored by influential scholars like Weber, Hicks, Cameron, Clark, Backhaus, Bisin, and Giovanni; moreover, we mention some journals and reviews in disseminating knowledge and fostering discourse within the field. Finally, we will summarize major historical events that have shaped economic history as we know it today.

The second part of the introduction explores the economic fundamentals underpinning the study of economic history. We will examine concepts such as individual choice, the interaction of individuals within economies, and the macroeconomic considerations of economies as a whole. Understanding these fundamental principles is essential for comprehending the broader historical context in which economic events unfold.

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[1] Hegel, G. W. F. (1822-31). Vorlesungen über die Philosophie der Weltgeschichte. Meiner Verlag. Hegel, G. W. F. (2023). *Lectures on the Philosophy of world-history*. Newcomb Livraria Press. Translated by Tim Newcomb

1. Economic History as a Science

Science means a knowledge or a system of knowledge covering general truths or the operation of general laws primarily as obtained and tested; something that may be studied or learned like systematized knowledge; the state of knowing; knowledge as distinguished from ignorance or misunderstanding.[2]

The System of Sciences

	Sciences		
	Empirical sciences based on empirical observations and is capable of being tested for its validity by other researchers working under the same conditions		**Formal sciences** an abstract structure used for inferring theorems from axioms according to a set of rules
	Natural sciences study of the physical world	**Social sciences** study of human behavior and the functioning of societies	
Basic increases the knowledge base of a field of research	*Physical sciences:* physics, chemistry, earth science, space science or astronomy *Life sciences:* biochemistry, microbiology, botany, zoology, ecology	anthropology, **economics**, political science, sociology, philosophy (ethics), human geography, and psychology	logic, mathematics, statistics, systems theory, decision theory
Applied uses that knowledge to solve specific problems	engineering, agricultural science, medicine, and materials science	business administration, finance, public policy, marketing, law, pedagogy, and international development	computer science

Source: own compilation of the author

Sciences can be classified into distinct categories based on their methodologies and subject matter. **Empirical sciences** rely on empirical observations and are subject to validation by other researchers working under the same conditions. **Natural sciences** focus on studying the physical world and

[2] "Science." *Merriam-Webster.com Dictionary*, Merriam-Webster, https://www.merriam-webster.com/dictionary/science.

are categorized into basic and applied disciplines. Basic natural sciences encompass physics, chemistry, earth science, space science, and astronomy. **Life sciences**, another subset, involve biochemistry, microbiology, botany, zoology, and ecology. Applied natural sciences extend to engineering, agriculture, medicine, and materials science. On the other hand, **social sciences** center on the study of human behavior and societal functioning. The basic social sciences include anthropology, economics, political science, sociology, philosophy (ethics), human geography, and psychology. Applied social sciences encompass business administration, finance, public policy, marketing, law, pedagogy, and international development. **Formal sciences** deal with abstract structures and the derivation of theorems from axioms according to a set of rules. Basic formal sciences include logic, mathematics, statistics, systems theory, and decision theory. The applied formal sciences are represented by computer science.

Academic disciplines divide up into sub-disciplines or fields, and economics is no exception. Most fields in economics are self-contained – for example, public economics or macroeconomics. **Economic history** is different; however, it entails the examination of historical events through the methodological lens of economics, or with specific attention to economic phenomena.[3] This encompasses (i) the analysis of institutional dynamics within production, labor, and capital systems, as well as (ii) the profound influence of the economy on societal structures, demographic patterns, cultural developments, and linguistic aspects. The study extends to diverse dimensions such as (iii) economic development, financial systems, corporate entities, business dynamics, the workforce, issues of equality, and technological advancements. Paul Samuelson said: *Have a very healthy respect for studying economic history because that's the raw material from which any of your conjectures or testings will come.*[4]

This science employs a **comprehensive approach** to economic history and involves the integration of various methodologies, including (i) historical methods, (ii) statistical methods, and (iii) economic theory.

Within the **historical methods**, **source criticism**, a critical component, involves procedural guidelines for handling conflicting sources, fundamental

[3] Margo, R. (2021). The economic history of economic history: the evolution of a field in economics. In: Bisin, A., Federico, G. (Eds.), *The Handbook of Historical Economics*. Elsevier. Chapter 1.
[4] Clarke, C. (2009). *An Interview With Paul Samuelson, Part Two*. The Atlantic. Archived from the original on June 3, 2017; June 18, 2009

principles for assessing reliability, consideration of evidence from eyewitnesses, evaluation of indirect witnesses, examination of oral traditions, and scrutiny of anonymous sources. **Synthesis**, manifested through historical reasoning, is characterized by formulating arguments supporting the most plausible explanations, statistical inference, and reasoning based on analogies. Applying **statistical methods**, encompassing both quantitative and qualitative data, is indispensable in economic history. This includes using **descriptive statistics** to summarize data and **inferential statistics** to make inferences based on statistics, estimates, decision quantities, null and alternative hypotheses, error considerations, interval estimation, significance assessments, and illustrative examples. The process of **exploratory data analysis** further facilitates the investigation of economic phenomena through comprehensive data examination. Furthermore, **economic theory**, representing various schools of thought such as mainstream economics, Austrian economics, Marxian economics, the Chicago School of Economics, and Keynesian economics, contributes significantly to understanding historical situations and institutional dynamics when applied in tandem.

1.1. Development of Economic History

The evolution of economic history has been marked by significant shifts in methodology and focus. Beginning with the historical school of economics, which emphasized historical context and institutional analysis, the field underwent its first revolution with the advent of cliometrics. Cliometrics introduced quantitative methods and empirical analysis, reshaping the discipline. Subsequently, a second revolution emerged, characterized by an interdisciplinary approach and a renewed emphasis on the history of capitalism. This holistic perspective integrates insights from various social sciences to understand economic development over time comprehensively.

Friedrich **List** (1789-1846) was a German-Austrian economist and political theorist known for his contributions to the nationalist political economy theory, which influenced the European and American economic thought.[5] He is regarded as a precursor to the German **historical school of economics**.[6] The school posited that history provided the primary source of

[5] List, F. (1841). *Das nationale System der politischen Ökonomie* - The National System of Political Economy.; List F. (1827) Outlines of American political economy: in twelve letters to Charles J. Ingersoll (Neuausgabe: With a commentary by Michael Liebig), Dr. Böttiger Verlag, Wiesbaden 1996.

[6] Cardoso, J. L., & Psalidopoulos, M. (Eds.). (2015). *The German Historical School and European Economic Thought*. Routledge.

understanding human actions and economic phenomena, as economics was viewed as culturally contingent and thus not universally applicable across different contexts and periods. It rejected the notion of economic theorems having universal validity, advocating for meticulous empirical and historical analysis to understand economic phenomena rather than relying on abstract logic and mathematics. Additionally, they also rejected the use of mathematical modeling.

German Historical School of Economics

Older	Wilhelm Roscher, Karl Knies, Bruno Hildebrand
Younger	Gustav von Schmoller, Étienne Laspeyres, Karl Bücher, Adolph Wagner, Georg Friedrich Knapp, Lujo Brentano
Youngest	Werner Sombart, Arthur Spiethoff, Max Weber.

Source: own compilation of the author based on Shionoya, Y. (2005). The soul of the German historical school: Methodological essays on Schmoller, Weber, and Schumpeter (Vol. 2). Springer Science. 1.

The historical school of economic history, led by Gustav von **Schmoller** (1838-1917),[7] was developed by numerous scholars under his guidance. This school emphasized the absence of universal truths in history, underscoring the significance of historical context without relying on quantitative analysis. Max **Weber** and Joseph **Schumpeter** further contributed to this perspective. The careful analysis of human actions, cultural norms, historical context, and mathematical background is considered crucial for historical analysis. William **Ashley** (1860-1927), associated with the University of Oxford, popularized this approach in Great Britain, dominating British economic history for much of the 20th century.[8] George **Unwin** (1870-1925)

Senn, P. R. (2005). The German historical schools in the history of economic thought. *Journal of Economic Studies*, *32*(3), 185-255.; Pearson, H. (1999). Was there really a German historical school of economics?. *History of Political Economy*, *31*(3), 547-562.; Shionoya, Y. (2005). *The soul of the German historical school: Methodological essays on Schmoller, Weber and Schumpeter* (Vol. 2). Springer Science & Business Media.;Tribe, K. (2003). Historical schools of economics: German and English. *A companion to the history of economic thought*, 215-230.

[7] von Schmoller, G. (1870) *Zur Geschichte der deutschen Kleingewerbe im 19. Jahrhundert* (History of German Small Businesses in the 19th Century.). (1888) *Zur Litteraturgeschichte der Staats- und Sozialwissenschaften.* (1898) *Umrisse und Untersuchungen zur Verfassungs-, Verwaltungs-, und Wirtschaftsgeschichte* (1900-1904) *Grundriss der allgemeinen Volkswirthschaftslehre* (Layout of General Economics) (1895). *The Mercantile System and Its Historical Significance, Illustrated Chiefly from Prussian History*. Macmillan.

[8] Ashley, W. (1888, 1893). An Introduction to English Economic History and Theory, Part I: The Middle Ages. II: The End of the Middle Ages. (1914). *The Economic Organisation of England: An Outline History*, London: Longmans, Green & Co.

became the first professor of economic history at the University of Manchester.[9] In France, the **Annales school** has strongly influenced economic history from the early 20th century. Through its journal Annales: Histoire, Sciences Sociales, this school has had a global impact on the field.

In his study on the Industrial Revolution,[10] Arnold **Toynbee** (1852-1883) advocated for the fusion of economics and history, expressing concern about the excessive separation of contemporary economics from historical considerations. He remarked that while thinkers like Smith and Malthus maintained a historical perspective, Ricardo, who greatly influenced modern textbooks, adhered to an entirely ahistorical theory. Toynbee highlighted the advantages of integrating economics and history, asserting that it enhances economic understanding by casting abstract propositions in a new light when studying historical facts. According to him, such an approach renders statements more vivid and truthful.

The first chair of Economic history at the University of Harvard was established in 1892, and the first journal, the Vierteljahrschrift für Sozial und Wirtschaftsgeschichte,[11] has been published in German since 1903. The two professional associations, the English Economic History Society and the American Economic History Association, were established respectively in 1926 and 1940, and they started to publish their journals, the Economic History Review and the Journal of Economic History, the following year.[12] Its first seventy years of economic history was primarily a historical discipline with little or no formal economic reasoning.

The **first revolution** in economic history was the **Cliometric revolution**, which was a reaction to the decline in the standing of economic history after the mathematization of economics. The term Cliometrics was coined by the American mathematician and economist Stanley **Reiter** in 1960, drawing inspiration from Clio, the muse of history and storytelling, and provided aspects of quantitative research in economic history.[13]

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[9] Unwin, G. (1904) *Industrial Organisation in the Sixteenth and Seventeenth Centuries.* (1908) *The Gilds and Companies of London*

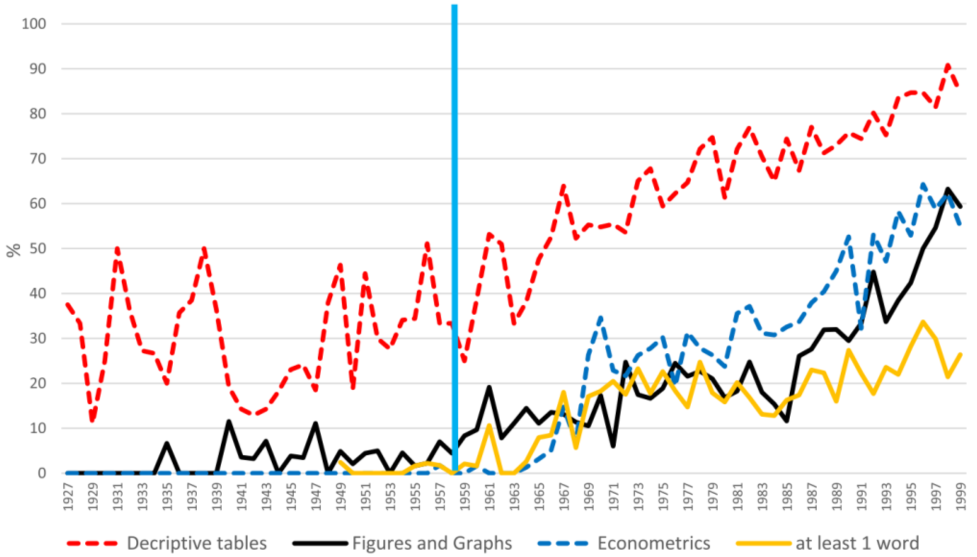
[10] Toynbee, A. (1884). Lectures on the Industrial Revolution In England: Public Addresses, Notes and Other Fragments, together with a Short Memoir by B. Jowett, London, Rivington's; Whitefish, Montana: Kessinger Publishing (pb 2004)

[11] https://www.steiner-verlag.de/brand/VSWG

[12] Margo, R. (2021). The economic history of economic history: the evolution of a field in economics. In: Bisin, A., Federico, G. (Eds.), *The Handbook of Historical Economics*. Elsevier. Chapter 1.

[13] Davis, L. E., Hughes, J. R., & Reiter, S. (1960). Aspects of quantitative research in economic history. *The Journal of Economic History*, *20*(4), 539-547.

The Use of 'Theory' and Quantitative Tools in the Three Top Economic History Journals (1927-2000)



The three top economic history journals are Economic History Review (EHR), Journal of Economic History (JEH), and Explorations in Economic History (EEH). The vertical line, in 1958, marks the beginning of the Cliometric Revolution.
Source: Cioni, M., Federico, G., & Vasta, M. (2021). The two revolutions in economic history. In *The Handbook of Historical Economics* (pp. 17-40). Academic Press.

Cliometrics is alternatively referred to as the new economic history or econometric history, as exemplified by the work of Alfred H. **Conrad** and John R. **Meyer** in their 1958 publication, The Economics of Slavery in the Antebellum South.[14] It involves systematically applying economic theory, econometric techniques, and other formal or mathematical methods to studying history, particularly social and economic history. It represents a quantitative approach to economic history, contrasting qualitative or ethnographic approaches. Douglass **North** and William **Parker** served as the first editors of the Journal of Economic History in 1960, marking an early milestone in the development of Cliometrics. The "new economic history" experienced a resurgence since the late 1990s. It is essential to recognize that economic history is not subservient to economics but constitutes a distinct field of scholarly inquiry. Practitioners of economic history, predating the emergence

[14] Conrad, A. H., & Meyer, J. R. (1958). The Economics of Slavery in the Ante Bellum South. *Journal of Political Economy*, *66*(2), 95-130.

of Cliometrics, were economists and historians who studied economic histories. Cliometrics formalized economic history by injecting mathematical models and statistics into the broader domain of economics. Francesco **Boldizzoni** encapsulated a general critique of Cliometrics, asserting that it relies on the erroneous assumption that the laws of neoclassical economics are universally applicable to human activities.[15]

A **second revolution** in historical economics is ongoing, marked by a shift in research questions beyond traditional boundaries. This revolution encompasses two main directions: persistence studies (PS) and non-economic outcomes studies (NEOS). The movement was started by the publication of the seminal paper by Acemoglu et al. (2001) on the effect of colonial institutions on levels of development.[16] The non-economic outcomes studies extend economists' interest in issues like discrimination and human behavior to historical contexts, reflecting a broader economic trend towards empirical work and a focus on growth and inequality. This movement has garnered significant attention from economists due to its alignment with contemporary economic research trends. Second, economists have extended their interest in NEOS to historical issues, which dates back at least to the seminal works by Becker on the economics of discrimination and human behavior.[17] Nowadays, economists are much more interested in empirical work, as opposed to pure theory, and in issues like growth and inequality, which lend themselves to historical perspective.[18]

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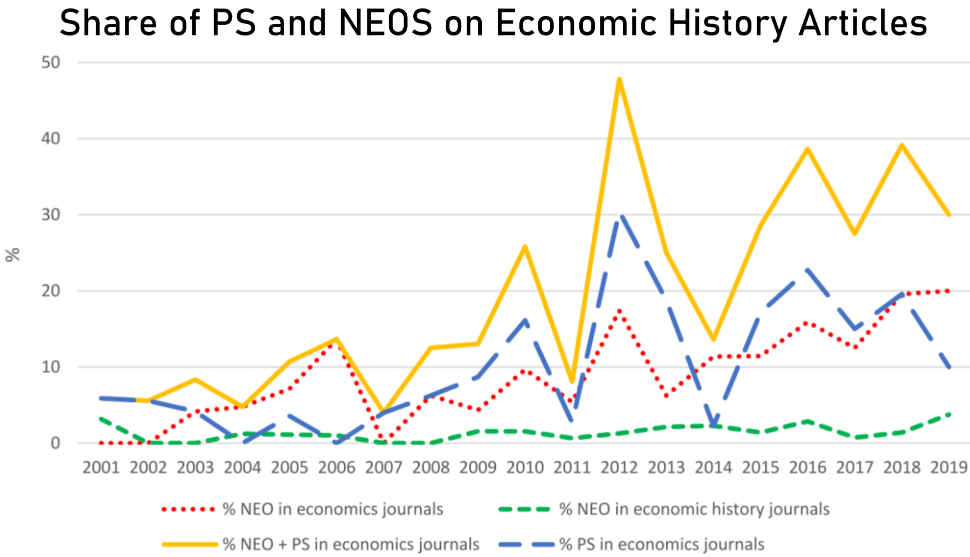
[15] Boldizzoni, F. (2011). *The poverty of Clio: resurrecting economic history*. Princeton University Press.; Boldizzoni, F. (2008). *Means and ends: The idea of capital in the West, 1500-1970*. Springer.
[16] Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The colonial origins of comparative development: An empirical investigation. *American economic review*, *91*(5), 1369-1401.
[17] Becker, G.S. (1957). *The Economics of Discrimination Chicago*. University of Chicago Press, Chicago. Becker, G.S. (1978). *The Economic Approach to Human Behavior*. University of Chicago Press, Chicago. Becker, G.S. (1981). *Treatise on the Family*. Harvard University Press, Cambridge.
[18] Cioni, M., Federico, G., & Vasta, M. (2021). The two revolutions in economic history. In *The handbook of historical economics* (pp. 17-40). Academic Press.



Source: Cioni, M., Federico, G., & Vasta, M. (2021). The two revolutions in economic history. In *The Handbook of Historical Economics* (pp. 17-40). Academic Press.

The **History of Capitalism** started with the journal Capitalism: A Journal of History and Economics, published in the United States in the 2000s, specifically in 2020, and encompasses a multitude of topics traditionally associated with economic history. These topics include the banking sector, insurance, regulation, the political dimensions of business life, and the impact of capitalism on the middle class, the poor, women, minorities, and slavery. The historical narrative within the journal spans the past 500 years, examining the development of various forms of capitalism. Capital accumulation through diverse methods and scales has been intricately linked to significant wealth concentration and economic power shifts. Jonathan **Levy** posits that modern economic history commenced with industrialization and urbanization, emphasizing that environmental considerations were initially peripheral, if not nonexistent.[19] However, criticisms have been raised, noting the journal's lack of emphasis on production, distribution, and exchange systems. Additionally, some critiques highlight the absence of social science methodologies and ideological biases within the content. Francesco Boldizzoni regards it as a form of economic imperialism.

[19] Levy, J. (2012). *Freaks of Fortune: The emerging world of capitalism and risk in America*. Harvard University Press.

However, there is a counter-trend where economists in other specializations use historical data to understand the present day. Thomas **Piketty's** work, Capital in the Twenty-First Century (2013),[20] focuses on wealth and income inequality experienced in Europe and the United States since the 18th century. The book's central thesis contends that if the rate of return on capital (r) is consistently more significant than the rate of economic growth (g) over the long term, the concentration of wealth leads to social and economic instability. This work has led to discussions on global progressive wealth taxes and has influenced public policy conversations.

Several economists have been recognized with **Nobel Prizes** or **Nobel Memorial Prizes** either for their notable contributions to economic history or for developing economic theories that find widespread application in economic history. Simon **Kuznets** was awarded the Nobel Memorial Prize in Economic Sciences in 1971. He earned this distinction for his empirically founded interpretation of economic growth, leading to new and deepened insights into the economic and social structure and development process.[21] John **Hicks**, whose early scholarly work delved into economic history, received the Nobel Memorial Prize in 1972 for his significant contributions to general equilibrium theory and welfare theory.[22] In 1979, Arthur **Lewis** was granted for his substantial contributions to economic development, particularly within a historical context.[23] Milton **Friedman**, the recipient of the Nobel Memorial Prize in 1976, was acknowledged for his achievements in the fields of consumption analysis, monetary history, and theory, as well as his demonstration of the complexity of stabilization policy.[24] Robert **Fogel** and Douglass **North**, joint laureates in 1993, were commended for revitalizing research in economic history by applying economic theory and quantitative

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[20] Piketty, T. (2013, 2014). *Le Capital au XXIe siècle - Capital in the Twenty-First Century*. Harvard University Press.

[21] Kuznets, S. (1955). Economic Growth and Income Inequality. *American Economic Review*. (1963). Quantitative aspects of the economic growth of nations, VIII: The distribution of income by size, *Economic Development and Cultural Change*, 11, pp. 1–92. (1968). *Toward a Theory of Economic Growth*, with Reflections on the Economic Growth of Modern Nations. (1971). *Economic Growth of Nations*: Total Output and Production Structure. (1971)

[22] Hicks, J. (1969). *A Theory of Economic History*. Oxford: Clarendon Press. (1937). Mr. Keynes and the Classics: A Suggested Interpretation, Econometrica. (1980). "IS-LM: An Explanation," *Journal of Post Keynesian Economics*.

[23] Lewis, A. (1939). *Labour in the West Indies: The Birth of a Worker's Movement*, Fabian Society. (1955). *The Theory of Economic Growth.* Routledge.

[24] Friedman, M. (1957). A Theory of the Consumption Function. Princeton, New Jersey (1962). *Capitalism and Freedom*. University of Chicago Press

methods to elucidate economic and institutional change.[25] Claudia **Goldin**, honored with the Nobel Prize in 2023 for having advanced our understanding of women's labor market outcomes, initiated her career by researching the history of the US southern economy and served as the President of the Economic History Association in 1999/2000.[26]

Other **prominent economic historians**: Ben Bernanke, Francesco Boldizzoni, Rondo Cameron, Gregory Clark, Eckhart Ferenc, Niall Ferguson, Irving Fisher, Milton Friedman, Ibn Khaldun, John Komlos, Nikolai Kondratiev, Friedrich List, Thomas Piketty, Karl Polanyi, Joseph Schumpeter, Anna Jacobson Schwartz, Adam Smith, Max Weber.

In recent decades, a trend known as the **new economic history** has emerged, shifting from purely quantitative studies to exploring institutional, social, and cultural history affecting economic evolution. Despite concerns about its state, economic history is flourishing globally. Since 2000, research from continental European universities has particularly driven a renewed interest. There are approximately 10,400 economic historians worldwide, with Japan, China, the UK, and the US having the highest numbers. However, some less developed countries, like Senegal, Brazil, and Vietnam, are poorly integrated into the global economic history community. This resurgence is attributed to sustained interest in significant policy questions about economic growth and development history.

Economic historians continue to explore questions of **economic growth**, with developmental economics intricately linked to economic history. Noteworthy works include Rostow's The Stages of Economic Growth,[27]

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[25] Fogel R. (1974). *Time on the Cross: The Economics of American Negro Slavery*, 2 volumes. Little, Brown and Company, Fogel R. (1989). *Without Consent or Contract: The Rise and Fall of American Slavery*, 2 volumes; Eichengreen, B. (1994). The contributions of Robert W. Fogel to economics and economic history. *The Scandinavian Journal of Economics*, *96*(2), 167-179.; North D. (1961). *The Economic Growth of the United States, 1790–1860*. Prentice Hall; North, D., Paul, T. R. (1973). *The Rise of the Western World*: A New Economic History. Cambridge, England: Cambridge University Press. North D. (1983). *Change in Economic History*. New York and London: W. W. Norton and Co.

[26] Goldin, C. (1990). *Understanding the Gender Gap: An Economic History of American Women*, New York. (1992). *Strategic Factors in Nineteenth Century American Economic History*, zusammen mit H. Rockoff, Chicago. (1994). *The Regulated Economy: A Historical Approach to Political Economy*, zusammen mit G. Libecap, Chicago. (2021). *Career and Family: Women's Century-Long Journey toward Equity.* Princeton University Press, 2021

[27] Rostow, W. W. (1990). *The stages of economic growth: A non-communist manifesto*. Cambridge university press. Rostow, W. W. (2013). The stages of economic growth. In *Sociological Worlds* (pp. 130-134). Routledge.

Gerschenkron's Economic Backwardness in Historical Perspective,[28] and Robinson's Why Nations Fail.[29]

1.2. Milestones in the Literature

Over the years, several influential works have shaped the field of historical economics. Weber's *General Economic History* and *The Protestant Ethic and the Spirit of Capitalism* (1905) laid foundational ideas linking religion, culture, and economic development. Niehans' *A History of Economic Theory: Classic Contributions, 1720-1980* (1989) provided a comprehensive overview of economic thought. Cameron's *A Concise Economic History of the World* (1990, updated 2015) offered a concise yet comprehensive global economic history. In 1997, Ekelund and Hébert contributed to the field with the first edition of *A History of Economic Theory and Method*. Clark's *A Farewell to Alms* (2007) challenged traditional narratives of pre-industrial economic history. Backhaus edited the *Handbook of the History of Economic Thought* in 2012, serving as a comprehensive reference guide. Backhouse and Tribe's *The History of Economics* (2017) provided nuanced insights into the development of economic thought. Most recently, in 2021, Bisin and Giovanni edited *The Handbook of Historical Economics*, a substantial volume offering in-depth analyses of historical economic phenomena.

Monographs and Edited Books

Max **Weber** (1864–1920) delved into economic history in his selected essays, exploring the unique historical circumstances that led to the formation of modern societies and hindered others worldwide from embarking on dynamic economic and social development. Economic history encounters three challenges: (i) the division of labor (and related to this, classes); (ii) the orientation of the economy toward profit-making or householding; and (iii) the degree to which rationality or irrationality characterizes economic life.[30] The *General Economic History* was his final work, which is a compilation of

[28] Gerschenkron, A. (2015). Economic backwardness in historical perspective (1962). *Cambridge MA*.
[29] Daron, A., & Robinson, J. A. (2012). W*hy nations fail: The origins of power, prosperity, and poverty*. New York: Crown Business.
[30] Swedberg, R., & Agevall, O. (2005 and 2016). *The Max Weber dictionary: Key words and central concepts*. Stanford University Press. 97.

lectures delivered in 1919–20.[31] His students composed, based on their notes. Part One explores early agrarian systems, covering the manorial system, guilds, and the inception of capitalism on plantations and estates. Part Two delves into the economic organization of industry and mining, while Part Three addresses commerce, the technical aspects of goods transportation, and banking systems. The concluding section examines the evolution of capitalism and the capitalistic spirit, featuring Weber's famous discourse on the relationship between religion and the cultural history of capitalism. The outline of universal social and economic history includes conceptual introductions and basic notions, such as the types of economic activities and the nature of economic history. It further covers topics like households, clans, villages, and feudal landownership in agrarian organizations. Weber's work extends to the development of capitalism, examining the situation of peasants before the spread of capitalism and the capitalist evolution of feudal landownership. The text explores industrial and mining activities, the formation of artisan guilds, the emergence and dissolution of guilds, and the development of the putting-out system before modern capitalism. Chapters are dedicated to commodity and monetary circulation in pre-capitalist eras, discussing the origins of trade, technical prerequisites for commodity transport, organizational forms of trade and commerce, various trade enterprises, the history of money, and financial transactions in pre-capitalist times. The narrative progresses to the emergence of modern capitalism, detailing its concept, prerequisites, external conditions for development, and significant events like major speculative crises and free trade. Weber's economic history studies include examining the economic theories of ancient societies, the societal foundations of the decline of ancient cultures, patriarchal and patrimonial rule, feudalism, the "estate state," and patrimonialism. He also explores capitalism and agrarian society in Germany and the developmental path leading to the "oikos."

His other significant work is The *Protestant Ethic and the Spirit of Capitalism* (1905), which posits that certain Protestant Reformation and religious beliefs, particularly in the Calvinist tradition, fostered a work ethic and values conducive to capitalist development, and countries of Northern Europe became the distinctive home of virtues linked to the spirit of capitalism.[32] The *Economy and Society* was published posthumously by his wife in 1922, which explores the relationship between social structures, economic

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[31] Weber, M. (1923). *Wirtschaftsgeschichte - General Economic History* (translation 1927). It is notable for reconstructing and filling the gaps in Weber's theories with the help of his published and unpublished works.
[32] Weber, M. (1905, 2013). *Die protestantische Ethik und der Geist des Kapitalismus - The Protestant ethic and the spirit of capitalism*. Routledge.

systems, and cultural values.[33] Weber examines how various factors such as religion, bureaucracy, and legal systems influence economic behavior and shape societies. It is considered one of the most important works in sociology and social theory.

John **Hicks** wrote *A theory of Economic History* in 1969.[34] Hicks envisages economic history as a series of transformations of the mercantile or market economy, beginning with the custom command economy or revenue economy from which it emerges until the present, the modern phase, with the market in retreat before new types of command and revenue economies.[35]

I am not an economic historian, but I have long been interested in economic history, and there are some of the most eminent among economic historians from whom I have been able to learn personally.
A primary function of economic history, as I see it, is to be a forum where economists and political scientists, lawyers, sociologists, and historians – historians of events and of ideas and technologies – can meet and talk to one another.

John Hicks

For the introduction, he lays out the theoretical foundation for studying economic history, emphasizing the evolution of markets and sectoral relationships. Subsequent chapters explore early economic systems based on customs and commands, the rise of markets, the role of city-states and colonies, the development of market institutions (like money law and credit), government involvement in development by the finances of the sovereign, agricultural mercantilization, labor market evolution, and the transformative impact of the Industrial Revolution. He focuses on trends, processes, and transformations instead of figures, dates, and data. Overall, Hicks' work provides valuable insights into the factors shaping long-term economic development.

In 1989, Jürg **Niehans** published the *A History of Economic Theory: Classic Contributions, 1720-1980*.[36] As the title refers, it deals with only the theories and schools from the modern, (pre)classical era. The development of economics is further delineated into **three distinct stages**, each characterized by a central theme or leitmotif. The classical theory primarily centered around the circular flow of income within an economy perceived as an interdependent system. At the same time, this characterization aligns well with

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34 Hicks, J. (1969). *A theory of economic history*. Oxford University Press.
35 Bauer, P. T. (1971). Economic history as theory. *Economica, 38*(150), 163-179.
36 Niehans, J. (1989). *A History of Economic Theory: Classic Contributions, 1720-1980*. Johns Hopkins University Press.

the perspectives of Cantillon, Quesnay, Smith, Ricardo, Malthus, and Marx. Transitioning to the era of marginalism, the leitmotif shifts towards comprehending individual and firm behavior through a calculus of constrained optimization (Jevons, Menger, and Walras). Lastly, the epoch of formal model-building, beginning approximately in the 1930s, witnessed a surge in the application of axiomatic methods to theory construction by economists such as Keynes and Friedman.[37] According to Niehans, Keynes was just a mishap of economic theory; his rise was probably due to the generally low standard of economic theory, and post-Marshallian England was no longer at the forefront.[38] Keynes was a genius of persuasion who knew what social philosophy people sought. The book provides biographical sketches, descriptions, interpretations, and critical assessments of each theorist's work.

Rondo **Cameron**: *A Concise Economic History of the World* (1990, updated in 2015)[39] offers a comprehensive overview of economic history from ancient times to the present. The fifth edition explores globalization's continuous impact on past civilizations and the current world economy in a more extensive and global scope. The book, featuring illustrations, maps, diagrams, and a fully updated bibliography with notes, provides a lively and accessible narrative on general economic history, the history of globalization, and the development of the world. The introduction sets the stage for the study of economic history and economic growth. The book covers economic development in ancient times, economic progress in medieval Europe, and the non-Western economies during the dawn of Western expansion. It delves into Europe's second logistic curve, economic statism, and imperialism, exploring the early days of modern industry. The 19th-century economic development is examined, focusing on pivotal factors and variations in development among early and late industrializers. The book further analyzes the growth of the world economy and strategic sectors and provides an overview of the 20th-century world economy. It discusses international economic disintegration, the reconstruction of the world economy, and the state of the global economy at the end of the 20th century.

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[37] Mongiovi, G. (1990). Economic Thought - A History of Economic Theory: Classic Contributions, 1720-1980. Jurg Niehans, 1989. *The Journal of Economic History*, *50*(3), 773-775.

[38] Streissler, E. W. (1991). Genius or Engines? On Jürg Niehans' History of Economic Technique. *Journal of Institutional and Theoretical Economics* (JITE), Vol. 147, No. 2. 379-395.

[39] Cameron, R. E. (1990). *A concise economic history of the world: from Paleolithic times to the present*. Oxford University Press, USA.

The first edition of *A History of Economic Theory and Method* was written by Robert B. **Ekelund** and Robert F. **Hébert** in 1997.[40] It provides a chronological overview of prominent economic thinkers, schools of thought, and methodological approaches from ancient and medieval times; furthermore, it emphasizes the historical and social context in which economic theories developed with reflections on the philosophical, political, and technological advancements in economic ideas. The strength of this book is that the 6th edition (2014) also deals with the 21st century. The final chapters delve into the influence of psychology and experiments on enhancing comprehension of demand and consumer behavior, particularly by challenging the rationality assumption of traditional economic theory, linear-mathematical relation, game theory, and regression analysis. They explore the convergence of modern economic theory with other social sciences like sociology, history, religion, and anthropology, emphasizing their complementary nature alongside standard economic analysis; furthermore, they highlight the contributions of Nobel laureates and the shift in disseminating ideas and potential future trajectories.

Gregory **Clark**'s book, *A Farewell to Alms*, published in 2007,[41] explores the gap between rich and poor nations that emerged due to the Industrial Revolution, starting in Great Britain, which had significant implications for behavioral patterns. Before 1790, humanity faced the Malthusian trap: new technology allowed for greater productivity and more food, but a growing population quickly consumed this surplus. With diseases consistently affecting the poorer members of society, their social positions were taken over by the descendants of the wealthy. Clark argues that less violent, more literate, and diligent behavior—middle-class values—spread culturally and biologically throughout the population. Statistically significant genetic differences could have emerged between the rich and poor, representing a genuine possibility. The process of **downward social mobility** allowed Great Britain to break free from the Malthusian trap.[42] This process continues today as a critical factor in explaining why some countries are poor while others are rich. The book is structured into three parts. Part I delves into the Malthusian

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[40] Ekelund Jr, R. B., & Hébert, R. F. (1997, 2007, 2014). *A History of Economic Theory and Method*. Waveland Press.

[41] Clark, G. (2007). *A farewell to alms: a brief economic history of the world*. Princeton University Press.

[42] Paskov, M., Präg, P., & Richards, L. (2021). Does downward social mobility make people more hostile towards immigrants?. *Research in Social Stratification and Mobility, 72*, 100543.

Alm, S. (2011). Downward social mobility across generations: the role of parental mobility and education. *Sociological Research Online, 16*(3), 1-14.

Trap, a theory that describes a situation where population growth is eventually checked by famine and disease. Clark explores the economic life of societies up to the year 1800, examining factors such as living standards, fertility, life expectancy, technological advances, and the emergence of modern societies. Part II focused on the period of the Industrial Revolution; this part investigates the wealth of nations, the puzzle of industrialization, and, specifically, the Industrial Revolution in England. Clark addresses why England experienced this transformative period and why other regions like China, India, or Japan did not undergo a similar industrial revolution. The social consequences of industrialization are also explored. Part III explores world economic growth since 1800 and examines the proximate sources of the divergence between developed and underdeveloped regions. It addresses why the entire world has not uniformly developed and concludes by contemplating the implications of this "strange new world."

Jürgen Georg **Backhaus** edited the *Handbook of the History of Economic Thought* in 2012.[43] Within a meaningful introduction, the book starts with Pareto's concept that the extrinsic value of a theory lies in guiding real-world actions like economic policy; the intrinsic value pertains to the theory's logical consistency; however, the inherent value refers to its logical consistency and, as such, has no further repercussions.[44] Furthermore, the book deals with the purposes of literature analysis and the history of economic thought. After that, the text outlines a comprehensive exploration of economic thought across various historical periods and influential figures. It begins with examining economic traditions in the Mediterranean world, spanning from ancient classical times to the Arab-Islamic era. Subsequent chapters delve into specific schools of economic thought, including mercantilism, physiocracy, and the contributions of key figures such as Smith, Ricardo, and Mill. The table also covers the works of thinkers like Marx, Marshall, and Hayek, offering insights into their respective theories and impacts on economic discourse. Additionally, it includes discussions on Gossen, Menger, Schmoller, Cournot, Wicksell, Sombart, Stackelberg, Schumpeter, Keynes (three seprate chapters), and Hayek.

The book, *The History of Economics* (2017) by Roger E. **Backhouse** and Kith **Tribe** offers a comprehensive exploration of the development of economic thought, covering key concepts, influential figures, and shifts in

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[43] Backhaus, J. G. (2012). *Handbook of the History of Economic Thought:* Insights on the Founders of Modern Economics. Springer.
[44] Pareto, V. (1918). Economia sperimentale. *Giornale degli Economisti e Rivista di Statistica,* 1-18.

economic paradigms.[45] The chapters span from foundational debates on commerce, wealth, and power to the evolution of macroeconomics and modern economic theories. It traces the contributions of prominent economists such as Smith, Malthus, Ricardo, and Keynes and examines pivotal moments like the Keynesian revolution and the rise of mathematical economics. The book also delves into the relationship between economics and policy, the dissemination of economic ideas to the public, and the ideological dimensions of economic thought within specific cultural contexts. Each chapter provides in-depth insights into various facets of economic history, making it a valuable resource for students and general readers interested in the evolution of economic ideas over time.

In 2021, a nearly thousand-page book appeared The Handbook of Historical Economics, from the editors Alberto **Bisin** and Federico **Giovanni**.[46] The book is divided into three parts, each exploring various aspects of the field. Part 1: What is Historical Economics, delves into the evolution of the field of economic history, including discussions on the two revolutions in economic history and the concept of history as evolution. Part 2: Sources and Methods, explores the sources and methodologies used in historical economics, including topics such as historical data, archaeological data, ethnographic and field data, historical econometrics, natural experiments, persistence, and dynamic general equilibrium modeling. Part 3: Topics, covers a wide range of issues, including the economic history of commodity market development, the reasons behind Africa's economic situation, the role of religion in economic history, international interventions since World War II, the ancient origins of wealth, social mobility, the Industrial Revolution, the roots of the great enrichment, labor market dynamics, debt and taxes in U.S. wars, the origins of the state, and the decline in marriage linked to contraceptive technology. The book's coverage of statistics applied to the social sciences makes it invaluable to a broad readership.

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[45] Backhouse, R., & Tribe, K. (2017). *The history of economics: A course for students and teachers*. Agenda Publishing.
Tribe, K. (2003). Historical schools of economics: German and English. *A companion to the history of economic thought*, 215-230.
[46] Bisin, A., & Federico, G. (Eds.). (2021). *The handbook of historical economics*. Academic Press.

Journals and Reviews

Beyond the monographs and other edited comprehensive books, the **Economic History Review**, established in 1927, stands as the inaugural academic journal dedicated to economic history.[47] The first publication in this journal featured the work of Sir William Ashley, the first professor of economic history in the English-speaking world, who contributed to delineating the emerging field of economic history. The **Journal of Economic History**, founded in 1941, emerged under the auspices of the Economic History Association.[48] Business History Review, European Review of Economic History, Enterprise and Society, and the Financial History Review are additional scholarly journals contributing to the discourse on economic history. To promote the bond and cooperation among professionals, scholars, and researchers, the **Economic History Association**, founded in 1940, serves as a pivotal organization in the field.[49] It comprises nearly 50 member organizations, including the Business History Conference, Economic History Association, Economic History Society, European Association of Business Historians, and the International Social History Association.

Notable Works of Economic History

Notable works of economic history. **Foundational and general works:** Milton Friedman and Anna Schwartz, A Monetary History of the United States, 1867–1960 (1963), Friedrich Hayek, The Road to Serfdom (1944), Karl Polanyi, The Great Transformation: Origins of Our Time (1944), David Ricardo, On the Principles of Political Economy and Taxation (1817), Adam Smith, An Inquiry into the Nature and Causes of the Wealth of Nations (1776); Robert C. Allen, Global Economic History: A Very Short Introduction (2011), Gregory Clark, A Farewell to Alms: A Brief Economic History of the World (2007), Ronald Findlay and Kevin O'Rourke, Power and Plenty: Trade, War, and the World Economy in the Second Millennium (2007), Robert Heilbroner, The Worldly Philosophers: The Lives, Times and Ideas of the Great Economic Thinkers (1953), Eric Roll, A History of Economic Thought (1923). **Ancient economies:** Moses Finley, The Ancient Economy (1973), Peter Temin, The Roman Market Economy (2012). **Economic growth and development:** Daron Acemoglu and James A. Robinson,

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[47] https://ehs.org.uk/journal/

[48] https://www.cambridge.org/core/journals/journal-of-economic-history
The journal is published by Cambridge University Press on behalf of its managers and owners, the Economic History Association.

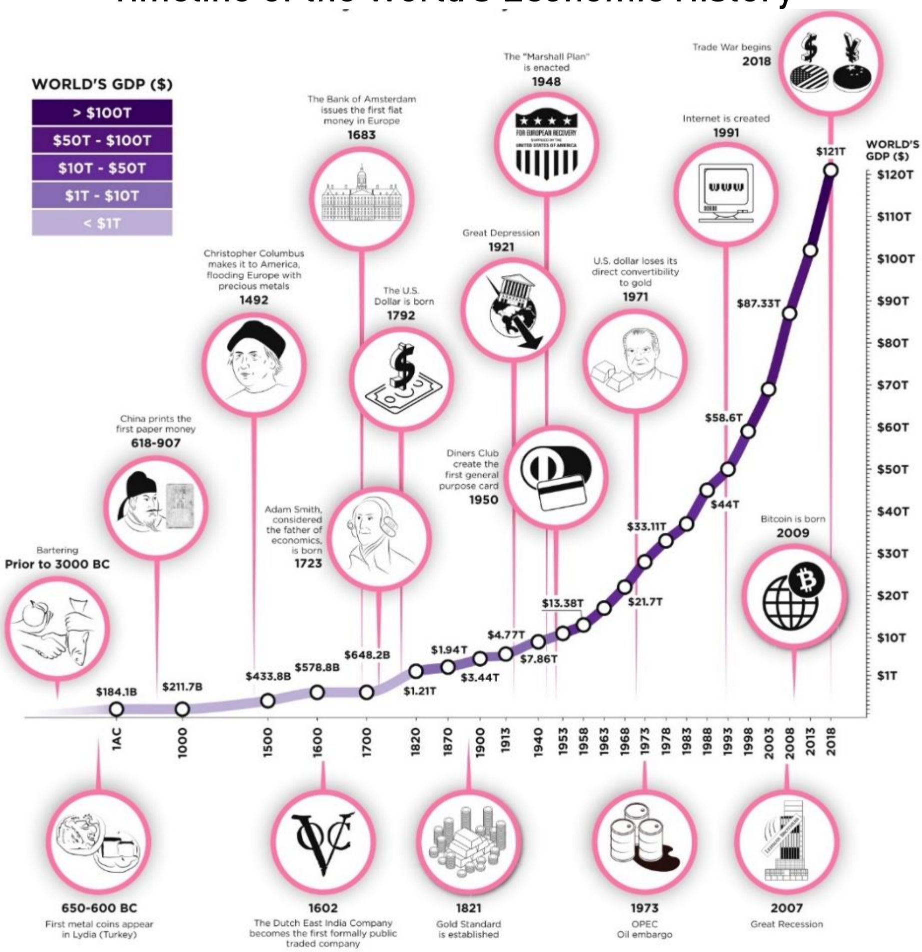
[49] https://eh.net/

Why Nations Fail: The Origins of Power, Prosperity, and Poverty (2012), David S. Landes, The Wealth and Poverty of Nations: Why Some are So Rich and Some So Poor (1998), Kenneth Pomeranz, The Great Divergence: China, Europe, and the Making of the Modern World Economy (2000), Walt Whitman Rostow, The Stages of Economic Growth: A Non-Communist Manifesto (1971), Amartya Sen, Development as Freedom (1999). Alfred D. Chandler Jr., The Visible Hand: The Managerial Revolution in American Business (1977), Ron Chernow, Titan: The Life of John D. Rockefeller, Sr. (1998), William D. Cohan, Money, and Power: How Goldman Sachs Came to Rule the World, Naomi Lamoreaux, The Great Merger Movement in American Business, 1895–1904 (1985). **History of money:** Christine Desan, Making Money: Coin, Currency, and the Coming of Capitalism (2014), William N. Goetzmann, Money Changes Everything: How Finance Made Civilization Possible (2016), David Graeber, Debt: The First 5000 Years (2011), Niall Ferguson, The Ascent of Money: A Financial History of the World (2008). **Financial history:** Thomas Piketty, Capital in the Twenty-First Century (2013), Liaquat Ahamed, Lords of Finance: The Bankers Who Broke the World (2009), Mark Blyth, Austerity: The History of a Dangerous Idea (2013), Barry Eichengreen, Globalizing Capital: A History of the International Monetary System (1996), Harold James, International Monetary Co-operation Since Bretton Woods (1996), Benn Steil, The Battle of Bretton Woods: John Maynard Keynes, Harry Dexter White, and the Making of a New World Order (2013). **Globalization and inequality:** Walter Scheidel, The Great Leveler: Violence and the History of Inequality from the Stone Age to the Twenty-First Century (2017), William J. Bernstein, A Splendid Exchange: How Trade Shaped the World from Prehistory to Today (2008), Claudia Goldin, Understanding the Gender Gap: An Economic History of American Women (1990), Harold James, The End of Globalization: Lessons from the Great Depression (2009), Thomas Piketty, The Economics of Inequality (2015), Thomas Piketty, Capital and Ideology (2020).

1.3. Summary of the Major Events

In ancient times, barter trade prevailed as the main economic activity, evolving into coin and paper money use. The 20th century introduced credit cards, and the 21st century brought forth cryptocurrencies, revolutionizing cross-border transactions. Another theme involves the growing interdependence of global economies, shaped by events such as the rise of mercantilism and the establishment of multinational companies. This interconnectedness has led to contemporary economic challenges, like the current USA-China trade conflict. As we approach the new decade, the unfolding events continue to shape the world's economic history.

Timeline of the World's Economic History



Source: Carlos J. (2019). Major Economic Events Timeline, in one Visual. (https://howmuch.net/articles/timeline-economic-history)

Barter System (3000 BC): In the ancient epochs, predating the advent of paper or coin currency, a prevalent practice was the Barter System. This archaic form of commerce directly exchanged goods or services between two parties. The participants would mutually agree upon the relative value of their offerings, resulting in a fair and equitable trade arrangement. **First Metal Coins (600 BC):** A significant milestone in the evolution of currency occurred around 600 BC when the world witnessed the minting of its inaugural coin in Lydia, Asia Minor (present-day Turkey). Crafted from a gold-silver alloy known as electrum, this pioneering coinage was embraced by the Greeks, who extended its use in commercial transactions and trade within their spheres of influence. **First Paper Money (618–907 CE):** The roots of paper money are traced back to ancient China during the Tang dynasty (618–907 CE). In this era, Chinese merchants devised an innovative system that entrusted a reliable agent with a string of heavy metal coins. This agent, in turn, would meticulously record the monetary value on a piece of paper, creating a document that could be redeemed later for the corresponding coin string.

Discovery of America (1492): A momentous chapter in economic history unfolded in 1492 when European exploration, spearheaded by Christopher Columbus, led to the discovery of the Americas. This pivotal event laid the groundwork for a surge in cross-Atlantic trade, introducing precious goods from the newly found continents to the global economy. **Dutch East India Company (1602):** The 17th century witnessed the establishment of the Dutch East India Company, marking the formal inception of public trading companies. Created with the primary objective of trading with Mughal India, this entity played a transformative role in expanding international trade beyond the confines of the Americas and Europe, evolving into a formidable global empire.

First Fiat Money (1683): A significant paradigm shift occurred in 1683 when the Bank of Amsterdam became the first central institution to issue fiat currency in Europe. This marked a profound development in the monetary system as the concept of currency detached from intrinsic value gained prominence. **The Dollar is Born (1792):** Following the United States' declaration of independence in 1776, the nascent nation introduced its own paper currency, colloquially known as the U.S. dollar or Greenback, under The Coinage Act of 1792. Over time, the U.S. dollar ascended to become the world's reserve currency, symbolizing economic might on a global scale.

The Great Depression (1929): The early 20th century bore witness to the most severe economic downturn in the industrialized world's history, spanning from the stock market crash of 1929 to the onset of World War II. This prolonged period of economic turmoil resulted in the widespread loss of savings and investments for millions, with the nadir marked by 15 million Americans unemployed in 1933. **The Marshall Plan (1948):** In the aftermath of World War II, the United States initiated the Marshall Plan in 1948. Named after then-U.S. Secretary of State George Marshall, this ambitious plan aimed to aid in the reconstruction of war-torn Europe and prevent the spread of communism, playing a pivotal role in shaping post-war economic recovery.

Diners Club Card (1950): The mid-20th century saw a transformative moment with the introduction of plastic money, exemplified by the creation of the Diners Club Card by American businessman Frank McNamara in 1950. Today, credit cards issued by major companies such as Visa and Mastercard facilitate countless paperless transactions, shaping the modern possibilities of financial transactions. The **Gold Standard Abolished (1972):** A momentous shift in the global monetary system occurred on August 15, 1971, when the United States officially abandoned the gold standard. Initially adopted in 1834, the dollar/gold relationship, initially set at $38 per ounce, was completely severed in 1976 due to the stagflationary policies of then-President Nixon.

Birth of the Internet (1993): Originating as a research project under the Advanced Research Projects Agency (ARPA), ARPAnet, the world's first multiple-site computer network created in 1969, transitioned into a public network in 1993. This marked the commencement of the Internet era, catalyzing the rise of the Internet economy. **Bitcoin is Created (2009):** The dawn of the 21st century witnessed a groundbreaking development with the creation of digital currencies, notably cryptocurrencies. In 2009, Bitcoin emerged as the premier digital currency, introducing a paradigm shift in financial transactions and laying the foundation for the new-age digital economy. Bitcoin currently holds the highest market capitalization among all existing digital assets.

Trade Wars Begin (2018): In the contemporary era of economic growth, the global economy confronts significant challenges due to the eruption of trade hostilities between major economies worldwide. This ongoing phenomenon, marked by trade wars, has the potential to reshape international trade dynamics and impact the global economy.

2. Economics and Economy 1.0 – 4.0

Economics deals with the study of how people and society choose to use scarce resources that can be used in an alternative way to produce various goods and how these goods are distributed among different members and groups of society for current and future consumption purposes.

Definition of Economics

Economics deals with the study of	
people	society

how they choose to use resources	
scarce	used in an alternative way

for the production	
goods	services

and how these are distributed in the society among different	
members	groups

consumption purposes	
current	future

Source: own compilation of the author

The **economy** involves delineating various elements such as demarcation, land, domestic animals, materials, tools, labor, and capital. It encompasses sovereignty, the right of ownership and disposal, and freedom of decision and responsibility. The objective in an economic context is to achieve a goal using a combination of limited or scarcely available resources. This involves activities such as production, division of products for personal needs, sales, and preparations for future activities like fodder and sowing in the next year.

2.1. Oiknomia and Chrematistics

Economics is a scientific discipline focused on studying and understanding the (public) economy. The term **economy** originates from the Greek words **oikonomia** (οἰκονομία) and οἶκος (oikos), which refer to a household or extended family unit encompassing members, slaves, farmland, and property.[50] This unit was overseen by the eldest male, responsible for managing agriculture and ensuring the overall functioning of the family components. The prefix "eco" in contemporary usage denotes a self-sustained unit, as seen in words like ecology and ecosystem, derived from the Greek verb νέμω (nemo), meaning management, distribution, and νόμος (nomos), meaning law or principle. The term "economy" first appeared around 1440 in the phrase "the management of œconomic affairs" in a possibly monastic composition. Over time, its meanings evolved to include household management (1530), the wealth and resources of a country (1650, short for political economy), and frugality or judicious resource use (1660). Modern usage, indicating the economic system of a country or area, became prominent in the 19th and 20th centuries.

Chrematistics, derived from the Greek word χρηματιστική (chrematistikē), involves the study of wealth, particularly a theory of wealth measured in money; from the phrase χρῆμα (chrema): money.[51] Aristotle explored the concept, describing the unnatural acquisition of money or wealth, known as crematism. In this context, crematism implies the limitless pursuit of money as artificial wealth, suggesting that wealth has no bounds. The focus is on distribution rather than production, aiming at "absolute enrichment" through the accumulation and infinite increase of money, even at the expense of usury. Aristotle criticized hoarding money, primarily through usury, as an unnatural activity that dehumanizes individuals engaging in such practices. He distinguished between acquisition through exchange and self-produced goods for personal use. The contrast lies in "natural wealth" (economics), which benefits the family and community and encompasses the production and management of use values essential for a happy life. Aristotle also acknowledged the natural use of money as a medium of exchange. He introduced the concept of "farrowing," or parturition of funds, which involves acquiring assets to make money and using money to generate more money. As

[50] Braunstein, D. (2023). About the Relationship Between Ethics and the Economy in Aristotle. In *The Logic of Social Practices II* (pp. 213-231). Cham: Springer Nature Switzerland. Hinsch, I. , Keller, W., Pfeiffer, V. , Vogl, T., & Welgen–Aloys, T. From the Oikonomia of Classical Antiquity to Our Modern Economy. Literary-theoretical Transformations of Social Models.

[51] Masi, F. (2022). Wealth, Habits and Happiness. Chrematistics in Aristotle's Ethics. *Revue de philosophie économique*, *23*(1), 119-149.
Dutton, J. (2022). Look Busy: Chrematistics, Simulated Labor, and Signing for Time. *Criticism*, *64*(2), 185-210.

Aristotle described, the monetary world order focuses on producing additional money from money, aiming for maximum profit rather than job creation.

Oikonomia vs. Chrematistics

	Oikonomia	Chrematistics
Etymology	From the Greek words "oikos" (household) and "nomos" (law or management)	From the Greek word "chrematistikē" (study of wealth measured in money)
Focus	Primarily concerned with household management, administration, and the overall well-being of a community	Primarily concerned with the study of wealth, particularly wealth measured in money
Management	Emphasizes the efficient and harmonious management of resources within a household or community	Focuses on the acquisition and use of money, often with an emphasis on profit and accumulation
Purpose	Aims to achieve the maximum fulfillment of society's unlimited demands for goods and services	Often associated with the accumulation and infinite increase of money, with a focus on individual enrichment.
View on Wealth	Views wealth as a means to support the well-being of the family and community	Views wealth as an end in itself, with a potential for limitless pursuit and artificial accumulation
Natural vs. Unnatural	Emphasizes the natural use of money as a medium of exchange and contrasts it with "unnatural" practices like usury	Criticizes practices such as hoarding money for individual gain, considering them unnatural and dehumanizing
Economic System	Connected to the broader functioning of a community and the production of essential use values	Associated with the pursuit of money, potentially leading to the dehumanizing effects of extreme wealth accumulation
Aristotle's Views	Seen in Aristotle's discussions on household management and natural wealth	Examined by Aristotle as the unnatural acquisition of wealth, focusing on the accumulation and artificial increase of money

Source: own compilation of the author

Economics is considered a social science that addresses the economic system, encompassing the production, distribution, evaluation, and consumption of goods. The goal is to achieve the maximum fulfillment of society's unlimited demands for goods and services. According to **Smith** (1776), political economy is an inquiry into the nature and causes of the wealth of nations, in particular as a branch of the science of a statesman or legislator [with the twofold objectives of providing] a plentiful *revenue* or subsistence *for the people* ... [and] to supply the state or commonwealth with a *revenue for the public services*.[52] **Marshall** (1890) defines economics as a study of man in the ordinary business of life. It enquires how he gets his income and how he uses it. Thus, it is, on the one side, the study of wealth and, on the other and more important, a part of the *study of man*.[53] **Davis** characterizes economics as the science that studies how scarce resources are allocated to meet competing and unlimited wants and how human beings satisfy their material wants and needs. **Keynes** remarks that political economy is said to have *strangled itself with definitions*.[54]

2.2. Economy 1.0 - 4.0

Alongside with Industry 1.0-4.0, the terms **Economy 1.0 - 4.0** are often used to describe the stages of economic development and transformation driven by technological advancements and shifts in business models.

Economy 1.0, often referred to as the Agrarian Economy, was primarily based on agriculture and manual labor. This economy was characterized by subsistence farming, barter trade, and a lack of mechanization. The technological level during this era was limited, with basic tools and equipment being used for farming and production. The business model was localized and self-sufficient, with little to no global trade involved. With the advent of the Industrial Revolution, **Economy 2.0**, known as the Industrial Economy, emerged. This economy shifted its focus towards manufacturing and mass production, marking a transition from agrarian to industrial activities. The technological advancements of this era included the introduction of machinery, steam power, and later, electricity. The business model evolved to centralized factories, mass production, and the rise of corporations, leading to increased urbanization and the beginning of global trade. The emerging industrial society was propelled from the grassroots by entrepreneurs whose self-centered rational mindset often aligns with the theoretical notion of

[52] Smith, A. (1776, 2002). An inquiry into the nature and causes of the wealth of nations. London. Book I, Chapter 2

[53] Marshall, A. (1890). *Principles of Economics*.

[54] Keynes. J.M. (1936). *The General Theory of Employment, Interest and Money*. Palgrave Macmillan

homo economicus. As a result, scant attention was given to social and environmental externalities such as widespread unemployment, poverty, malnutrition, child labor, pollution, and resource exploitation.

In response to these challenges, many nations instituted health insurance, social security systems, and environmental regulations. The implementation of increasingly complex regulations led to the creation of new jobs and the growth of a service sector, marking the transition to Economy 3.0. Affordable mass education played a pivotal role in shaping the society conducive to this transformation. As we moved into the late 20^{th} and early 21^{st} centuries, **Economy 3.0**, known as the Knowledge Economy, began to take shape. This economy emphasized knowledge, information, and services over manufacturing, driven by rapid advancements in information technology, telecommunications, and digital technologies. The business model shifted towards services, technology-driven industries, and knowledge-based jobs, resulting in increased globalization, digitalization, and interconnectedness.

Today, we are witnessing the rise of **Economy 4.0**, often referred to as the Digital Economy, Participatory Market Society with Industry 4.0. This society is marked by the omnipresence of information, grassroots participation, "co-creation," self-organization, and collective intelligence as emerging organizational principles. We will also witness an uptick in personalized products and services, along with a heightened commitment to fostering transparent and equitable partnerships with citizens, users, and customers. Lastly, the proliferation of "projects," facilitated by social collaboration platforms, will pave the way for more adaptable and efficient modes of production and service delivery.[55] This economy is characterized by the integration of digital technologies, automation, artificial intelligence (AI), Internet of Things (IoT), and data analytics into various industries and sectors. The technological development of this era is marked by advanced digital technologies, AI, machine learning, robotics, and smart systems. The business model is centered around digital transformation of industries, smart manufacturing, personalized services, e-commerce, and the rise of platform-based business models, emphasizing agility, innovation, and adaptability. In service-oriented societies, administrative structures characterized by top-down planning and optimization emerged as the predominant organizational model.

[55] Helbing, D. (2021). The Economy 4.0. In: *Next civilization: Digital democracy and socio-ecological finance-how to avoid dystopia and upgrade society by digital means*. Springer Nature. 197-223.

Economy 1.0 to 4.0

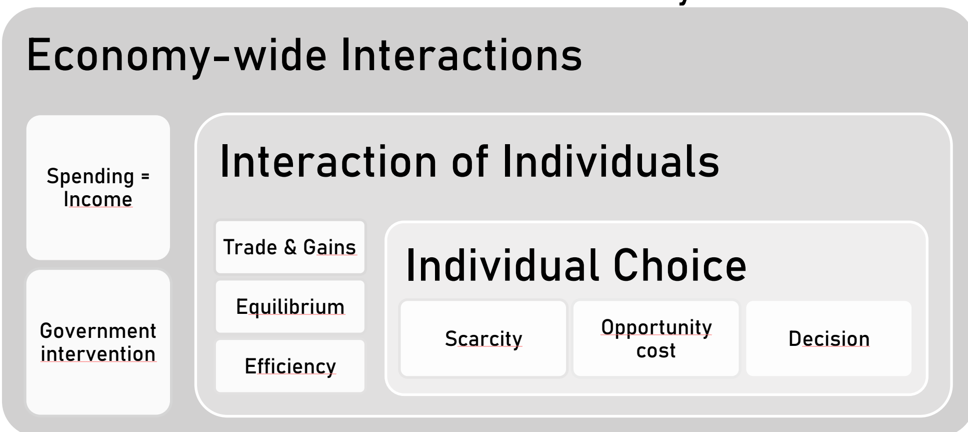
	Key Charac-teristics	Technologi-cal Level	Business Principles, Models	Social and Environ-mental Con-cerns
Economy 1.0 Agrarian Economy	• Agrarian-based economy • Subsistence farming • Barter trade	Basic agricul-tural tools and equipment	Localized and self-sufficient	Limited aware-ness of social and environ-mental issues
Economy 2.0 Industrial Revolution	• Industrialized economy • Manufacturing focus • Mass produc-tion	Steam en-gines, machin-ery, electricity	Entrepreneur-driven, "homo economicus" mindset	Unemployment, poverty, child labor, pollution, resource ex-ploitation
Economy 3.0 Knowledge Economy	• Service-ori-ented economy • Knowledge-based indus-tries • Globalization	Information technology, tel-ecommunica-tions, digital technologies	Top-down planning, opti-mization	Emphasis on social security, health insur-ance, environ-mental laws
Economy 4.0 Digital Economy, Participa-tory Mar-ket Society	• Digital economy (Participatory Market Society) • Smart manufac-turing • Personalized services	AI, IoT, ma-chine learning, robotics, data analytics	Grassroots participation, co-creation, collective in-telligence	Digital divide, data privacy, job displace-ment, ethical considerations

Source: own compilation of the author

3. Fundamentals of Economics

Economics operates on **three distinct levels**: individual choice, interaction of individuals, and economy-wide interactions. These levels collectively shape the dynamics of economic systems, influencing how resources are allocated and wealth is distributed within societies.

Three Levels of Economy



Source: own compilation of the author

At the heart of economic decision-making lies the concept of **individual choice**. As individuals, we are constantly faced with scarcity, a fundamental economic problem where our desires exceed the limited resources available to fulfill them. This scarcity necessitates decision-making, whereby individuals must weigh the costs and benefits of alternative choices. Central to this process is the notion of opportunity cost, the value of the following best alternative foregone when a decision is made. By examining how individuals manage scarcity, evaluate trade-offs, and make rational decisions based on their preferences and constraints, we gain insights into consumer behavior, production choices, resource allocation, consumption patterns, labor supply, savings behavior, and overall welfare. The economic **interaction of individuals** forms the basis of markets and exchange. Through voluntary transactions, individuals engage in trade to mutually benefit from specialization and comparative advantage. The concept of equilibrium, where supply equals demand, plays a pivotal role in market dynamics, determining prices and quantities exchanged. Moreover, the pursuit of efficiency, where resources are allocated to maximize overall welfare, guides market outcomes and resource allocation. Understanding these interactions illuminates the functioning of markets, price determination, and the role of competition in fostering efficiency. Zooming out from individual interactions, we examine **economy-wide interactions** that shape aggregate outcomes. The principle that spending equals income underscores the circular flow of economic activity, where households, firms, and governments engage in transactions that generate revenue and expenditure. Additionally, through fiscal and monetary policies, government intervention influences economic outcomes by redistributing resources, stabilizing markets, and addressing market failures. Exploring these broader interactions provides insights into macroeconomic phenomena such as economic growth, inflation, and unemployment. These three levels correspond to Mankiw's 10 principles.

3 Levels and Mankiw's 10 principles

Three levels	Contents	Mankiw's 10 principles
Individual Choice	• Scarcity • Opportunity cost • Decision	1. People face trade-offs. 2. The cost of something is what you give up to get it. 3. Rational people think at the margin. 4. People respond to incentives.
Interaction of Individuals	• Trade and Gains • Equilibrium • Efficiency	5. Trade can make everyone better off. 6. Markets are usually a good way to organize economic activity. 7. Governments can sometimes improve market outcomes.
Economy-wide Interactions	• Spending = Income • Government intervention	8. A country's standard of living depends on its ability to produce goods and services. 9. Prices rise when the government prints too much money. 10. Society faces a short-run trade-off between inflation and unemployment.

Source: own compilation of the author based on Mankiw, N. G. (2023). *Essentials of Economics*. Cengage learning. 1-13.

3.1. Individual choice

On the first level, there is **individual choice**; because of scarcity, people constantly face trade-offs, requiring them to choose between alternatives. In a decision situation, several characteristics significantly influence the decision-making process.

Scarcity

Why did the scarcity-conscious chef make tiny sandwiches?
Because he believed in maximizing scarcity by minimizing portions!

First and foremost is the concept of **scarcity**, wherein a variety of resources and goods, encompassing time, space, territory, labor, raw materials, energy, and money, are inherently limited compared to the boundless needs of individuals. [56] Consequently, decision-makers are compelled to make choices among often mutually exclusive alternatives, guided by a preference order. Scarcity does not mean or equal to shortage.[57]

Opportunity Cost

The cost of acquiring something is measured by what someone has to give up to obtain it (opportunity cost). The **opportunity cost** of an item is defined as what must be sacrificed to obtain it, representing the genuine cost of that item.[58] The opportunity cost of an item is what someone must give up to get it, representing the true cost of something. It refers to the most preferred alternative given up in a situation where a choice needs to be made between several mutually exclusive alternatives due to limited resources. These costs don't manifest as invoices or apparent money payments; they stem from the opportunities sacrificed – the options not chosen. For instance, the costs of production factors are derived by subtracting them from another option, promising better results. Thus, decisions necessitate comparing the costs and benefits of alternatives. The concept of opportunity cost is crucial

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[56] Barnett, H. J., & Morse, C. (2013). *Scarcity and growth: The economics of natural resource availability*. Routledge.
De Bruijn, E. J., & Antonides, G. (2022). Poverty and economic decision making: a review of scarcity theory. *Theory and Decision*, *92*(1), 5-37.
[57] Kornai, J. (1980). *Economics of Shortage (A hiány) Közgazdasági és Jogi Könyvkiadó*
[58] Persson, E., & Tinghög, G. (2020). Opportunity cost neglect in public policy. *Journal of Economic Behavior & Organization*, *170*, 301-312.
Buchanan, J. M. (1991). Opportunity cost. In *The world of economics* (pp. 520-525). London: Palgrave Macmillan UK.

to understanding individual choice because, in the end, all costs are opportunity costs. That's because every choice you make means forgoing some other alternative.

Marginal Utility

Utility plays a crucial role in decision-making, representing the need-satisfying ability of resources, goods, or alternatives individuals perceive as lacking.[59] Utility extends beyond material benefits, often encapsulating subjective psychological values. Quantifying utility poses challenges due to its inherent subjectivity, and the ultimate goal within decision-making is the pursuit of personal well-being by maximizing the usefulness of chosen alternatives. This pursuit is governed by the laws of Hermann Heinrich **Gossen** (1810-1858), wherein the first law asserts that the marginal utility of the same alternative decreases during subsequent decisions, adhering to the **law of diminishing marginal utility** (DMU).[60] The second law, known as the **law of equalization,** compensation, or balancing marginal utilities, emphasizes the optimal sequence of decisions and the combination of alternatives, aiming to maximize profit by ensuring that the marginal benefit derived from the last decision is equal to any alternative.[61]

Die Größe eines und desselben Genusses nimmt, wenn wir mit Bereitung des Genusses ununterbrochen fortfahren, fortwährend ab, bis zuletzt Sättigung eintritt.
The magnitude [intensity] of pleasure decreases continuously if we continue to satisfy one and the same enjoyment without interruption until satiety is ultimately reached.

Der Mensch erlangt also ein Größtes von Lebensgenuß, wenn er sein ganzes erarbeitetes Geld, E, der Art auf die verschiedene Genüsse vertheilt (...), daß bei jedem einzelnen Genuß das letzte darauf verwendete Geldatom den Gleich großen Genuß gewährt.
Man obtains maximum life pleasure if he allocates all his earned money E between the various pleasures (…) so that the last atom of money spent for each pleasure offers the same amount [intensity] of pleasure.

Hermann Heinrich Gossen

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[59] Broome, J. (1991). Utility. *Economics & Philosophy*, *7*(1), 1-12.
Kimball, M. S., & Willis, R. J. (2023). *Utility and happiness* (No. w31707). National Bureau of Economic Research.
[60] Todorova, T. (2021). Diminishing marginal utility and the teaching of economics: A note. *Journal of Research in Educational Sciences (JRES)*, *12*(14), 25-31.
[61] Gossen, H. H. (1854). German economist: *Die Entwicklung der Gesetze des menschlichen Verkehrs, und der daraus fließenden Regeln für menschliches Handeln.* Translated into English as *The Laws of Human Relations and the Rules of Human Action Derived Therefrom* (1983) MIT Press. 6. and 108-109

Another salient characteristic is the presence of **risk** in decision situations, manifesting as random events, incomplete knowledge or information, and the need to choose between decision alternatives. Risk introduces the possibility of deviations from planned or expected outcomes, entailing an element of uncertainty and probability. Decision-makers, knowingly or unknowingly, are responsible for undertaking unforeseen dangers or potential losses in pursuing their chosen course of action.

Decision Making

A decision can be defined as a purposeful choice made among various options or alternatives, guided by predetermined criteria and often employing a strategic approach. Rational individuals make **decisions** by evaluating each option's marginal benefits and costs.[62] People's behavior is influenced by the incentives they receive. Decision-making is a fundamental aspect of individual choices in the economic context. This process involves establishing a sequence, order, ranking, or preference among the available alternatives. Notably, a decision entails a commitment to action, which signifies an irreversible allocation of resources and existential action. At its core, a decision represents a combination of factual elements and values. It encompasses not only objective considerations such as available information and potential outcomes but also subjective factors such as personal beliefs, preferences, and ethical considerations. Thus, decision-making involves the interplay between empirical evidence and normative judgments to arrive at a course of action that aligns with factual realities and value systems.

Contrary to the "homo œconomicus" model, Simon's **bounded rationality** refers to the concept that decision-making is inherently constrained by various limitations, leading individuals or collectives to make satisfactory or suboptimal decisions rather than strictly optimal ones.[63] This framework acknowledges that human knowledge is bounded, meaning that individuals possess only limited information and cognitive capabilities to thoroughly comprehend and evaluate all potential solutions to a problem. Given these

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[62] Cox Jr, L. A. (2023). Rational Decision and Risk Analysis and Irrational Human Behavior. *AI-ML for Decision and Risk Analysis: Challenges and Opportunities for Normative Decision Theory*, 3-35.
Khare, T., & Kapoor, S. (2024). Behavioral biases and the rational decision-making process of financial professionals: significant factors that determine the future of the financial market. *Journal of Advances in Management Research*, *21*(1), 44-65.
[63] C. Barnard and H. A. Simon. (1947). *Administrative Behavior: A Study of Decision-making Processes in Administrative Organization*. Macmillan, New York.

constraints, considering every conceivable alternative or exhaustively analyzing each option becomes impractical or impossible. Instead, decision-makers rely on heuristics, rules of thumb, and simplified decision criteria to complex choice environments. Additionally, they may seek input and suggestions from colleagues or utilize available resources within a finite time frame. It's essential to recognize that decisions are not solely driven by rationality; emotional, social, and situational factors also influence the decision-making process. Therefore, within the given constraints and time frame, individuals or groups strive to identify a satisfactory or suboptimal decision from the available alternatives. This decision may not necessarily align with the most rational choice but represents the best available option under the circumstances. In essence, bounded rationality emphasizes decision-making's pragmatic and adaptive nature, wherein cognitive limitations, environmental constraints, and subjective preferences shape decisions.

Decisions and Rationality

	Rationality	Bounded rationality	Irrationality
Meaning	**Reasonable decision**	**Satisfactory, (sub)optimal decision**	**Unreasonable decision**
Decision maker	Individual or collective	(Individual or) collective	Individual or collective
Characterization	• Obtains all available information • Seeks to minimize disadvantages • Work out all the possible variations • The rational image of man is *homo œconomicus*	• Human knowledge is limited (bounded) • It is not possible to develop all possible solutions • Help and decision suggestions from colleagues; available time is not infinite • Either decisions are not only motivated by rationality	Certain decisions are not made because • They measured the consequences too well • Too many variations developed • They do not dare to make a decision • Resistance to innovations • Incompetence
Result	• Sure decision: ideal • Risky: it only makes the consequences more likely • Uncertain decision: even its probability is not known	Within the given time frame, the **(sub)optimal decision** is chosen among the given variations. The good decision may **not be the (most) rational one.** (H. A. Simon)	They choose the **simplest decision** so that possible errors can be corrected the easiest.

Source: own compilation of the author

Decision theory is a scientific discipline investigating the regular patterns of decisions and decision-making processes across various knowledge domains. It operates within an interdisciplinary framework, drawing upon insights from mathematics, statistics, economics, psychology, and management. The genesis of decision theory can be attributed to the escalating complexity characterizing economic activities, particularly evident in the examination of decision-making among market participants within the realm of economics. Daniel Bernoulli's seminal work in 1738,[64] notably the St. Petersburg paradox, underscored the subjective valuation of money, elucidating how the utility derived from money diminishes as the total amount increases.[65] Within decision theory, **choice theory** constitutes a narrower focus, delving into the framework for comprehending and often formally modeling social and economic behaviors associated with decision-making.[66] Unlike broader decision theory, choice theory confines its examination to situations where alternatives are predetermined, emphasizing the act of selecting among these options. Central to choice theory is the premise that rational choice hinges upon the aggregation of individual behaviors, with the collective social behavior emerging as a consequence of the unique decisions made by individual actors.

In **economic decision-making**, the concept of "how much" embodies decisions made at the margin, where individuals must assess trade-offs between the costs and benefits of increasing or decreasing an activity incrementally.[67] This paradigm emphasizes that many economic decisions are concerned not with whether to engage in an activity but rather with determining the optimal quantity. The essence of such decisions lies in performing a trade-off at the margin, where marginal analysis becomes pivotal. The **trade-**

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[64] Bernoulli, D. (1738) Specimen theoriae novae de mensura sortis (Exposition of a New Theory on the Measurement of Risk), (1737). Pieces qui ont remporté le Prix double de l'Academie royale des sciences. (1738). Hydrodynamica

[65] Nobandegani, A. S., & Shultz, T. R. (2020, April). The St. Petersburg paradox: A fresh algorithmic perspective. In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 34, No. 09, pp. 13689-13692).
Nobandegani, A. S., & Shultz, T. R. (2020). A Resource-Rational, Process-Level Account of the St. Petersburg Paradox. *Topics in Cognitive Science*, *12*(1), 417-432.

[66] Green, S. L. (2002, May). Rational choice theory: An overview. In *Baylor University Faculty development seminar on rational choice theory* (pp. 1-72).

[67] Budiwati, N., Hilmiatussadiah, K. G., Nuriansyah, F., & Nurhayati, D. (2020). Economic Literacy and Economic Decisions. *Jurnal Pendidikan Ilmu Sosial*, *29*(1), 85-96.
De Bruijn, E. J., & Antonides, G. (2022). Poverty and economic decision making: a review of scarcity theory. *Theory and Decision*, *92*(1), 5-37.

offs, defined as exchanging one thing for another, are inherently tied to **marginal analysis**, which involves evaluating incremental changes in decisions. Thinking at the margin entails contemplating the consequences of the following or additional action for the decision-maker.

Marginal analysis, as the study of these marginal decisions, underscores the importance of **marginal changes**, which denote minor, incremental adjustments to a decision. Central to marginal analysis is the concept of marginal utility or benefit, which pertains to the additional satisfaction derived from consuming one more unit of a good or service. Correspondingly, marginal cost represents the cost of producing one other unit, calculated as the difference between the selling price and the cost of production. This is expressed as the equation: marginal cost (MC) = selling price – cost of production. Moreover, the law of diminishing marginal utility underscores the diminishing returns associated with successive consumption units, thereby influencing economic decision-making at the margin.

Theory of Value

The **theory of value** raises fundamental questions about the pricing of goods and services, seeking to understand the mechanisms underlying their valuation.[68] Key inquiries include why goods and services are priced in a particular manner and how their value is determined. The concept of value comprises two essential dimensions: "in use" and "in exchange." The former refers to the utility or usefulness of a commodity. At the same time, the latter involves the relative proportions at which a commodity exchanges for another, exemplified by the price of money. Value is recognized as a combination of objective and subjective elements. **Objective theories** encompass intrinsic factors such as scarcity and the cost of production, whereas the labor theory posits that the value of a good is contingent on the socially necessary labor invested in its production, a notion endorsed by thinkers like Ricardo and Marx within the context of socialism. **Subjective theories**, embraced by neo-classical economists like Menger and Böhm-Bawerk,[69] focus on subjective elements like marginal utility, benefit, cost, and incentives. Additionally,

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[68] Galvagno, M., & Dalli, D. (2014). Theory of value co-creation: a systematic literature review. *Managing service quality*, *24*(6), 643-683.
Perry, R. B. (1954). *General theory of value: Its meaning and basic principles construed in terms of interest*. Harvard University Press.
[69] Smart, W. (1891). *An introduction to the theory of value on the lines of Menger, Wieser, and Böhm-Bawerk*. Macmillan.
Lagueux, M. (1997). *Menger and Jevons on value: a crucial difference*. Université de Montréal, Faculté des arts et des sciences.

the power theory posits that the prices of goods are influenced by the power firms hold in the market due to private ownership. The real value is calculated by adjusting the nominal value through indices such as the Consumer Price Index (CPI) to account for inflation.

Incentives

Marginal changes in costs or benefits play a crucial role in motivating individuals to respond within decision-making contexts. Moreover, decision-making processes are significantly influenced by individuals' responses to **incentives** and their propensity to capitalize on opportunities that enhance their well-being.[70] Incentives, defined as factors that stimulate or discourage particular actions, serve as crucial motivators driving individual behavior within various decision contexts.

Types of Incentives

Economic	Marginal changes: remunerative or not? (the agent can expect some form of material reward, money)
Legal	Permitted, obligatory, or forbidden to do something or not Advantaged or disadvantaged, preferred or unpreferred + legal consequences
Moral	The right thing to do or as particularly admirable, or Where the failure to act in a certain way is condemned as indecent
Coercive	Physical or social force – a person can expect that the failure to act in a particular way will result in physical force being used against them (or their loved ones)
Natural	Emotions such as admiration, fear, anger, pain, joy, or the pursuit of truth

Source: own compilation of the author

Given individuals' tendency to seek opportunities to improve their welfare, incentives have the potential to alter people's behavior significantly. Acknowledging this dynamic underscores the importance of understanding how changes in incentives can shape and influence decision-making outcomes, highlighting the intricate interplay between incentives, behavior, and decision processes.

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[70] Kamenica, E. (2012). Behavioral economics and psychology of incentives. *Annu. Rev. Econ.*, *4*(1), 427-452.
Stiglitz, J. (1998). Distinguished lecture on economics in government: the private uses of public interests: incentives and institutions. *Journal of Economic Perspectives*, *12*(2), 3-22.
Fehr, E., & Falk, A. (2002). Psychological foundations of incentives. *European economic review*, *46*(4-5), 687-724.

3.2. Interaction of Individuals

The **economic interaction** among individuals is driven by the prospect of gains from trade, which is a fundamental characteristic of economic activity. In most economic situations, the choices made by one individual have repercussions on the choices of others and vice versa.

Trade

Within a market economy, this interaction is predominantly facilitated through **trade**, wherein individuals exchange goods and services with one another. The fundamental premise is that trade has the potential to enhance the well-being of everyone involved. As Smith wrote: *It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest*.[71]

People who intend only to seek their benefit are led by an invisible hand to serve the public interest, which was not part of their intention.

Adam Smith

People who intend only to serve the public interest are led by an invisible hand to serve the private interest, which was not part of their intention.

Milton Friedman

The concept of **gains, utility, or benefits from trade** encompasses various benefits or utilities for individuals participating in trade. Firstly, it allows individuals to access a more comprehensive array of goods and services than they could produce independently. Additionally, trade facilitates specialization, wherein individuals focus on tasks they excel at, enhancing overall productivity. The competition further amplifies the advantages emanating from trading activities. At the heart of this **specialization** lies the principle of **comparative advantage**, whereby individuals or entities produce goods or services with lower opportunity costs than others.[72] By exploiting their comparative advantages, individuals can produce more efficiently, contributing to the economy's overall output. Thus, trade enables individuals to satisfy their preferences more effectively and fosters economic growth and

[71] Smith, A. (1776, 2002). *An inquiry into the nature and causes of the wealth of nations*. London. Book I, Chapter 2

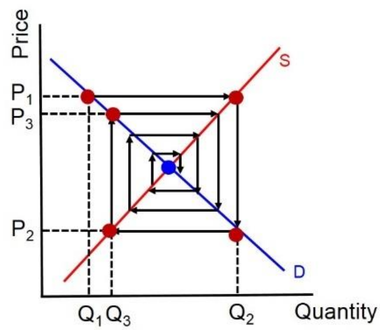
[72] Schetter, U. (2020). Quality differentiation, comparative advantage, and international specialization across products. *CID Research Fellow and Graduate Student Working Paper*, (126).

Siminski, P., & Yetsenga, R. (2022). Specialization, comparative advantage, and the sexual division of labor. *Journal of Labor Economics*, *40*(4), 851-887.

prosperity by leveraging the benefits of specialization and comparative advantage. Finally, by seeking specialization and comparative advantage, individuals who solely pursue their own self-interest contribute to the public good, a consequence that was not within their original intention.

Markets

Markets are often an effective mechanism for coordinating economic activities and allocating resources. In response to incentives, markets naturally approach a state of **equilibrium**, defined as an economic situation wherein no individual can enhance their well-being by choosing an alternative course of action. Whenever a change occurs, the economy transitions to a new equilibrium. The adjustment process typically involves shifts in prices, either increasing or decreasing, until no opportunities persist for individuals to improve their circumstances. The propensity of markets to gravitate towards equilibrium is a fundamental aspect that instills predictability in their functioning. This phenomenon is attributed to the invisible hand concept, akin to a **spider web theory** or **cobweb model**, illustrating the self-regulating nature of markets.



The general principle asserts that **markets**, as setting the equilibrium, serve a remarkably good way of organizing an economy.[73] For his 1891 Ph.D. thesis at Yale University, Irving **Fisher** designed a hydraulic apparatus to represent flows in the economy (hydraulic model of economic equilibrium).[74] It consisted of interlinked levers and floating cisterns of water to show (i) how the prices of goods depend on the amount of each good supplied and on the incomes of consumers and (ii) how much they value each good.

[73] Carlton, D. W. (1979). Contracts, price rigidity, and market equilibrium. *Journal of Political Economy*, *87*(5, Part 1), 1034-1062.
Peck, J., Shell, K., & Spear, S. E. (1992). The market game: existence and structure of equilibrium. *Journal of Mathematical Economics*, *21*(3), 271-299.
[74] Fischer, I. (1891, 1892). *Mathematical Investigations in the Theory of Value and Prices*. (Ph.D. Thesis Yale University)
Dimand, R. W., & Ben-El-Mechaiekh, H. (2012). General equilibrium reaches North America: The hydraulic simulation model in Irving Fisher's mathematical investigations in the theory of value and prices (1891). *Journal of Economic and Social Measurement*, *37*(1-2), 97-118.
Brainard, W. C., & Scarf, H. E. (2005). How to compute equilibrium prices in 1891. *American Journal of Economics and Sociology*, *64*(1), 57-83.

The apparatus stops moving when the water levels in the cisterns are the same as in the surrounding tank. When it comes to rest, the position of a partition in each cistern corresponds to the price of each good.

Invisible Hand

Typically, individuals harness gains from trade, contributing to the efficiency of markets, although there are well-defined exceptions to this trend. According to Smith, the invisible hand usually facilitates the efficient allocation of resources, reducing the need for government enforcement in most cases. The term **invisible hand** serves as a metaphor representing the imperceptible forces that guide the operations of a free-market economy.[75] In this system, self-interested individuals participate in a network of mutual interdependence, fostering cooperation among producers. Despite individual concerns centered on personal well-being, interdependence encourages producers to align their actions with social necessity. Within a free-market exchange, valuable signals are generated regarding the significance of goods and services and the challenges associated with bringing them to market. However, critics contend that the invisible hand does not consistently yield socially beneficial outcomes. It is argued that this concept may inadvertently foster negative consequences, including greed, negative externalities, inequalities, and other potential damages.[76]

Market Efficiency

The **efficiency** in an economic context refers to the relationship between the output achieved and the input utilized relative to achieving a specified goal with minimal resources or maximizing outcomes given the available resources while maintaining appropriate quality levels. It reflects the performance per unit of resource utilized. **Pareto-efficiency**, named after Vilfredo Pareto, is achieved when no redistribution of resources within an

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[75] Smith, A. (1776, 2002). *An inquiry into the nature and causes of the wealth of nations*. London. Book IV. Chapter 2.
Long, B. (2022). *Adam Smith and the invisible hand of God*. Routledge.
Van der Kooi, C., & Ballor, J. J. (2020). Providence, Divine Power, and the 'Invisible Hand'in Adam Smith. *Journal of Economics, Theology and Religion*, *1*(1), 25-44.
Malakhov, S. (2022). Divine Proportion of Invisible Hand: a new look at Adam Smith's natural theology'. *Journal of Institutional Studies*, *14*(1), 36-54.
Mittermaier, K. (2020). *The hand behind the invisible hand: dogmatic and pragmatic views on free markets and the state of economic theory* (p. 278). Bristol University Press.
[76] Hahn, F. (1981). *Reflections on the invisible hand* (No. 2068-2018-1159).
Barry, N. P. (1985). In defense of the invisible hand. *Cato J.*, *5*, 133.

economy can occur without making at least one individual worse off.[77] In other words, any action that benefits one member of society without harming others leads to an overall increase in welfare. Within this framework, individuals can only improve their situation by taking something from someone else. In practical terms, implementing social actions, such as altering economic policies, often makes at least one individual worse off, rendering the strict Pareto-efficiency criterion challenging. Consequently, alternative criteria of economic efficiency have gained broader acceptance within the field of economics. These include: (i) The **Buchanan unanimity criterion** stipulates that a change is considered efficient if all members of society unanimously consent to it.[78] (ii) The **Kaldor-Hicks efficiency** posits that a change is deemed efficient if the gains accrued by the change's winners outweigh the losses the losers suffered.[79] It produces more benefits than costs. (iii) From law and economics, the **Coase theorem** asserts that individuals can negotiate and bargain over the gains and losses to reach an economically efficient outcome under competitive markets with no transaction cost.[80] This theorem highlights the role of market mechanisms and the absence of transaction costs in facilitating efficient resource allocation through voluntary agreements; therefore, individual choices can also solve market externalities.

A **Pareto improvement** occurs when the redistribution of goods in society results in the betterment of at least one individual without diminishing the well-being of others.[81] An allocation is considered Pareto-efficient if no

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[77] Pareto, V (1906). Manual of Political Economy. Oxford University Press.

* The Pareto principle is only tangentially related to the Pareto efficiency. He noted that approximately 80% of Italy's land was owned by 20% of the population. The principle (also known as the 80/20 rule, the law of the vital few and the principle of factor sparsity) states that for many outcomes, roughly 80% of consequences come from 20% of causes (the vital few). Pareto, Vilfredo; Page, Alfred N. (1971), *Translation of Manuale di economia politica* (Manual of political economy), A.M. Kelley

[78] Buchanan, J. M. (1962). The relevance of Pareto optimality. *Journal of conflict resolution*, *6*(4), 341-354.

Buchanan, J.M., Tullock, G. (1962). *The Calculus of Consent*. Univ. of Michigan Press, Ann Arbor

[79] Kaldor, Nicholas (1939). Welfare Propositions in Economics and Interpersonal Comparisons of Utility. *The Economic Journal*. 49 (195): 549–552.

Hicks, John (1939). The Foundations of Welfare Economics. *The Economic Journal*. 49 (196): 696–712.

[80] Coase, R. H. (1960). The problem of social cost. *The journal of Law and Economics*, *3*, 1-44.; Coase, R. H. (1959). The federal communications commission. *The Journal of Law and Economics*, *2*, 1-40.

[81] Aguiar, M. A., Amador, M., & Arellano, C. (2021). *Micro risks and pareto improving policies with low interest rates* (No. w28996). National Bureau of Economic Research.

further Pareto improvements are possible. The concept of **potential Pareto improvement**, introduced by Nicholas Kaldor and John Hicks, acknowledges changes that may have losers, but the gains of the winners outweigh the losses of them.[82] While overall social welfare increases in these situations, actual compensation for the losers may not occur. In practical terms, it may not be feasible or politically viable to make Pareto-efficient decisions solely, especially if compensation for losers is absent, as this could lead to potential vetoing of decisions by those adversely affected. Therefore, considerations beyond strict Pareto-efficiency are often necessary in policymaking to address the concerns of all stakeholders.

In a **market economy**, people commonly seize opportunities for mutual gain, emphasizing gains from trade. The overarching principle is that markets serve as a remarkably effective organizational mechanism for an economy. The incentives inherent in a market economy generally result in the efficient utilization of resources, creating opportunities to enhance the well-being of individuals. The **governments** can play a role in improving market outcomes, intervening when necessary.

Hebous, S., & Keen, M. (2023). Pareto-improving minimum corporate taxation. *Journal of Public Economics*, *225*, 104952.

[82] Jongeneel, R., & Koning, N. (1999). The concept of potential Pareto improvement revisited.; Nwaneri, V. C. (1970). Equity in cost-benefit analysis: A case study of the third London airport. *Journal of Transport Economics and Policy*, 235-254.

3.3. Economy as a whole

Within the **whole economy**, a country's living standard is determined by its capacity to produce goods and services efficiently. An increase in the money supply by the government can lead to a rise in prices. There exists a short-run trade-off in society between inflation and unemployment.

Spending = Income

In a market economy, the principle holds that **one person's spending constitutes another person's income**. People within the market economy earn revenue by selling various items, including their labor, thereby establishing a direct link between spending and income.[83] Consequently, changes in spending behavior have cascading effects that permeate the entire economy.[84] This interconnected relationship sets off a chain reaction, wherein alterations in spending behavior lead to repercussions that reverberate throughout the economy. If a particular group within the economy chooses to increase its spending, the income of other groups tends to rise in response. Conversely, if a group opts to reduce its spending, the income of different groups will likely decline.

Aggregates

Macroeconomics encompasses the study of aggregate demand and supply, which are crucial concepts in understanding the behavior of an economy as a whole.[85] **Aggregate Demand** (AD) represents the total demand for goods and services within an economy at a given price level and within a specific period.[86] It is influenced by factors such as consumption, investment, government spending, and net exports (exports minus imports). The aggregate demand curve slopes downward, indicating an inverse relationship between the price level and the quantity of goods and services demanded. **Aggregate Supply** (AS) represents the total quantity of goods and services that

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[83] Brooks, J. R. (2017). The definitions of income. *Tax L. Rev.*, *71*, 253.
Thuronyi, V. (1990). The concept of income. *Tax L. Rev.*, *46*, 45.
Lydall, H. (1955). The life cycle in income, saving, and asset ownership. *Econometrica: Journal of the Econometric Society*, 131-150.
[84] Britt, S., Grable, J. E., Goff, B. S. N., & White, M. (2008). The influence of perceived spending behaviors on relationship satisfaction. *Journal of Financial Counseling and Planning*, *19*(1), 31.
[85] Dutt, A. K. (2006). Aggregate demand, aggregate supply and economic growth. *International review of applied economics*, *20*(3), 319-336.
[86] Thomas, A. M. (2023). Classical Economics and the Question of Aggregate Demand. *Review of Political Economy*, 1-15.

firms in an economy are willing and able to produce at different price levels. The aggregate supply curve typically slopes upward in the short run, indicating a positive relationship between the price level and the quantity of output supplied. This is because higher prices provide an incentive for firms to increase production. However, in the long run, the aggregate supply curve becomes vertical, indicating that the economy has reached its full potential output level, and changes in the price level only result in changes in the price level, not in the quantity of output supplied.

At times, the **overall spending** within an economy can deviate from its productive capacity. This discrepancy arises when the amount of goods and services consumers and businesses desire to buy does not align with the economy's ability to produce those goods and services. The field of **macroeconomics** emerged, in theory with Keynes (1936),[87] as a distinct branch of economics during the 1930s, driven by the economic challenges faced during that period. In the 1930s, overall spending significantly fell short of what was required to maintain employment levels among American workers, resulting in a severe economic downturn. Such insufficient expenditures leading to economic contractions are characterized as recessions, as exemplified by the Great Depression of 1929-39. In cases where there is an excess of goods and services relative to money, deflation occurs, resulting in a decline in prices. Conversely, it is also possible for overall spending to be excessively high, leading to inflation. Inflation arises when more money is circulating in the economy than the available goods and services, causing a general price rise. Historical instances of hyperinflation occurred after World War I and II.

Phillips Curve

Society faces a short-run tradeoff between **inflation and unemployment**, as the Phillips Curve depicts.[88] This curve illustrates the inverse relationship between inflation and unemployment, highlighting the challenges of simultaneously achieving both low and low unemployment. Phillips found that when unemployment was low, wages tended to rise faster, leading to higher inflation, and when unemployment was high, wage growth slowed, leading to lower inflation. However, it's essential to note that the Phillips Curve represents a short-term relationship and is subject to change over time due to various factors such as expectations, supply shocks, and economic

[87] Keynes. J.M. (1936). *The General Theory of Employment, Interest and Money*. Palgrave Macmillan.

[88] Phillips, A. W. (1958). The relation between unemployment and the rate of change of money wage rates in the United Kingdom, 1861-1957. *Economica*, *25*(100), 283-299.

structural changes. In the long run, policymakers face the challenge of simultaneously achieving both low inflation and low unemployment, often referred to as the **non-accelerating inflation rate of unemployment** (NAIRU) or the natural rate of unemployment. In recent decades, many economists have argued that the Phillips Curve relationship has become less reliable due to various factors such as globalization, changes in labor markets, and changes in the conduct of monetary policy. Nonetheless, it remains a fundamental concept in macroeconomics and policy analysis.

Phillips Curve

Source: The Data Team. (2017). The Phillips curve may be broken for good. *The Economist*. (https://www.economist.com/graphic-detail/2017/11/01/the-phillips-curve-may-be-broken-for-good)

Government intervention can enhance society's welfare when **markets fail** to achieve efficiency. In cases where markets deviate from optimal outcomes, well-designed government policies can intervene to reallocate resources and bring about a more efficient use of societal resources. There are four primary ways in which market efficiency may fail:

The **individual actions** that generate adverse or negative side effects not reflected in market prices. This leads to inefficiency as the total costs of production or consumption are not borne by the parties involved, resulting in overconsumption or overproduction of goods with harmful external effects.

The **market power** reflects when a single entity, such as a monopoly or oligopoly, has significant control over market prices, it can distort resource allocation by setting prices higher than the competitive level. This allows the entity to capture a greater share of resources for itself, leading to inefficiency and potentially reducing overall welfare. The **externalities** mean the impact of one party's actions on the well-being of others who are not directly involved in the transaction.[89] Positive externalities, such as education or research and development, may result in underproduction since the producer does not capture the full social benefits. Negative externalities, such as pollution or congestion, lead to overproduction or consumption as the producer or consumer does not internalize social costs. Some **goods**, like public goods (non-excludable and non-rivalrous), common resources (rivalrous but non-excludable), and natural monopolies, are unsuited for market management due to inherent characteristics. This can lead to inefficiencies in allocation, pricing, and distribution, requiring government intervention or alternative mechanisms for provision and regulation.[90]

Four Primary Ways of Market Inefficiency

Individual actions	Have side effects that are not adequately taken into account by the market.	*An action that causes pollution*
Market power	Which is the ability of a single person or firm to unduly influence market prices to capture a more significant share of resources for itself.	*A drug company that prices a drug too high, making it unaffordable for some people who would benefit from it*
Externality	Which is the impact of one person or firm's actions on the well-being of a bystander	*A scarce natural resource*
Some goods	By their very nature, they are unsuited for efficient management by markets.	*Air traffic control*

Source: own compilation of the author

Economic Role of the State

[89] Paniagua, P., & Rayamajhee, V. (2023). On the nature and structure of externalities. *Public choice*, 1-22.
Klenow, P. J., & Rodriguez-Clare, A. (2005). Externalities and growth. *Handbook of economic growth*, *1*, 817-861.
[90] Vértesy, L. (2024). *Efficiency Through Regulation* - The Intersection of Law and Efficiency in State Intervention; a Hungarian Context. Gazdaságelemző Intézet, Institute for Economic Analysis.

Government intervention influences overall spending when it deviates from the economy's productive capacity. Governments employ various **macroeconomic policy tools** to manage the general level of spending and manage the recession and inflation. These include **government spending**, where the government can increase or decrease expenditures on various public goods and services, from military equipment to education. Another tool is **taxes**, allowing the government to adjust the amount it collects from the public, impacting the disposable income of consumers and businesses. Additionally, the government and the central bank exercise **control over the quantity of money** in circulation through monetary policy, often manipulated through the base rate. Despite these efforts, the success of government interventions is not guaranteed, as recessions and inflationary periods may still occur. The problem is not so much that the government is too big but that it is doing the right thing.[91]

The Economic Role of the State

Stabilization	Allocation	Redistribution
• Ensures the functioning of the economy • In a narrow sense: night-watchman state (internal affairs, military affairs (defense), foreign affairs, justice, finance)	• Acquisition, distribution, and use of funds required for public tasks (outplacement) • Carrying out tasks that the private sector does not undertake or undertakes to an inadequate extent	• Assigns resources to itself and uses them for common purposes • Modification and redistribution of income ratios in the real sphere
• Making legislation • Ensuring public order • Performing public administrative tasks • Mitigating cyclical fluctuations	• Management of negative externalities (external economic effects, restoration resulting from damage to the environment) • Non-profit-oriented activities (construction of public roads, development of public transport, scientific research, development support, production of public goods, education, healthcare, transport, national defense)	• Support for certain social strata that are falling apart • Support for childbearing and education • Sectors: SMEs, R+D+I, agriculture • Other state-run organizations, apparatuses, and functions

Source: own compilation of the author

[91] Stiglitz, J. E. (2017). *Globalization and Its Discontents*. WW Norton & Company. 54.

In his monumental volume on public finance, Richard **Musgrave** suggests that public economic policy has three basic objectives: (i) to establish an efficient allocation of resources; (ii) to attain the desired distribution of income and wealth; and (iii) to maintain high and stable levels of employme and output.[92] Thus, for analytic purposes, Musgrave divides the public fiscal department into three branches: an Allocation, a Distribution, and a Stabilization Branch.[93] Among these three economic functions of the state,[94] **Stabilization** encompasses activities aimed at ensuring the functioning of the economy, with a narrow sense involving a night-watchman state responsible for internal affairs, military affairs (defense), foreign affairs, justice, finance, legislation, ensuring public order, public administrative tasks, and mitigating cyclical fluctuations. **Allocation** involves acquiring, distributing, and utilizing funds required for public tasks. It also encompasses tasks not undertaken adequately by the private sector, management of negative externalities (external economic effects, environmental restoration), non-profit-oriented activities (construction of public roads, development of public transport, scientific research, development support, production of public goods, education, healthcare, transport, national defense). **Redistribution** assigns resources to itself for common purposes, involving modification and redistribution of income ratios in the real sphere. It includes support for certain social strata facing challenges, assistance for childbearing and education, and support for sectors such as SMEs, R+D+I, agriculture, and other state-run organizations, apparatuses, and functions.

Deadweight Loss

In most cases, the government intervention causes **deadweight loss** in the economy.[95] It refers to the reduction in total surplus experienced by producers or consumers due to market disequilibrium, thereby reflecting the societal costs arising from market inefficiency resulting from the discrepancy

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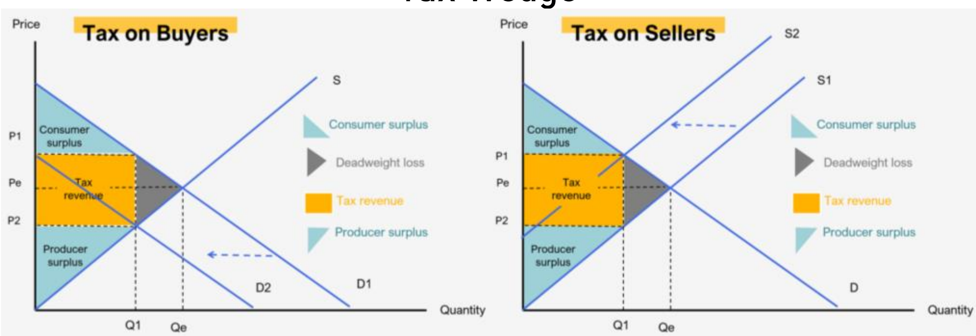
[92] Musgrave, R. A. (1959). *The Theory of Public Finance*. McGraw-Hill. 5.
[93] Oates, W. E. (1968). The theory of public finance in a federal system. *The Canadian Journal of Economics/Revue canadienne d'Economique*, *1*(1), 37-54.
[94] Tanzi, V. (2011). *Government versus markets: The changing economic role of the state*. Cambridge University Press.
Tanzi, V. (2005). Economic Role of the State in the 21st Century, The. *Cato J.*, *25*, 617.
[95] Hausman, J. A. (1981). Exact consumer's surplus and deadweight loss. *The American Economic Review*, *71*(4), 662-676.
Waldfogel, J. (1993). The deadweight loss of Christmas. *The American Economic Review*, *83*(5), 1328-1336.
Seto, T. P. (2021). Modeling the Welfare Effects of Advertising: Preference-Shifting Deadweight Loss. *Tax L. Rev.*, *75*, 55.

between free market equilibrium and inefficiency conditions. This phenomenon occurs when the equilibrium between supply and demand is disrupted, leading to an inefficient allocation of resources. This is alternatively termed an excess burden or allocative inefficiency. Deadweight loss can be manifested in various scenarios, including (i) taxation, (ii) imposition of price controls, like price ceilings or price caps (e.g., maximum rent, fuel prices), and price floors (e.g., minimum wage and living wage laws),[96] (iii) provision of subsidies, (iv) monopoly pricing, and other forms of market intervention. **Harberger's triangle** symbolizes the deadweight loss incurred in exchanging goods or services due to the market power wielded by buyers, sellers, or government interventions.[97]

Tax Wedge



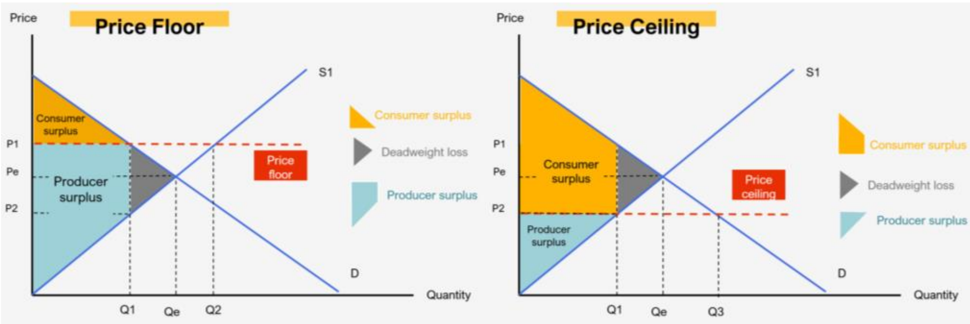
Source: Nasrudin, A, (2022). Deadweight Loss: How to Calculate, Example. Penpoin. (https://penpoin.com/deadweight-loss/)

The **tax wedge** delineates the variance between pre-tax and post-tax incomes or wages, serving as a metric to gauge the apparent tax revenue collected by the government from the workforce.[98] Additionally, it can denote a

[96] A living wage is defined as the minimum income necessary for a worker to meet their basic needs. This is not the same as a subsistence wage, which refers to a biological minimum, or a solidarity wage, which refers to a minimum wage tracking labor productivity.
[97] Ng, Y. K. (2010). The Harberger Triangle. In *Famous Figures and Diagrams in Economics*. Edward Elgar Publishing.
[98] Özker, A. N. (2020). Tax Wedge Phenomenon and Its Possible Analytical Impacts on the Investments in OECD. *Universal Journal of Accounting and Finance*, *8*(2), 41-53.
Radu, C. F., Fenişer, C., Schebesch, K. B., Fenişer, F., & Dobrea, F. M. (2018). Study of the tax wedge in EU and other OECD countries, using cluster analysis. *Procedia-Social and Behavioral Sciences, 238,* 687-696.
Dolenc, P., & Laporšek, S. (2010). Tax wedge on labour and its effect on employment growth in the European Union. *Prague Economic Papers*, *4*(2010), 344-358.

form of market failure arising from the imposition of taxes on goods or services, where the tax induces a perturbation in the equilibrium between supply and demand, thereby generating a deadweight loss characterized by the wedge.

Price Controls



Source: Nasrudin, A, (2022). Deadweight Loss: How to Calculate, Example. Penpoin. (https://penpoin.com/deadweight-loss/)

Price controls and price fixing encompass both price floors and price ceilings. Governments implement these regulatory measures to influence an economy's pricing of goods and services.[99] When a government imposes a **price floor**, producers can charge a minimum price for a particular good or service. This intervention is often employed in agricultural markets to ensure farmers receive a fair income for their produce. For instance, governments may set a minimum price for crops to protect farmers from fluctuations in market prices or to guarantee them a certain level of income. On the other hand, a **price ceiling** occurs when the government imposes a maximum price that sellers can charge for a product or service.[100] Price ceilings are typically implemented to protect consumers from excessively high prices, particularly in markets where monopolies or oligopolies may otherwise exploit their market power. Rent control, for example, is a price ceiling that limits the amount landlords can charge for rental properties, aiming to make housing more affordable for tenants.

Keynes advocated for a pro-government stance on the question of government intervention, believing that the government plays a vital role in

[99] Stigler, G. J. (2021). The theory of economic regulation. In *The political economy: Readings in the politics and economics of American public policy* (pp. 67-81). Routledge.
[100] Dosis, A. (2022). Price caps and efficiency in markets with adverse selection. *Journal of Mathematical Economics*, *99*, 102591.

steering the economy.[101] He argued that the economy could settle at sub-optimal levels without government intervention. Keynes emphasized the existence of a 'circular flow of income' and supported economic regulation, considering it beneficial. He focused on managing GDP and **aggregate demand**, especially during economic downturns. Keynes proposed bail-outs as a positive measure to keep struggling businesses afloat and protect jobs, asserting that the short run is the most critical time frame. He encouraged spending savings immediately, showing respect for human suffering and job protection. Keynes acknowledged the presence of chaotic 'animal spirits' in people and believed that the government should act in the public's best interest.

In contrast, **Hayek** took an anti-government stance, arguing that government intervention leads to malinvestment.[102] He believed in the dominance of free market forces, asserting that the economy would settle optimally without government interference. According to Hayek, one government measure would necessitate another, creating a cycle. He opposed economic regulation, claiming that markets are not easily predictable. Hayek focused on avoiding boom-bust cycles and criticized bail-outs, advocating for liquidating poorly performing businesses. He prioritized the long run and suggested saving for the future. Hayek respected entrepreneurship and economic stability, viewing people as rational actors acting in their best interest.

Economies

The **traditional economy** is rooted in customs and traditions, with agriculture and hunting as primary economic activities.[103] In these societies, individuals consume most of what they produce and sell or trade the surplus. Over time, traditional economies often transition into another type of economy as they develop. Non-industrialized agrarian societies such as Chad, Haiti, and Rwanda exemplify this economy. In contrast, a **market economy** operates on the principles of individual ownership and operation of factors of production. Here, individuals, both producers and consumers, determine the allocation of resources by answering the three fundamental economic questions: who, what, and how. Market equilibrium is achieved through the

[101] Keynes. J.M. (1936). *The General Theory of Employment, Interest and Money*. Palgrave Macmillan.
[102] Hayek, F. A. (1944). *The road to serfdom*. London: George Routledge & Sons. Hayek, F. A. (1948). *Individualism and Economic Order*. University of Chicago Press. Hayek, F. A. (1972). *A Tiger by the Tail*. The Keynesian Legacy of Inflation. compiled by Sudha Shenoy. CATO Institute.
[103] Regenvanu, R. (2010). The traditional economy as source of resilience in Vanuatu. *In defence of Melanesian customary land*, 30-33.

interplay of demand and supply, guided by the concept of the "invisible hand." The government adopts a laissez-faire approach in this system, withdrawing from economic intervention and allowing processes to develop freely. Free enterprise capitalism, as observed in Great Britain and the U.S. during the (18th and) 19th centuries, exemplifies this economic model.

Types of Economies

	Explanation	Examples
Traditional economy	• Based upon customs and traditions, agriculture and hunting • Tend to consume most of what they produce and sell or trade the rest • Will often evolve into another type of economy once it has developed	Non-Industrialized Agrarian societies Chad, Haiti, Rwanda
Market economy	• Individuals own and operate the factors of production • Individuals, producers, and consumers answer the 3 economic questions (Who/m? What? How?) • The meeting of demand and supply automatically results in market equilibrium (invisible hand) • The government withdraws from the economy and allows the processes to develop freely (laissez faire). • The competition is perfect, the flow of information is complete, • The actors, as homo œconomicus, make rational decisions (everyone strives to maximize profits and benefits)	Free enterprise Capitalism Great Britain in 18-19th century
Mixed economy	• Has features of both market and command economies • Today's modern economies • Various degrees where government involvement exists: government intervention and regulation are recognized and accepted to the extent necessary • Ensure welfare, well-being, and fair competition to correct market failures and avoid crises	Welfare state USA, UK, Japan, EU27
Command economy	• Government owns and operates the factors of production (land, capital) • Most companies are state-owned and, in a monopoly or oligopoly situation • Government decides what and how goods are produced, distributed and shared • Personal economic freedom is limited	Socialism, Communism Cuba, Laos (China ?)

Source: own compilation of the author

In a **command economy**, the government assumes ownership and control of factors of production, such as land and capital.[104] Most companies are state-owned, and the government dictates what goods are produced, how they are distributed, and how they are shared. Personal economic freedom is limited in such systems. Command economies are often associated with socialism and communism, as seen in countries like Cuba, Laos, and potentially China.[105] A **mixed economy** combines elements of both market and command economies. Found in most modern economies today, this system features varying degrees of government involvement and regulation. Government intervention is accepted to ensure welfare, well-being, and fair competition, address market failures, and prevent crises. Countries with mixed economies include the U.S., U.K., Japan, and the EU27.

Economic policies

The economic policy can be active or passive. The **active monetary and fiscal policies** are asserted to possess the capacity to avert economic downturns by promptly responding to exogenous shocks because, as William McChesney **Martin** argues, the economy is inherently **unstable**.[106] Shocks from the side of aggregate demand and aggregate supply constantly hit the economy. If economic policymakers do not use the tools of monetary and fiscal policy to stabilize the economy, shocks lead to unnecessary and harmful fluctuations in output, unemployment, and inflation. Keynes promoted state intervention in the cases of crises. In the **passive** approach, it is suggested that the state should apply a "hands-off" principle in economic policy because, as Milton **Friedman** thinks, the economy is inherently **stable**.[107] He blames bad economic policy for the large-scale and harmful economic fluctuations that occur from time to time. Economic policy should not try to

[104] Grossman, G. (1963). Notes for a Theory of the Command Economy.
Harrison, M. (2002). Coercion, compliance, and the collapse of the Soviet command economy. *The Economic History Review, 55*(3), 397-433.
[105] Tan, Y. (2021). How the WTO changed China: The mixed legacy of economic engagement. *Foreign Aff., 100,* 90.
[106] Martin, W. M. (1971). *The Securities Markets*. New York: New York Stock Exchange.
Martin, W. M. (1963). Monetary Policy and International Payments. *The Journal of Finance, 18*(1), 1-10.
Bordo, M. D., & Prescott, E. S. (2023). *Federal Reserve Structure and the Production of Monetary Policy Ideas* (No. w31915). National Bureau of Economic Research.
Bremner, R. P. (2008). *Chairman of the Fed: William McChesney Martin Jr., and the Creation of the Modern American Financial System*. Yale University Press.
[107] Friedman, M. (1960). A Program for Monetary Stability. Fordham University Press. (1962). Capitalism and Freedom.

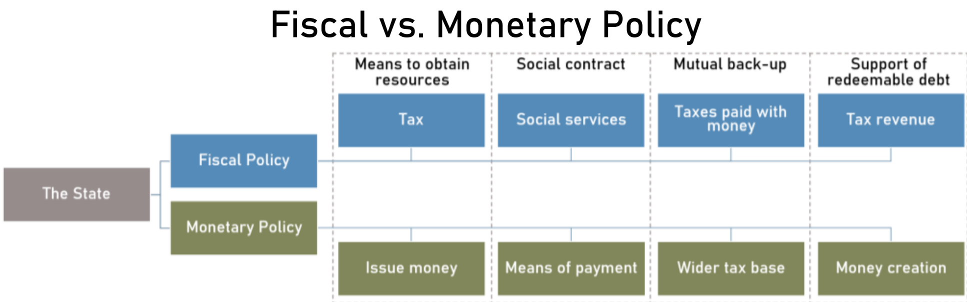
"fine-tune" the economy. Instead, economic politicians should see their limitations and be happy if they don't make trouble. According to **Hayek,** a government measure makes only another one. However, in **stabilization policy**, there are **delays** in implementation and effects. Internal delay refers to the time it takes for an economic policy first to recognize the shock and respond appropriately. The external delay means economic policy doesn't immediately affect spending, income, and employment. Automatic stabilizers like income tax, unemployment benefits, and welfare spending systems operate without internal delay. Economic **forecasting** faces challenges (Lucas critique),[108] but leading indicators offer data that often fluctuate ahead of the economy. The application of **economic models** further informs decision-making in economic policy.

In economic policy, two fundamental approaches prevail: rule-based and discretionary. **Rule-based policy**, characterized by its inflexibility, involves policymakers publicly declaring predetermined responses to specific situations and adhering steadfastly to the commitments outlined in these announcements. Even within rule-based frameworks, economic policy can exhibit either an active or passive orientation. An illustration of an **active rule-based economic policy** is exemplified by formulas dictating actions based on predetermined criteria. For instance, a rule mandating the growth rate of the money supply as a function of the unemployment rate: Money supply growth rate = 3% + (unemployment rate, 6%). This formula dictates that the money supply expands by 3% when unemployment stands at 6%, with each additional percentage point increase in unemployment triggering a corresponding increase in the money supply. The underlying objective of such a rule is to stabilize the economy by bolstering the money supply in times of recession. Conversely, a **passive rule-based economic policy** may involve more straightforward prescriptions, such as a fixed annual increase in the money supply by a predetermined percentage. An example of a passive economic policy rule could be the annual increase of the money supply by 3%. In contrast, **discretionary economic policy** offers policymakers flexibility, granting them the autonomy to assess prevailing economic conditions and select policies most suitable for the situation. This approach eschews predetermined formulas or rules, entrusting policymakers to make real-time judgments to address economic challenges. Ultimately, the choice between rule-based and discretionary economic policy hinges on the trade-off between the

[108] Lucas, R. E. (1976). Econometric policy evaluation: A critique. In *Carnegie-Rochester conference series on public policy* (Vol. 1, pp. 19-46). North-Holland

certainty and predictability of rules versus the flexibility and adaptability inherent in discretionary decision-making. Each approach carries its advantages and drawbacks, shaping the economic policymaking in diverse socio-economic contexts.

Fiscal vs. Monetary Policy



Source: own compilation of the author

The state's economic interventions are primarily carried out through fiscal and monetary policy tools. **Fiscal policy** encompasses the government's decisions regarding taxation and spending to influence the overall economy and social welfare. Taxation serves as a means for the government to collect revenue from individuals and businesses, with taxes paid using various forms of currency or electronic transactions. The income generated from taxes is then allocated towards funding social services, such as healthcare, education, and welfare programs, which are vital for promoting the well-being of citizens and supporting economic development. On the other hand, **monetary policy** involves the management of the money supply and interest rates by the central bank to achieve macroeconomic objectives.[109] Central banks have the authority to issue and regulate the circulation of currency, ensuring an adequate supply of money to facilitate economic transactions. By controlling the money supply, central banks influence the availability of credit and borrowing costs, affecting investment, consumption, and overall economic activity. Furthermore, monetary policy measures can also contribute to widening the tax base by stimulating economic growth and increasing the taxable income of individuals and corporations. Additionally, through money creation, central banks inject liquidity into the financial system, supporting economic expansion and stability.

[109] Vértesy, L. (2014). *Monetary Policy - Central Banks and Financial Crises*. Nemzeti Közszolgálati Egyetem.

Together, these policies play a crucial role in shaping the overall economic environment and determining the trajectory of economic activity within a country. The **Leeper model**, named after economist Eric M. Leeper, is a framework used in macroeconomics to analyze the interaction between fiscal and monetary policy within an economy.[110] This model provides insights into how the actions of policymakers, particularly in terms of government spending and central bank monetary policy, affect various economic variables such as output, inflation, and interest rates.

Leeper model

	Fiscal policy	Monetary policy
Fiscal dominance	**active, loose, expansive** *allows a higher-than-sustainable budget deficit*	**passive, loose, expansive** *inflation is higher than the target*
	taxes ↓ expenditures ↑	interest rates ↓ amount of money ↑
Monetary dominance	**passive, restraint, tight, restrictive** *ensures long-term balance*	**active, tight, restrictive** *inflation is under control (meets or falls below the target)*
	taxes ↑ expenditures ↓	interest rates ↑ amount of money ↓

Source: own compilation of the author

The relationship between fiscal and monetary policy is correct within the **fiscal dominance** if the fiscal policy is characterized as active, loose, and expansive.[111] This means that the government actively uses fiscal measures, such as reducing taxes and increasing expenditures, to stimulate economic activity and promote growth. Fiscal policy allows for a budget deficit that is higher than sustainable levels. This implies that government expenditures exceed tax revenues, leading to a deficit in the budget. Reducing taxes and increasing government spending contributes to fiscal expansion by boosting

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[110] Leeper, E. M. (1991). Equilibria under ‘active’and ‘passive’monetary and fiscal policies. *Journal of monetary Economics*, *27*(1), 129-147.
Leeper, E. M., & Sims, C. A. (1994). Toward a modern macroeconomic model usable for policy analysis. *NBER macroeconomics annual*, *9*, 81-118.

[111] Ahmed, R., Aizenman, J., & Jinjarak, Y. (2021). Inflation and exchange rate targeting challenges under fiscal dominance. *Journal of Macroeconomics*, *67*, 103281.
Schnabel, I. (2020, September). The shadow of fiscal dominance: Misconceptions, perceptions and perspectives. In *Speech at the Centre for European Reform and the Eurofi Financial Forum*.
Diessner, S., & Lisi, G. (2020). Masters of the ‘masters of the universe’? Monetary, fiscal and financial dominance in the Eurozone. *Socio-Economic Review*, *18*(2), 315-335.
Blommestein, H. J., & Turner, P. (2011). Interactions between Soverign Debt Management and Monetary Policy Under Fiscal Dominance and Financial Instability. *Available at SSRN 1964627*.

disposable income and aggregate demand in the economy. The monetary policy is described as passive, loose, and expansive.[112] This suggests that the central bank is not actively tightening monetary conditions but maintaining an accommodative stance. Inflation is higher than the target set by the central bank. This indicates that the general level of prices in the economy is rising at a rate above the desired level, prompting monetary policy to remain expansionary. The central bank lowers interest rates and increases the amount of money in circulation to stimulate borrowing and spending, thereby supporting economic activity and addressing inflationary pressures.

In the concept of **monetary dominance**, fiscal policy, and monetary policy interact in a specific manner to achieve economic stability.[113] Fiscal policy is characterized as passive, restraint, and tight. This implies that the government is exercising caution and budgetary discipline in its spending and taxation decisions. The primary objective of fiscal policy is to ensure long-term fiscal balance. This involves implementing measures that increase tax revenues while reducing government expenditures to prevent budget deficits and promote fiscal sustainability. Taxes are raised while government expenditures are decreased, leading to a contractionary fiscal stance. This serves to reduce aggregate demand and mitigate inflationary pressures within the economy. Monetary policy, on the other hand, is described as active, tight, and restrictive. This suggests that the central bank is actively implementing measures to tighten monetary conditions and control the money supply. Inflation is under control and meets or falls below the target set by the central bank. This indicates that price stability is maintained within the economy. To further rein in inflationary pressures, the central bank increases interest rates and reduces the amount of money in circulation. This serves to curb borrowing and spending, slowing down economic activity and keeping inflation in check.

In summary, under **fiscal dominance**, the relationship between fiscal and monetary policy is considered appropriate when fiscal policy is expansionary, allowing for a higher budget deficit. In contrast, monetary policy remains accommodative, with interest rates reduced and the money supply increased, especially when inflation exceeds the target level. These coordinated policy actions aim to support economic growth while addressing infla-

[112] Kumhof, M., Nunes, R., & Yakadina, I. (2010). Simple monetary rules under fiscal dominance. *Journal of Money, Credit and Banking, 42*(1), 63-92.
[113] Jeanne, O., & Wang, H. (2013). Fiscal challenges to monetary dominance. *Banque de France Financial Stability Review, 16,* 143-150.

tionary pressures within the economy. Under **monetary dominance**, the fiscal policy adopts a passive and tight stance, focusing on fiscal discipline and long-term fiscal balance. In contrast, monetary policy takes an active and restrictive approach to control inflation and maintain price stability. These coordinated policy actions aim to ensure macroeconomic stability and sustainable economic growth.[114]

Policy and policymakers

However, **distrust in economic policymakers** and political processes may arise due to uncertainties regarding empowering them with the potentially perilous monetary and fiscal policy tools. This stems from several factors. Firstly, politicians, particularly in economic policy, may be considered **unsuitable** due to their perceived lack of expertise. This ignorance creates an environment where individuals lacking in-depth knowledge may propose simplistic yet ultimately flawed solutions to complex economic issues. Secondly, politicians may exhibit **opportunistic behavior**, utilizing economic policy as a tool for electoral gain. This phenomenon is evident in the **political business cycle**, where policymakers manipulate economic conditions to influence voters during elections. Citizens, in turn, may cast their votes based on the prevailing economic situation at the time of the election. Lastly, the **time inconsistency** of discretionary policy further erodes trust in economic policymakers. When policymakers publicly announce their economic policy intentions, they shape the expectations of economic agents. However, there is a risk that policymakers may succumb to temptation and deviate from their initial commitments once expectations have been established.

Finally, we close this section with some brief **macroeconomic statements** from Gregory Mankiw. In the short run, (i) aggregate demand influences the amount of goods and services that a country produces; and (ii) policymakers who control monetary and fiscal policy face a tradeoff between inflation and unemployment. In the long run, (iii) a country's capacity to produce goods and services determines the standard of living of its citizens; and (iv) the rate of money growth determines the rate of inflation, but it does not affect the rate of unemployment.[115]

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[114] Jevđović, G., & Milenković, I. (2018). Monetary versus fiscal dominance in emerging European economies. *Facta Universitatis, Series: Economics and Organization*, (1), 125-133.
[115] Mankiw, N. G. (2019). Macroeconomics. Worth Publishers. 634-642.

Six Debates Six Debates over Macroeconomic Policy

	Advocates	Critics
Active monetary and fiscal policy	The economy is inherently unstable, and we believe that policy can manage aggregate demand to offset the inherent instability.	The policy affects the economy with a lag, and our ability to forecast future economic conditions is poor. As a result, attempts to stabilize the economy can destabilize.
Increased government spending	The extra income from tax cuts may be saved rather than spent; direct government spending provides a greater boost to increase aggregate demand, which is key to promoting production and employment.	Tax cuts can expand both aggregate demand and aggregate supply, and hasty increases in government spending may lead to wasteful public projects.
Rules for monetary policy	Discretionary policy can suffer from incompetence, the abuse of power, and time inconsistency.	Discretionary policy is more flexible in responding to changing economic circumstances.
Zero-inflation target	Inflation has many costs and few benefits. Moreover, the cost of eliminating inflation—depressed output and increased unemployment—is only temporary. This cost can be reduced if the central bank announces a credible plan to reduce inflation, thereby directly lowering inflation expectations.	Moderate inflation imposes only small costs on society, and the recession necessary to reduce inflation to zero is quite costly. There are several ways in which moderate inflation may be helpful to an economy.
Balanced government budget	Budget deficits impose an unjustifiable burden on future generations by raising their taxes and lowering their incomes.	The deficit is only one small piece of fiscal policy. Single-minded concern about the budget deficit can obscure the many ways in which policy, including various spending programs, affects different generations.
Tax incentives for saving	Society discourages saving in many ways, such as heavily taxing capital income and reducing benefits for those who have accumulated wealth. They endorse reforming the tax laws to encourage saving, perhaps by switching from an income tax to a consumption tax.	Many proposed changes to stimulate saving would primarily benefit the wealthy, who do not need a tax break. They also argue that such changes might have only a small effect on private saving. Raising public savings by reducing the government's budget deficit would provide a more direct and equitable way to increase national savings.

Source: own compilation of the author based on Mankiw, N. G., (2021). *Principles of Economics*. Cengage. 788.

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I. MAIN ECONOMIC THEORIES AND SCHOOLS

The First Law of Economists: For every economist,
there exists an equal and opposite economist.
The Second Law of Economists: They're both wrong.

History of Economic Thought

Historical Period Social Structure	Basic Social Relation	Economic Thought	Basic Concern Value	Major Figures
Antiquity Tribal Slave	Master -Slave	Οἰκονομία (oikonomia)	Administration of patriarchal household Use Value	*Aristotle* *Plato* *the Authors of Scripture*
Medieval **Feudal**	Lord - Serf	Scholastic	Prohibition of usury Just price Use Value	*(Aristotle)* *Thomas Aquinas*
Early modern **Early Capitalism**	- Merchants - Petty Commodity Producers - Emergence of agrarian capitalism	Bullonisim Mercantilism	Balance of Trade Profit upon alienation Market Price (Exchange Value)	*Malynes* *Mun* *Child* *Colbert*
	Triadic Structure of Agrarian Capitalism - Landowners - Capitalist farmers - Agricultural workers	Late Mercantilism or Early Classicism	Analysis of rent as an economic category Rudimentary notion of labor theory of value	*Petty* *Locke* *Cantillon*
	Peasant Economy with some elements of Agrarian Capitalism	Physciocracy	Economic reproduction for agricultural sector Market Price (Exchange Value)	*Boisguilbert* *Quesnay* *Turgot*
Modern **Industrial Capitalism**	Capitalist-Worker	Classical Political Economy	Capital Accumulation Labor Theory of Value (Objective Natural Price)	*Smith* *Ricardo*
Modern Post-modern **Late Capitalism**	Depicted as a technical relation between household and firms	Neoclasssical Economics Modern	Efficient resource allocation Market Price (Subjective)	*Menger,* *Walras,* *Marshall,* *Keynes,* *Hayek,* *Freidman*

Source: own compilation of the author based on Robinson, J., & Dow, S. (2021). Economic philosophy. Routledge.

In **antiquity**, economic arrangements were characterized by tribal structures and the administration of patriarchal households in the context of master-slave dynamics, as observed in works by Aristotle, Plato, and various authors of scripture.

During the **medieval** period, economic relationships centered around **feudal** lordship and serfdom, often influenced by scholastic thought and the prohibition of usury. This era also saw discussions on the concept of a just price, echoing Aristotle's ideas, and the philosophical contributions of Thomas Aquinas.

During the **early modern** period, the economic activity underwent significant transformation with the advent of **early capitalism**. This period witnessed the rise of merchants and petty commodity producers, along with the emergence of agrarian capitalism, exemplified by the principles of **Bullionism** and **Mercantilism**. Concepts such as the balance of trade and profit upon alienation gained prominence, while scholars like Malynes, Mun, Child, and Colbert contributed to economic discourse. A **triadic structure** characterized **agrarian capitalism**, with distinct roles for landowners, capitalist farmers, and agricultural workers. In the transition towards late **Mercantilism** or **early Classicism**, there emerged an analysis of rent as an economic category and a rudimentary notion of the labor theory of value. Figures such as Petty, Locke, and Cantillon played pivotal roles in shaping economic thought during this period. Additionally, certain regions experienced a **peasant economy** with elements of agrarian capitalism, as observed in **Physiocracy**. This school of thought emphasized economic reproduction within the agricultural sector and explored concepts such as market price (exchange value). Scholars like Boisguilbert, Quesnay, and Turgot contributed to the development of Physiocratic ideas and their implications for economic organization. The transition to modernity witnessed the ascent of **industrial capitalism**, marked by capitalist-worker relations and the formulation of classical political economy theories emphasizing capital accumulation and the labor theory of value, as articulated by figures like Smith and Ricardo.

In the **modern and post-modern** eras, **late capitalism** is depicted as a complex interplay between households and firms, with neoclassical economics guiding discussions on efficient resource allocation and the subjective determination of market prices. Notable economists such as Menger, Walras, Marshall, Keynes, Hayek, and Friedman have contributed to shaping economic thought in this period.

Purposes of Instruction the History of Economic Thought

To learn		
The intellectual heritage and a critical posture in dealing with texts	Samuels (1974)	Introductory course
Principles of economics	Breit and Ransom (1982)	Principles
From the classical works that have withstood the test of time	Stigler (1969)	Advanced undergraduate
From the masters	Walker (1983)	Advanced
Economics as a history of economists	Recktenwald (1965)	Introduction
To receive new insights for current research	Schumpeter (1954)	Graduate research
To understand the "filiation of ideas," what succeeds, and how, and why	Schumpeter (1954)	Graduate research
Guidance when the science undergoes revolutionary change	Schumpeter (1948/1949)	Graduate research
Epistemological argument	Schumpeter (1954)	Research
Study of the competition of ideas	Stigler and Friedland (1979)	Research
Over time		
Across cultures		
Between schools		
Concerning cyclical developments	Neumark (1975)	Research
With respect to different factor markets	Perlman and McCann (2000)	Research
Preserving the stock of economic knowledge	Yeager (1981)	Research

Source: Backhaus, J. G. (2012). *Handbook of the history of economic thought*. Springer.

Examining literature uncovers various purposes for instructing the history of economic thought. Firstly, it serves to acquire a profound understanding of intellectual heritage and cultivates a critical approach towards textual analysis. Secondly, studying the history of economic thought offers valuable perspectives for contemporary research, enabling scholars to uncover new insights and understand the progression of ideas—their origins, successions, and reasons for change. Moreover, it aids in preserving the stock of economic knowledge by recognizing the cyclical developments and examining various factor markets. The history of economic thought serves as a vital tool for both enriching understanding and advancing economics research. Historians of economic thought may possess diverse purposes, offering multiple reasons without necessarily aligning with any single one, thus adding to the complexity.

4. Antiquity

The foundational principles of economics emerged during the Bronze Age (4000-2500 BC) through written records found in four distinct regions: Sumer and Babylonia (3500-2500 BC); the Indus River Valley Civilization (3300-1030 BC); along the Yangtze River in China; and in Egypt's Nile Valley, starting around 3500 BC. In these regions, societies devised notation systems employing clay tablets, papyrus, various materials to record and manage agricultural produce, livestock, and land resources. The earliest economic records date back to 3500 BC in Mesopotamia. Clay tablets document trade transactions, wages, and agricultural production, indicating a complex economic system with concepts like interest and debt. The **Code of Hammurabi** (1792-1750 BC) established legal guidelines for economic activities, including prices, wages, and debt repayment. The rules reflect the regulation of property, sanctity of contracts, principle of equity, agriculture and agricultural financing, loans with interest (at a maximum of 33% for grain and 20% for silver loans), merchants and money lenders, introduction of middlemen between the landowners and the tenants, harvest in a futures system, field as loan collateral, leasing of farmland, renting working animals, subcontracting the collection of rents, transport of goods, sales agent, employment contracts, wage and marginal productivity, trading companies. The Egyptian economy centered around state control and large-scale projects like pyramid construction.[116] Concepts like taxation, budgeting, and public works projects emerged during this period.

4.1. China

Similar to many ancient societies, China's economy heavily relied on agriculture. Economic thought often focused on efficient land use, agricultural techniques, and ensuring stability through food security. The government intervention varied based on dynasties and philosophies. Some periods practiced significant intervention through monopolies, price controls, and public works projects, while others favored more open markets with less direct control. **Guan Zhong** (720-645 BC), a minister of state, emphasized the

[116] Bohigas, L. S. (2021). La bústia. La regulació econòmica d'Hammurabi: el naixement dels empresaris - The Economic Regulation of Hammurabi: The First Businesspeople. *Revista econòmica de Catalunya*, (84), 78-85.; Nagarajan, K. V. (2011). The Code of Hammurabi: an economic interpretation. *International journal of business and social science*, *2*(8).

significance of agriculture and commerce in fostering state prosperity.[117] His teachings underscored the importance of economic activities such as farming and trade for the well-being and stability of the state. Guan Zhong's ideas influenced ancient Chinese rulers and policymakers, who recognized the economic foundation of state power and sought to promote agricultural productivity and commercial activities.

Confucius (551-479 BC) offered insights into economic practices through his broader teachings on ethics, morality, and social harmony.[118] He believed a harmonious society could only be achieved by cultivating moral virtues, which extended to economic activities and interactions. While Confucius did not provide detailed economic theories, his emphasis on moderation, social order, and moral principles had implications for economic behavior and governance.[119] Confucian ethics encouraged virtuous conduct in economic transactions, emphasizing honesty, fairness, and mutual respect. It heavily influenced economic thought, emphasizing moderation, social responsibility, and fair treatment of all members of society. This translated into economic principles like just taxation, balanced production, and avoiding excessive wealth accumulation.

Mencius or Mengzi (372-289 BC) was a Confucian philosopher who expanded on ethical and social aspects of economic activity, emphasizing justice and compassion in dealings with others.[120] **Xunzi** (3rd century BC) advocated for a stronger role of government in regulating economic activity and maintaining social order.[121] **Shang Yang** (390-338 BC) was a Legalist

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[117] Guan, Z., & Rickett, W. A. (2021). *Guanzi: Political, economic, and philosophical essays from early China* (Vol. 2). Princeton University Press; Guan, Z., & Rickett, W. A. (1985). *Guanzi* (Vol. 2). Princeton University Press.

[118] The name Confucius is a Latinized form of the Mandarin Chinese Kǒng Fūzǐ (孔夫子, Master Kong)

[119] Poznanski, K. (2017). Confucian economics: how is Chinese thinking different?. *China Economic Journal*, *10*(3), 362-384; Poznanski, K. Z. (2015). Confucian economics: the world at work. *World Review of Political Economy*, *6*(2), 208-251.

[120] Pines, Y. (2023). Mencius and Early Chinese Political Thought. In *Dao Companion to the Philosophy of Mencius* (pp. 259-280). Cham: Springer; He, T. (2022). A Study of The Neo-confucian Mencius View in Chinese Philosophy. *International Journal of Education and Humanities*, *3*(2), 127-130.; Poznanski, K. (2017). Chinese economics as a form of ethics. *Real World Economics Review, Issue*, (80), 148-170.

[121] Peach, T. (2021). Xunzi and Plato on the economics of totalitarianism: A meeting of distant minds. In *European and Chinese Histories of Economic Thought* (pp. 189-201). Routledge; Von Glahn, R. (2023). Between Command and Market: Economic Thought and Practice in Early China. *Journal of the American Oriental Society*, *143*(4), 969-971.

statesman known for his reforms aimed at agricultural development, centralized control, and meritocratic systems.[122]

4.2. Greeks

Ancient Greece was a bustling center of trade, philosophy, and political discourse, where significant contributions to early economic thought emerged. Greek intellectuals grappled with fundamental questions about wealth creation, resource allocation, and the role of government in the economy. Key themes in Greek economic thought included the centrality of agriculture, ethical considerations in economic discussions, and a generally limited role of government in the economy compared to other ancient societies. Though not as complex as modern theories, the economic ideas of ancient Greece laid the groundwork for later economic thought, with their emphasis on ethics, efficiency, and individual initiative continuing to resonate in contemporary discourse.

Among the key figures was **Hesiod** (8th century BC), who emphasized hard work, thrift, and self-sufficiency in Works and Days (Ἔργα καὶ Ἡμέραι, Érga kaì Hēmérai);[123] furthermore **Xenophon** (430-355/354 BC), who focused on success in estate and household management, value of property (flute analogy), wealth, and agriculture, emphasizing efficiency and responsible resource use in his work Oeconomicus (Οἰκονομικός).[124]

Plato (428-348 BC) advocated in the Republic (Πολιτεία, Politeia, De Republica) his **ideal city-state** (Ship of State), where he advocated for a **communal lifestyle** with minimal private property and centralized control over production and distribution.[125] He proposes the abolition of private property among the guardian class, which he views as essential for maintaining harmony and preventing conflict over material possessions. In his ideal society, resources are commonly owned and shared among the citizens. The ruling class, or guardians, should not be motivated by personal wealth or material gain. The state should exercise control and regulation over economic

[122] Shang, Y. (4th century BC, 2017). *The book of Lord Shang: apologetics of state power in early China*. Columbia University Press.
[123] Papanikos, G. T. (2022). Hesiod's Works and Days as an economics textbook. *Athens journal of business & economics*, *8*(4), 385-416. Papanikos, G. T. (2022). Hesiod's Theory of Economic History. *Athens Journal of History*.
[124] Günther, S. (2022). Framing Capital: Xenophon's Economic Model and Social System. In *Capital in Classical Antiquity* (pp. 103-125). Cham: Springer International Publishing.
[125] Silagadze, A. (2019). Plato on economic foundations of an 'ideal state. *Bull. Georg. Natl. Acad. Sci*, *13*(2).

activities to ensure the equitable distribution of resources and promote justice.

Why did Aristotle's household budget always balance perfectly?
Because he applied the principle of "oikonomia"
– it's like he had a philosopher's stone for financial management!

Aristotle (384-322 BC) explored concepts of value, justice, and the role of money, questioning the morality of usury and advocating for a moderate, self-sufficient form of wealth creation in works like Politics (Πολιτικά, Politiká) and Nicomachean Ethics (Ἠθικὰ Νικομάχεια, Ēthika Nikomacheia).[126] Unlike Plato, he approaches economics with a more practical and empirical perspective, examining the workings of the economy within the context of society and human behavior. There are two types of **value**: while value in use refers to the intrinsic usefulness of a good or service, exchange value pertains to its worth in relation to other goods or services.[127] The **economic justice** is fundamental in the context of exchange. The just exchange occurs when goods or services are traded at a fair price, reflecting their true value. Usury (charging excessive interest on loans) and exploitative trade were viewed as unjust and detrimental to the well-being of society. The **money** is necessary in the economy as a medium of exchange, facilitating transactions and overcoming the limitations of barter.[128] However, he cautions against the excessive accumulation of wealth for its own sake, warning of the corrupting influence of greed and materialism. Money as a tool should serve the needs of society rather than being pursued as an end in itself. This is the fundamental distinction between **oikonomia** and **chrematistics**.[129] Aristotle does not propose a specific economic system like Plato; he discusses

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[126] Meikle, S. (1995). *Aristotle's economic thought*. Oxford University Press.
Crespo, R. (2008). On Aristotle and economics. *IAE Business School-Austral University*, (11), 11.

[127] Van Staveren, I. (2013). *The values of economics: An Aristotelian perspective*. Routledge.

[128] Eich, S. (2022). *The currency of politics: The political theory of money from Aristotle to Keynes*. Princeton University Press.

[129] Braunstein, D. (2023). About the Relationship Between Ethics and the Economy in Aristotle. In *The Logic of Social Practices II* (pp. 213-231). Cham: Springer Nature Switzerland.; Bueno, J. L. C. (2017). Economics, chrematistics, oikos and polis in Aristotle and St. Thomas Aquinas. *Journal of Philosophical Economics, 10*(Articles).
Dierksmeier, C., & Pirson, M. (2016). Aristotle's Economic Ethics. In *Humanistic Ethics in the Age of Globality* (pp. 32-48). London: Palgrave Macmillan UK.

the characteristics of an ideal state that fosters economic well-being. He advocates for a balanced and virtuous society where individuals pursue the common good through productive and ethical economic activities.

4.3. Rome

In ancient Rome, economic thought revolved primarily around practical matters such as agriculture, estate management, and resource utilization.[130] **Cato** the Elder's (234-149 BC) work *De Agricultura* provided valuable insights and advice on farming techniques, land management, and economic administration.[131] This text served as a comprehensive guide for Roman landowners, offering practical strategies for maximizing agricultural productivity and managing rural estates efficiently. **Varro** (116-27 BC) was a significant figure in Roman economic thought, particularly agriculture.[132] His work *Res Rusticae* (On Agriculture) is another notable treatise on farming and estate management, which emphasized the importance of employing scientific methods and embracing innovation in agricultural practices.

Publius **Vergilius** Maro (70-19 BC) wrote the Gerogics (*Georgica*) in hexameters, which divided into four books: (i) farming (plow, labor, storm, weather signs), (ii) vine and tree care (viticulture, trees, fruits, forest, olive, and products of other countries: Ethiopia, China, and India), (iii) animal husbandry (breed stock and the breeding of horses and cattle care and protection of sheep and goats), (iv) beekeeping (habits of bees, as a model for human society).[133] Although the work describes the main agricultural procedures

[130] Duncan-Jones, R. (1982). *Economy of the Roman Empire*. CUP Archive.;Erdkamp, P. (Ed.). (2021). *The Roman army and the economy*. Brill.; De Ligt, L. (2023). *Fairs and markets in the Roman Empire: economic and social aspects of periodic trade in a pre-industrial society* (Vol. 11). Brill.

[131] Fleiner, C. (2021). Veni, vidi, visa: Economic matters. In *A writer's guide to Ancient Rome* (pp. 145-179). Manchester University Press.; Bröchner, J. (2022). *Construction economics in antiquity* (pp. 86-103). Edward Elgar Publishing.

[132] Cato, V. (1934). *Cato and Varro: On Agriculture (Loeb Classical Library No. 283)*. Loeb Classical Library.

[133] In the 18th century we find again this metaphor. The Fable of the Bees: or, Private Vices, Public Benefits is a work by the Dutch philosopher and satiris Bernard Mandeville, from 1714. The central thesis of the work is paradoxical: Mandeville argues that individual vices and immoral behavior can have positive consequences for society as a whole. He uses the metaphor of a hive of bees to illustrate his point. In the fable, the bees are initially honest, virtuous creatures, but when they become corrupt and indulge in vice, such as greed and luxury, the society as a whole prospers. Mandeville gave great offence, in which a cynical system of morality was made attractive by ingenious paradoxes. His doctrine that prosperity was increased by expenditure rather than by saving.

and information, it is not primarily agrarian or pastoral work; the poetic form highlights the praise of human work and rural life.

Lucius Junius Moderatus **Columella** (4-70 CE) was another influential writer on agricultural topics.[134] His work, *De Re Rustica* (On Rural Affairs), advocated for sustainable agricultural and farming practices and environmental awareness. Columella emphasized the importance of responsible land stewardship, crop rotation, animal husbandry, viticulture, and soil conservation to maintain agricultural land's long-term fertility and productivity. **Pliny** the Elder's (23-79 CE) *Naturalis Historia* offered a detailed account of various economic activities and resources across the Roman Empire.[135] He documented aspects of agriculture, mining, trade, and industry, providing valuable information on the economic life of ancient Rome.

4.4. India

The **Dharmaśāstras** is a set of legal and religious texts based on ancient Dharmasūtra texts by the **Vedas**.[136] The Dharmasutras were numerous, but only four texts have survived into the modern era; the most important of these texts are the sutras of Apastamba, Gautama, Baudhayana, and Vasistha, from the 6th to 2nd century BC.[137] It lays down social and economic norms,

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John Maynard Keynes described the poem as setting forth "the appalling plight of a prosperous community in which all the citizens suddenly take it into their heads to abandon luxurious living, and the State to cut down armaments, in the interests of Saving" Keynes. J.M. (1936). *The General Theory of Employment, Interest and Money*. Palgrave Macmillan, Notes on mercantilism, the usury laws, stamped money and theories of under-consumption.

[134] Hedberg, S., & Lundquist, K. (2010). The most comprehensive agricultural textbook in the ancient world, De re rustica ("Twelve Books of Agriculture") by Columella (c. 70 AD), now published in Swedish. *LTJ-fakultetens faktablad*, (2010: 26).; Mickwitz, G. (1937). Economic rationalism in Graeco-Roman agriculture. *The English Historical Review*, *52*(208), 577-589.

[135] Saller, R. (2022). *Pliny's Roman Economy: Natural History, Innovation, and Growth* (Vol. 113). Princeton University Press.

[136] The Dharmasūtra texts emerged from the literary tradition of the Vedas (Rig, Yajur, Sāma, and Atharva) composed in 2nd millenium to the 1st millennium BC.

[137] Apastamba (450–350 BC) forms a part of the larger Kalpasūtra of Apastamba; contains 1,364 sutras. Gautama (600–200 BC) although this is an independent treatise it may have once formed a part of the Kalpasūtra, linked to the Samaveda; contains 973 sutras. Baudhāyana (500–200 BC) forms a part of the larger Kalpasūtra; contains 1,236 sutras. Vasishtha (300–100 BC) forms an independent treatise and other parts of the Kalpasūtra; contains 1,038 sutras.

including rules on property ownership, inheritance, and occupational structures.[138] Business was not only a way to make and increase wealth but also a religious duty. In other words, if someone followed the rules for making loans, paying employees, securing partnerships, and so on, he was not just conducting fair business but also building religious merit and good karma.[139] The rules deal with specific economic issues like the non-delivery after sale (with a penalty of ⅙ of the purchase price), changes in market value, justifying the inclusion of business, the non-payment of wages, relationship between an owner and a worker (missed sale opportunity, illness), bonds of trust (sale by a non-owner), fraudulent seller and devious buyer.[140]

The *Arthashastra* (Economics) is an ancient Indian treatise on statecraft and economics. It is considered written by the great Indian philosopher-statesman **Kautilya** (375-283 BC), who could be Chandragupta Maurya's Mahamatya Chanakya.[141] It advocated for a strong and centralized state managing various aspects, including foreign trade by comparative advantage, diplomacy for economic prosperity, an ideal and effective system of taxation (with principles), just wages, public financing, price controls and regulations, efficient resource utilization, agriculture, and mining. **Jaina** thinkers like Gautama (5th century BC) and Mahāvīra emphasized non-violence, ethical trade practices, and individual economic responsibility.[142] They prescribed the general principles for the economic development of society: (i) ahimsa (non-violence) and purity of means; (ii) non-erosion of moral values; and (iii) limits to self-interest. **Buddhist** teachings focused on moderation, contentment, and the concept of the middle way, influencing economic activities and

138 Sternbach, L. (1942). The Harmonising of Law with the Requirements of Economic Conditions According to the Ancient Indian Dharmaśāstras, Arthaśāstras and Gṛhyasūtras. *Annals of the Bhandarkar Oriental Research Institute*, *23*(1/4), 528-548.

139 Davis, D. R. (2018). Economics and Business as *Vaiśya-Dharma*', in Olivelle, P. and Davis D. R: (eds), *The Oxford History of Hinduism: Hindu Law: A New History of Dharmaśāstra*, Oxford History Of Hinduism. Oxford Academic.

140 Viswanath, P. V., & Pati, S. S. (2020). Sale and Purchase Contracts in the Dharmaśāstras. *Pace University Research Paper*.

141 The Sanskrit title, Arthashastra, can be translated as political science or economic science or simply statecraft, as the word artha is polysemous in Sanskrit.; Patel, D. R. (2020). Kautilya's Arthashastra (Economics): A Brief Historical Study. *Available at SSRN 3513319*.
Rangarajan, L. N. (Ed.). (1992). *The arthashastra*. Penguin Books India.; Waldauer, C., Zahka, W. J., & Pal, S. (1996). Kautilya's Arthashastra: A neglected precursor to classical economics. *Indian Economic Review*, 101-108.

142 Jain, S. (2022). Revisiting Jaina School of Economic Thought for Modern Problems. *International journal of economic perspectives*, *16*(8), 17-29.

consumption patterns.[143] The **Varna system**, the social hierarchy with distinct roles for different classes (Brahmins, Kshatriyas, Vaishyas, Shudras), influenced economic activities and occupational choices.[144]

[143] Ng, E. C. (2020). *Introduction to Buddhist Economics*. Springer International Publishing. Wagner, H. G. (2007). Buddhist economics ancient teachings revisited. *International Journal of Green Economics*, *1*(3-4), 326-340.
[144] Deodhar, S. Y. (2023). *Tracing Economic Policies to Ancient Indian Economic Ethics* (No. WP 2023-08-01). Indian Institute of Management Ahmedabad, Research and Publication Department.

5. Medieval Economic Thoughts

In the medieval period (5th to the 16th century), economic thought emerged as a crucial facet of philosophical and theological discourse, shaping the understanding of wealth, trade, and governance.[145] Among the towering figures of medieval economic thought were the Scholastics, including Thomas Aquinas, Albertus Magnus, John Duns Scotus, and Nicholas of Oresme, whose philosophical inquiries laid the groundwork for conceptualizing economic principles within a theological framework. Concurrently, Muslim scholars, notably Ibn Khaldun, made significant contributions to economic theory, offering insights into the nature of wealth, labor, and statecraft in their influential works.[146]

5.1. Scholastics

The Scholastic period (roughly 12-15th centuries) saw a flourishing of philosophical and theological discourse, and economic thought was no exception. While not a formal economic discipline, scholastic thinkers tackled questions related to just price, usury, property rights, and the role of government. **Albertus Magnus (**1193-1280) from Cologne, known as *Doctor Universalis*, emphasized the ethical dimensions of economic activities, advocating for fair exchange and avoiding excessive wealth accumulation.[147] He was one of the first European commentators on Aristotle (coming on the heels of Grosseteste's translation), including his economics. His pupil, Thomas Aquinas, would carry on that legacy. The concept of justice and natural law inspired **Thomas Aquinas** (1225-1274).[148] He argued for a just price based on production costs and customary pricing, criticizing both price gouging and

[145] Wood, D. (2002). *Medieval economic thought*. Cambridge University Press.

[146] Ghazanfar, S. M. (2004). *Medieval Islamic economic thought: Filling the great gap in European economics*. Routledge.

[147] Dunbabin, J. (1963). The two commentaries of Albertus Magnus on the Nicomachean Ethics. *Recherches de théologie ancienne et médiévale, 30,* 232-250.
De natura boni and *De bono*

[148] All the economic questions put together matters less to him than did the smallest point of theological or philosophical doctrine, and it is only where economic phenomena raise questions of moral theology that he touches upon them at all.
Schumpeter, J. (1954). *History of Economic Analysis*. New York: Oxford University Press. 90.

selling below cost.[149] The just price theory aimed to reconcile economic activity with moral principles, avoiding greed and exploitation. The natural law is based on the belief in a universal moral law guiding economic behavior. The doctrine of double effect is An approach to analyzing actions with potentially good and bad consequences, applied to usury debates. Opposed usury as charging interest solely for lending money but accepted fees for risks and administrative costs. "*To take usury for money lent is unjust in itself because this is to sell what does not exist, and this evidently leads to inequality, which is contrary to justice.*"[150] According to Thomas Aquinas, distributive justice operates from the common good to the individual, entailing a fair apportionment of communal resources to individuals according to their contributions to the community. Conversely, legal or general justice, later termed social justice, flows from individuals to the common good. Modern Western views concerning capitalism, unfair labor practices, living wages, price gouging, monopolies, fair trade practices, and predatory pricing, among other things, are remnants of the inculcation of Aquinas' interpretation of natural moral law.[151]

John Duns Scotus (1266-1308) was a Scottish Catholic priest and Franciscan friar who developed the concept of subjective value, suggesting that value was determined not just by production costs but also by individual needs and desires.[152] He dealt with that as well as the source of distinct property rights (transfer of property to another, direct exchange of goods), justice in buying and selling, contracts about lending money, rules for commercial transactions, unjust appropriation of property, the crime of usury, unjust business transactions, and obligation of restitution. The Bishop of Lisieux, **Nicholas of Oresme** (1320-1382), in his Treatise on the origin, nature, law, and

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[149] Santori, P. (2021). *Thomas Aquinas and the civil economy tradition: the Mediterranean spirit of capitalism*. Routledge.
Rashid, M. M. (2020). St. Thomas Aquinas and the development of natural law in economic thought. *Journal of Economic and Social Thought*, *7*(1), 14-24.
[150] Aquinas, T. (1981). *Summa Theologica.* New York: English Dominican Fathers. pp. II–II, Q78, A1.
[151] Colish, M. (1997). *Medieval Foundations of the Western Intellectual Tradition, 400–1400,* Yale University Press. 333–334.
Ahmadizade, H. (2021). Economic Ethics in Thomas Aquinas' Thought. *Ethical Reflections, 2*(1), 10-24.
[152] Bruni, L., & Santori, P. (2023). The theological stems of modern economic ideas: John Duns Scotus. *The European Journal of the History of Economic Thought*, 1-19.
John Duns Scotus. Political and Economic Philosophy, Introduction with Latin text and English translation and notes by Allan B. Wolter, OFM, Franciscan Institute Publications, 2001. This volume presents two manuscripts of Book IV of Scotus's Ordinatio, which present his political and economic philosophy.

alterations of money (De origine, natura, jure et mutationibus monetarum),[153] brought a fascinating insight into the medieval conception of money, and challenged the theories of usury, arguing that money itself could have value and justify charging interest. He argued that the government determined the value of money and could devalue the currency to raise revenue.

Scholastic economic thought primarily addressed ethical and theological concerns, lacking the comprehensive analytical framework of modern economics.[154] Their emphasis on ethics and social responsibility influenced later economic thought and continues to resonate in economic justice and fairness debates. Scholastic economic ideas influenced later thinkers like Martin Luther and Jean Calvin, leading to the protestant capitalist revolution.[155]

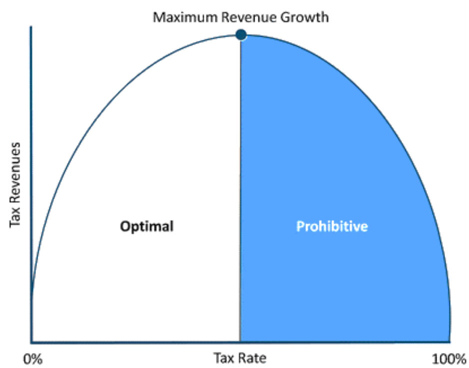
5.2. Muslims

Ibn **Khaldun** (1332-1406) was a Tunisian Muslim historian and sociologist who wrote the Muqaddimah (Prolegomena, Introduction),[156] a vast treatise on the history of civilization, sociology, and economics. He is considered one of the earliest thinkers to have systematically analyzed economic phenomena and factors that contributed to the rise and fall of empires. He argued that pursuing wealth could lead to the decline of social solidarity, making him a forerunner to modern economics in many ways.[157] Ibn Khaldun's economic ideas are not economic thoughts of Islam but an analysis of

[153] de Oresme, N., Brollo, T., & Evangelisti, P. (1356-60, 2020). *Tractatus de origine, natura, jure et mutationibus monetarum*. Edizioni Università Trieste.
Oresme, N. (1956). *De Moneta of Nicholas Oresme*. Ludwig von Mises Institute.
[154] van Geest, P. (2021). Economic Notions Seen in the Light of the History of Theology. In *Morality in the Marketplace* (pp. 89-122). Brill.
[155] Weber, M. (1905, 2013). *Die protestantische Ethik und der Geist des Kapitalismus - The Protestant ethic and the spirit of capitalism*. Routledge.; Giri, P. C. (2022). Protestantism; Spirit of Capitalism and Inequality. *GMMC Journal of Interdisciplinary Studies*, *11*, 23-26.
Stein, S., & Storr, V. H. (2020). Reconsidering Weber's The Protestant Ethic and the Spirit of Capitalism. *The Independent Review*, *24*(4), 521-532.
[156] Khaldun, I. (1377, 1986). *Muqaddimah*. Jakarta: Pustaka.
Al-Leheabi, S. M. Z. M., Bahjat, M. M., & Ramchahi, A. A. (2013). The Economic Thought of Ibn Khaldoun In His' Muqaddimah.'. *World Applied Sciences Journal*, *25*(1), 42-47.
[157] Uula, M. M. (2022). The Economic Thought of Ibn Khaldun. *Islamic Economic and History*, *1*(1).

the economy of Muslims.[158] The importance of specialization and the **division of labor** in increasing productivity and economic growth was recognized. The observation was made regarding how different societal groups performed distinct economic functions, contributing to the community's overall well-being. The **role of profit** as a driving force in economic activity was acknowledged and perceived as a natural incentive for individuals to engage in production and trade, ultimately benefiting society. The importance of **international trade** in promoting economic prosperity was understood, recognizing how trade could lead to exchanging goods, ideas, and technologies, fostering economic growth and development.[159]

Ideas were far ahead of their time and influenced later thinkers, including Adam Smith. While Ibn Khaldun's work was largely unknown in the West until the 20th century, his contributions to economic thought are now widely recognized. The **Laffer curve**, depicted on a napkin as a mound-shaped graph (inverted-U shape), aims to identify the optimal tax rate that promotes prosperity for the government and its constituents.[160] The ideal, or optimal, rate of taxation for an economy falls right at the top of the inverted U. The theory argues that if tax rates are too high, they will discourage taxed activities, like consumption and investment, while too low rates fail to generate sufficient revenue. Although commonly attributed to Arthur Laffer, it is worth noting that Laffer acknowledges the concept's earlier mention by Ibn Khaldun.[161]



[158] MirJalili, S. H. (2020). Economic thoughts of Ibn Khaldun: critical evaluation of four claims. *Science and Religion Studies*, *11*(2).
[159] Rizkiah, S. K., & Chachi, A. (2020). The relevance of Ibn Khaldun's economic thought in the contemporary world. *Turkish Journal of Islamic Economics (Tujise)*.
[160] The Laffer Curve's name origin stems from a 1978 article by Jude Wanniski, who recounts a dinner meeting in 1974 with a University of Chicago professor, Donald Rumsfeld (Chief of Staff to President Gerald Ford), and Dick Cheney (Rumsfeld's deputy). During discussions about President Ford's proposed tax increases, Laffer purportedly sketched a curve on a napkin to illustrate the trade-off between tax rates and tax revenues. Wanniski named the trade-off as Laffer Curve.
Wanniski, J. (1978). Taxes, revenues, and the Laffer curve. *The Public Interest, 50*, 3.
[161] Laffer, A. (2004) *The Laffer Curve: Past, Present, and Future*. The Heritage Foundation (https://www.heritage.org/taxes/report/the-laffer-curve-past-present-and-future)

We can also highlight that **Al-Maqrizi** (1364-1442), a Mamluk Egyptian historian and economist, emphasized the importance of agriculture and trade for economic prosperity. He also argued for the importance of government regulation of the economy to ensure fair prices and prevent monopolies. **Al-Syatibi** (1388-1450) was a Maliki Islamic jurist and philosopher who argued that economic activity should promote human welfare and stressed the importance of justice and fairness in economic transactions. They believed that the economy should be based on the principles of justice, fairness, and compassion. They also emphasized the importance of government regulation of the economy to prevent exploitation and ensure the well-being of all citizens.[162] The currency printing should be accompanied by greater attention from the government to use the money for further business. Some other key economic issues are the importance of agriculture and trade for economic prosperity and government regulation of the economy to ensure fair prices. The goal of economic activity should be to promote human welfare.

[162] Saputra, T. A. (2021). Islamic economic thoughts according to Ibn Khaldun, Al-Maqrizi, and Al-Syatibi. *Journal of Islamic Economics, Management, and Business (JIEMB)*, *3*(1), 89-100.

6. 16-18th Centuries

During the 16th to 18th centuries, significant economic theories emerged. The School of Salamanca continued the scholastic concept. Mercantilism, dominant in Europe, focused on accumulating wealth through trade. Physiocracy, originating in France, emphasized agriculture and minimal government intervention.

6.1. School of Salamanca

The **School of Salamanca**, which thrived at the University of Salamanca in Spain during the 16th and 17th centuries, is a significant intellectual movement in the history of economic thought. Notable figures within this school include Francisco de **Vitoria** (1483-1546)[163] and Domingo de **Soto** (1494–1560), whose contributions extended to economic theory, ethics, and law.[164] They are often regarded as the **first economic tradition**, profoundly influencing the reshaping of economic theory across Europe during their time. Central to the School's philosophy were its pro-market, pro-hard money, anti-state, pro-property, and pro-merchant stances. Vitoria emphasized that the right to free trade is rooted in a more fundamental right to communication and association.[165] They firmly believed private property rights were integral to stimulating economic activity and enhancing overall societal well-being.[166] Martín de **Azpilcueta** (1491-1586) developed a scarcity theory of value,[167] laying the groundwork for the quantity theory of money.[168] He argued that the use of money in exchanges is not unnatural, as Aristotle had claimed, and put money on the same level as any other merchandise, and, consequently, established that the morality of exchanges did not depend on

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163 Wagner, A. (2020). Francisco de Vitoria and the global commonwealth. In *Christianity and global law* (pp. 72-83). Routledge.

Vitoria, F. (1532). *De Indis*. and *De Jure belli Hispanorum in barbaros*

164 Sison, A. J. G., & Redín, D. M. (2021). Francisco de Vitoria on the Right to Free Trade and Justice. *Business Ethics Quarterly*, *31*(4), 623-639.

165 de Soto, D. (1556). *De justitia et jure libri*

Alves, A. A., & Moreira, J. M. (2013). Virtue and commerce in Domingo de Soto's thought: Commercial practices, character, and the common good. *Journal of Business Ethics*, *113*, 627-638.

166 Possemiers, J., & Lasquety-Reyes, J. (2022). Domingo de Soto, Deliberation on the Cause of the Poor. *Sources in Early Modern Economics, Ethics and Law*.

167 de Azpilcueta. (1566). *Tratado sobre las rentas de los beneficios eclesiásticos*

168 Bahmanpour-Khalesi, M., & Sharifzadeh, M. (2023). The School of Salamanca on Value of Money: A Reassessment. *Journal des Économistes et des Études Humaines*, (0).

money as their object but on an equitable exchange.[169] Diego de Covarrubias y **Leyva** (1512–1577) articulated the notion that individuals not only held the right to property ownership but also had exclusive entitlements to the benefits derived from their property.[170] However, he acknowledged that communal sharing of goods might become necessary during times of significant need. Luis de **Molina** (1535–1600) contributed to the School's ideas by highlighting the advantages of individual ownership over communal management, drawing parallels to the tragedy of the commons.[171] He was among the first people to discuss the diamond-water paradox. He examined different types of contracts and contemporary business people, employing the scholastic method to dissect the essence of currency and exchange. His analysis provides a distinctive and invaluable perspective on the origins of modern monetary theory.[172] With Azpilcueta, they advocated for a subjective theory of value and prices, emphasizing the importance of mutual decisions in free commerce. Another significant departure from medieval views was the School's justification for charging interest,[173] which they viewed as a premium for risk and opportunity cost. They even conceptualized money as merchandise, introducing the concept of the time value of money.

Despite their profound influence on economic thought, the contributions of the School of Salamanca were somewhat overlooked over time due to a lack of continuity in their work. Nonetheless, Joseph **Schumpeter** credited them as foundational figures in the development of economics despite their not creating a comprehensive doctrine. Interestingly, the economic thought of the School of Salamanca shares striking similarities with the principles espoused by the Austrian School, epitomized by Friedrich **Hayek** (1899-1992). Although Hayek's work is more commonly associated with the

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[169] de Azpilcueta. M. (1566). *Comentario resolutorio de usuras*, Salamanca
de Azpilcueta, M. (1549). *Manual de confesores y penitentes.* with four appendices; On Exchnage (1566)
Fuller, E. W. (Ed.). (2020). *A Source Book on Early Monetary Thought: Writings on Money Before Adam Smith*. Edward Elgar Publishing.
[170] y Leyva, D. C. (1552-70). *Variarum resolutionum ex jure pontificio regio et cæsareo libri IV* and (1556) *Veterum numismatum collatio cum his quæ modo expenduntur*
[171] de Molina, L. (1588). *De Hispanorum primogeniorum origine ac natura*. Lugduni: Pedro Landri. and (1593-1609). *De jure et justitia.*
[172] de Molina, L. Jeannine Emery (transl.) (2015). A Treatise on Money. Sources in Early Modern Economics, Ethics, and Law.
[173] Van Houdt, T., & Monsalve, F. (2021). Usury and Interest. In *A Companion to the Spanish Scholastics* (pp. 475-497). Brill.
Caranti, P. J. (2020). Martín de Azpilcueta: The Spanish Scholastic on Usury and Time-Preference. *Studia Humana*, *9*(2), 28-36.

20th century, his emphasis on spontaneous order, individualism, and the importance of decentralized decision-making resonates with the foundational ideas put forth by the School of Salamanca.[174]

6.2. Mercantilism

The **essence of mercantilism** lies in the state control or support of trade[175] and create wealth for the nation with the pre-modern industrialization by the *homo manufacturabilis*.[176] In the 16th and 17th centuries, mercantilism, grounded in the concept of bullionism, advocated for active state participation in society, with economic health measured by the accumulation of gold and silver reserves.[177] The fundamental link between wealth and trade is expressed through the equation Exports minus Imports, aiming to amass reserves and foster prosperity. Contrary to the principle of comparative advantage, mercantilism suggests engaging in trade only if it benefits one's exports, emphasizing the imperative of building up gold and silver reserves, necessitating a trade surplus. Government intervention is endorsed to curtail imports, employing measures such as tariffs, subsidies, and exclusive rights, with the national advantage underscored by the need to maintain a trade surplus and ensure the inflow of money in the form of gold and silver. Import substitution and economic self-sufficiency are deemed crucial, emphasizing domestic manufacturing.

Why did the mercantilist refuse to play Monopoly?
Because they couldn't stand the idea of
someone else monopolizing all the resources!

A **strong political authority** is deemed vital to effectively coordinate the economy and resolve conflicts, even at the expense of individual liberty.

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174 Afanasiev, A. (2023). The Origins of Austrian Economics in the Treaties of the Theologians of Salamanca. In *The Emergence of a Tradition: Essays in Honor of Jesús Huerta de Soto, Volume I: Money and the Market Process* (pp. 15-21). Cham: Springer International Publishing.
Hayek, F. (1992). The Austrian School of Economics. The Fortunes of Liberalism: Essays on Austrian Economics and the Ideal of Freedom. Chicago: University of Chicago Press. 43.

175 Biju, H., Jaheer Mukthar, K. P., Ramírez-Asís, N., Castillo-Picon, J., Pelaez-Diaz, G., & Silva-Gonzales, L. (2024). A Systematic Literature Review on Mercantilism. *Artificial Intelligence and Transforming Digital Marketing*, 739-749.

176 Rössner, P. R. (2023). Creating Wealth: Homo Manufacturabilis and the Wealth of Nations. In *Managing the Wealth of Nations* (pp. 148-163). Bristol University Press.

177 Vasilescu, C. (2020). The mercantilism or the beginning period of economic science. *Economic Convergence in European Union*, 80.

The state, driven by the pursuit of great wealth, is expected to assertively expand its position assertively, recognizing the close relationship between wealth and political power. The key industry highlighted is manufacturing, though agriculture is acknowledged as needing encouragement. Mercantilist principles extend to exploiting colonies, viewing them as sources of raw materials and markets for manufactured goods. The overarching objective is to enhance the state's economic standing through strategic economic policies and the prioritization of key industries.

In **Western Europe**, adopting mercantilist principles, focused on state control and support of trade, reinforced economic dominance. Mercantilism emphasized accumulating wealth through trade surpluses, particularly in precious metals like gold and silver. Advocates believed this would boost production, lower interest rates, and increase industrial profits. Protectionist policies, including tariffs, aimed to shield domestic industries. **Spanish** mercantilism prioritized conquests for gold and silver but failed to channel resources into development, leading to economic stagnation and later decline.

In contrast,[178] **English** mercantilism focused on laws benefiting the bourgeoisie, including trade regulations favoring English shipping.[179] Among the prominent figures was Thomas **Mun** (1571-1641), who focused on the balance of trade, where exports should exceed imports to bring in more gold and silver.[180] He believed in invisible exports, where services like shipping could contribute to the trade balance. Gerard **Malynes** (1586-1641) advocated for government intervention in trade and championed bullionism, emphasizing the importance of accumulating gold and silver as a measure of

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[178] Smith, R. S. (1971). Spanish Mercantilism: A Hardy Perennial. *Southern Economic Journal*, 1-11. and Hamilton, E. J. (1932). Spanish mercantilism before 1700. In *Facts and Factors in Economic History: Articles by former Students of Edwin Francis Gay* (pp. 214-239). Harvard University Press.

[179] Zwierlein, C. (2022, November). Navigation Act (1651) und British Empire: Cromwells Vermächtnis. In *Oliver Cromwell und das Commonwealth* (pp. 145-184). Nomos Verlagsgesellschaft mbH & Co. KG.

Kearney, H. F. (1959). The political background to English mercantilism, 1695-1700. *The Economic History Review*, *11*(3), 484-496.

Blaug, M. (1991). The Early Mercantilists: Thomas Mun (1571–1641), Edward Misselden (1608–1634) and Gerard de Malynes (1586–1623). *Books*.

[180] Mun, T. (1621). *A Discourse of Trade from England Unto the East Indies* and Mun, T. (1628). *England's Treasure by Foreign Trade*. His son published after his death, Mun, T. (1664). *England's Treasure by Forraign Trade* or *the Balance of Forraign Trade is the Rule of Our Treasure*

Hinton, R. W. (1955). The mercantile system in the time of Thomas Mun. *The Economic History Review*, *7*(3), 277-290.

national wealth.[181] Josiah **Child** (1630-1699) influenced the development of British imperialism and argued for aggressive expansion of colonies to secure raw materials and markets for manufactured goods.[182] As the director and later the governor of the East India Company, he supported its monopoly on trade with India. William **Petty** (1623-1687) introduced quantitative methods to economic analysis, considered an early pioneer of statistics and econometrics, and defined wealth as labor embodied in land, highlighting the importance of productivity.[183]

Within the Économies royales, Maximilien de **Béthune**, Duke of Sully (1560-1641),[184] wrote some mercantile episodes, like the Franco-Spanish tariff war, which began in 1603, and had Henry IV place an embargo on all commerce with Spain and the Spanish Netherlands. The **French** mercantilism, Barthélemy de Laffemas (1545-1612),[185] or Colbertism, named after Jean-Baptiste **Colbert** (1619-1683),[186] saw efforts to develop new industries, promote exports, and encourage population growth, but a fully developed bourgeoisie did not emerge. Colbert's policies contributed to France's economic growth and prosperity during the reign of Louis XIV, while the country saw an increase in manufacturing, trade, and naval power. He implemented various policies to achieve these goals: (i) established tariffs and restrictions on imports to protect domestic industries; (ii) provided subsidies

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[181] Malynes, G. (1601): The Canker of England's Commonwealth

De Ruysscher, D. (2020). Conceptualizing Lex Mercatoria: Malynes, Schmitthoff and Goldman compared. *Maastricht Journal of European and Comparative Law*, *27*(4), 465-483.

Harris, J. G. (1999). 'The canker of England's Commonwealth': Gerard de Malynes and the origins of economic pathology. *Textual Practice*, *13*(2), 311-327.

[182] Child, J. (1668). *Brief Observations concerning Trade and the Interest of Money* (1668), and Child, J. (1668, 1690). *A New Discourse of Trade*

Jessen, M. H. (2016). Trade is a Kind of Warfare: Mercantilism and Corporations in the Thought of Josiah Child. *Intellectual History of Economic Normativities*, 41-55.

[183] Petty, W. (1662). *Treatise of Taxes and Contributions*.

Aspromourgos, T. (1995). *On the origins of classical economics: distribution and value from William Petty to Adam Smith*. Routledge.

Ullmer, J. H. (2004). The macroeconomic thought of Sir William Petty. *Journal of the History of Economic Thought*, *26*(3), 401-413.

[184] Sully, M. D. B. (1638) Économies royales.

Dickerman, E. H. (1972). The Man and the Myth in Sully's Economies royales. *French Historical Studies*, *7*(3), 307-331.

[185] Perrotta, C. (2022). Laffemas, founder of French mercantilism. *Revue d'histoire de la pensée économique*, *2022*(14), 207-230.

[186] Al-Bashayreh, A. I. (2023). The French Minister Colbert and His Economic Policy and Reforms under the Reign of Louis XIV 1661-1683. *Journal of Namibian Studies: History Politics Culture*, *33*, 227-247.

and other incentives to encourage domestic production and exports; (iii) developed infrastructure projects like canals and roads to improve trade and commerce; and (iv) established trading companies to expand French overseas trade. He neglected the development of agriculture and the expansion of the internal market, which proved a ground for physiocracy.

English, French, and German-Austrian Mercantilism

Aspect	England	France	Germany and Austria
Focus	Trade surplus, bullionism	Domestic industry, population growth	Domestic production, self-sufficiency
Economic Control	Laws favoring the bourgeoisie, trade regulations for shipping	Efforts to develop new industries promote exports	Advocated for domestic production, export of finished goods
Wealth Creation	Balance of trade concept, prioritize exports over imports	Economic growth, increase in manufacturing, trade	Circulate gold and silver, promote domestic consumption
Political Power	State benefits for the bourgeoisie, imperialism	Policies by Colbert to enhance France's economic power	Emphasis on local production, workforce development
Policies	Navigation Acts, tariffs, subsidies	Tariffs, subsidies, infrastructure projects	Develop all resources and process raw materials domestically
Key Figures	Thomas Mun, Gerard Malynes, Josiah Child	Barthélemy de Laffemas, Jean-Baptiste Colbert	Philipp Wilhelm von Hörnigk
Trade Strategy	Favorable trade laws for English shipping	Tariffs, subsidies for domestic production and exports	Import substitution, focus on exporting finished goods
Industry Focus	Manufacturing, shipping	Manufacturing, trade, naval power	Domestic processing finished goods exportation
Colonization	Expansion of colonies for raw materials, markets	Development of colonies for economic growth	Utilize colonies for economic development, workforce
Strengths	Promoted trade, shipbuilding, and navy	Increased manufacturing, trade, naval power	Promoted domestic production, self-sufficiency
Weaknesses	Neglected agriculture, internal market	Neglected agriculture, internal market	Limited trade, slow economic growth

Source: own compilation of the author

In **German and Austrian** lands,[187] Philipp Wilhelm von **Hörnigk** advocated for nine mercantilist principles:[188] (i) develop all cultivable land and exploit mines; (ii) process raw materials domestically; (iii) ensure a sufficient workforce; (iv) circulate gold and silver rather than hoarding them; (v) promote domestic consumption; (vi) obtain necessary foreign goods through barter, not currency; (vii) import raw materials, process them domestically, and pay local wages; (viii) focus on exporting finished goods to earn gold and silver; (ix) avoid importing goods that can be produced domestically, prioritizing local production even if it costs more.

6.3. Physiocracy

Pierre de **Boisguilebert** (1646-1714) criticized the Mercantilist obsession with accumulating gold and silver, arguing that true wealth stemmed from producing goods and services rather than possessing precious metals.[189] He emphasized the importance of agriculture, viewing it as the bedrock of the economy due to its generation of the "*produit net*" (net product) that sustains other sectors. Boisguilebert advocated for free trade, asserting that restrictions on trade hindered economic growth and the free movement of goods and services. His concept consisted of three main elements First, it is necessary to implement a large-scale tax reform. He wanted to replace the old, regressive taxation system with a proportional or slightly progressive taxation. Second, the domestic, inland trade must be freed from restrictions. Third, he demanded free trade in grain and that the natural rise in prices

[187] Magnusson, L. (2021). Cameralism as Sonderweg of German Mercantilism?. *History of Political Economy*, *53*(3), 389-405.

[188] von Hörnigk, P. W. (1684). *Oesterreich Uber alles wann es nur will. Das ist wohlmeinender Fürschlag wie mittelst einer wolbestellten Lands-Oeconomie, die Kayserl. Erbland in kurzem über alle andere Staat von Europa zu erheben / und mehr als einiger derselben / von denen andern Independent zu machen.*

Von Hörnigk, P. W. (1965). Austria over all if she only will. *Early Economic Thought*.

[189] Boisguilbert, P. (1695-1707). Le De'tail de la France, 1695; Factum de la France, 1706; Traite' de la nature, culture, commerce, et interet des grainls, 1707; Dissertation sur la nature des richesses, de l'argent et des tributs, 1707, Supplement au detail de la France, 1707.

Boisguilbert, P. Le Pesant de (1966). Pierre de Boisguilbert ou la naissance de l'economie politique. Paris: Institut national d'etudes demographiques.

Faccarello, G. (2023). Pierre de Boisguilbert and the foundations of laissez-faire. In *A History of Economic Thought in France* (pp. 31-44). Routledge.

Benítez-Rochel, J., & Robles-Teigeiro, L. (2003). The foundations of the Tableau Économique in Boisguilbert and Cantillon. *European Journal of the History of Economic Thought*, *10*(2), 231-248.

should not be restricted. Additionally, he underscored the pivotal role of entrepreneurs and market forces, acknowledging individual initiative and market mechanisms as driving forces behind economic activity. He observed that the terrible misery of the peasantry was the chief cause of the decline of industry, as it thus lacked a somewhat broad market for sale. Therefore, unlike the mercantilists, he examines the opposite flow of goods and money, no longer between countries but within countries, about economic branches.

Physiocratic Theories

	Theory	Economic policy	Conceptual terminology
Method	Evidence	Education	Avances Capitals
Politics	Natural order	Legal despotism	Grande culture Capitalist extensive agri-culture
Agriculture	Agriculture is the only productive sector (Avances)	Agrarian reform (Grande et petite cul-ture)	Produit net Net product or surplus
Production	Produit net (Bon prix) (Prix fonda-mental)	Impôt unique	Bon prix High price remunerative Single tax Prix fondamental Cost of production
Circulation reproduc-tion	Tableau Economique	Trade freedom	Impôt unique Single tax

Source: Backhaus, J. G. (2012). *Handbook of the history of economic thought*. Springer. 146.

In the 18th century, the **physiocrats**, proponents of the government of nature, advocated for the primacy of the rule of nature over state intervention, emphasizing maximum freedom for individuals. Francois **Quesnay** (1694-1774) envisions in *Tableau économique* (1758/59) allowing the economy to follow its natural order, attributing the state's role to upholding this natural order and safeguarding private property rights.[190] Agriculture was identified as the key industry, as all wealth is believed to originate from the soil. The

[190] Trabucchi, P. (2020). Considerations on the development of Quesnay's Tableau Économique. *New Perspectives on Political Economy and Its History*, 129-148.
Charles, L., & Théré, C. (2023). A Note on the Early Versions of the Tableau économique. *History of Political Economy*, *55*(1), 145-172.

Physiocratic economic framework comprises three distinct sectors: the Proprietary Class (Landowners), the Productive Class (Agricultural Laborers), and the Sterile Class (Artisans and Merchants). Their economic philosophy promotes free trade without protectionism, encapsulated by the principle of Laissez-faire – urging minimal interference in economic affairs.

Building upon Boisguilebert's ideas, Anne-Robert-Jacques **Turgot** (1727-1781), minister of Louis XVI, further developed Physiocratic thought by positing agriculture as the sole productive sector, with other sectors functioning to transform agricultural output.[191] Turgot championed laissez-faire economics, contending that government intervention in the economy was generally detrimental and advocated minimal market interference. He supported free trade and abolished internal tolls within France, aiming to streamline goods flow and reduce consumer costs. Moreover, Turgot favored implementing a single tax on land instead of multiple taxes, believing that such a simplified system would be more efficient and equitable for all parties involved. He is considered a physiocrat,[192] but he is today best remembered as an early advocate for economic liberalism by postulating something like the law of diminishing marginal returns in agriculture.[193]

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[191] Turgot, ARJ. (1770). *Réflexions sur la formation* et la distribution *des richesses*. Reflections on the Formation and Distribution of Wealth
Faccarello, G. (2023). Turgot, Graslin and sensationist political economy. In *A History of Economic Thought in France* (pp. 117-155). Routledge.
Groenewegen, P. D. (2012). *The economics of ARJ Turgot*. Springer Science & Business Media.
[192] Vardi, L. (2012). *The Physiocrats and the World of the Enlightenment*. Cambridge: Cambridge University Press.
[193] Henderson, D. R. (2008). Anne-Robert-Jacques Turgot, The Concise Encyclopedia of Economics, Library of Economics and Liberty (2nd ed.), Liberty Fund.

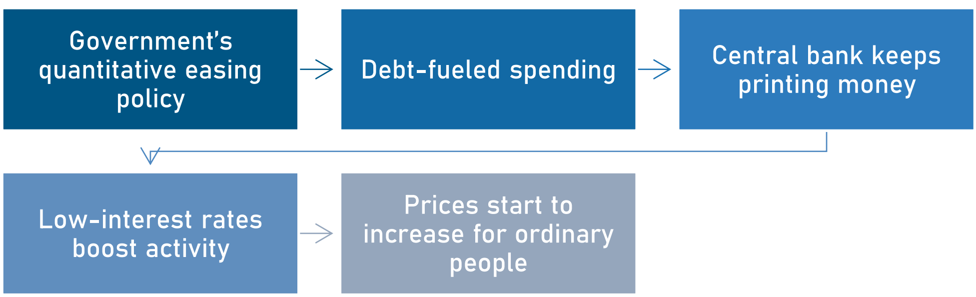
7. 18-19th Centuries

The Age of Chivalry is gone.
That of sophisters, economists, and calculators has succeeded
(and the glory of Europe is extinguished for ever.)
Edmund Burke: Reflections on the Revolution in France (1790)

At the end of the 18th century, the Classical School, established by Adam Smith, advocated for free markets and limited government involvement. In the mid-19th century, the Historical School of Economics appeared, and at the end of the era, the first neo-classicals. During the period, we also witnessed the appearance of communism and, later, socialism as responses to industrialization, advocating for collective ownership and government intervention to address social inequalities.

The Irish-French economist Richard **Cantillon** (1680-1734) is considered a bridge between Mercantilism and early classical economics.[194] He introduced the concept of entrepreneurship and the role of entrepreneurs in the economy, analyzed the role of money and credit in circulation and price determination, and emphasized the importance of the velocity of money in economic activity.

Cantillon Effect



Source: own compilation of the author

The concept of relative inflation, or a disproportionate rise in prices among different goods in an economy, is now known as the **Cantillon Effect**: (i) new money is injected into the economy by the government; (ii) certain groups (commercial banks, investors) get access to this money first; (iii)

[194] Cantillon, R. (1755) Essai sur la Nature du Commerce en Général. Essay on the Nature of Commerce in General, published posthumously, outlining his economic theories. Małecka, J. (2020). Place of Cantillon Theories in Economic Sciences. *Horyzonty Polityki*, *11*(36), 139-170.

these groups gain an arbitrage opportunity, they're able to spend money before prices increase across society.[195]

Cantillon's **concept of entrepreneur** essentially turned the word and the world upside down. It became self-regulating based on profit and loss and thus became the foundation on which he could construct market economy theories and models. Cantillon redefined the entrepreneur to be any individual who bought goods or resources at current market prices to be sold in the future at uncertain prices. It refers to a market entrepreneur acting under uncertainty.[196] Physiocrats like Quesnay adopted this concept. His definition is essentially that of Frank Knight and Ludwig von Mises, so it has important implications for developing the Chicago and Austrian schools of economics.[197]

7.1. Classical School

Within the **Classical School**, in the late 18th and 19th centuries, a stance favored the 'rule of nature' over state involvement, emphasizing the utmost freedom for individuals. Central to this perspective is the assertion that labor serves as the fundamental source of value, adhering to the Labor Theory of Value and a strong emphasis on the profit motive.

Adam **Smith** (1723-1790), renowned for his major work *An Inquiry into ihe Nature and Causes of the Wealth of Nations* (1776),[198] introduced the concept of a *laissez-faire* system characterized by natural liberty and labor specialization, fostering a new political and social order. In international trade, this labor specialization is based on the absolute advantage. Smith advocated for individual pursuit of self-interest, emphasizing free international trade, where he viewed trade as a mutually beneficial, non-zero-sum rather than a positive-sum activity. He believed that selfish interests, unhampered

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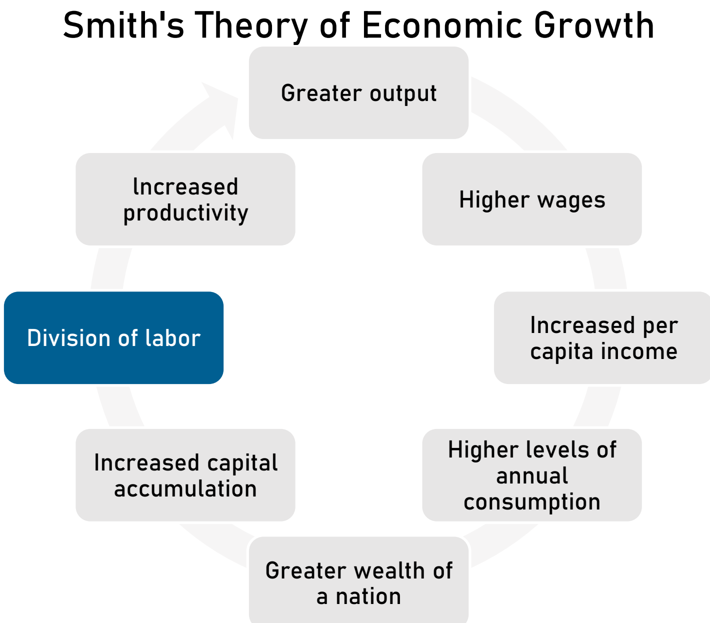
[195] Weber, C. M. (2023). Using the Classical Equation of Exchange and Cantillon Effects to Help Understand the Inequality Created by an Increasingly Active Central Bank Monetary Policy. *SSRN 4420462*.
Sieroń, A. (2020). A Note on Some Recent Misinterpretations of the Cantillon Effect. *Quarterly Journal of Austrian Economics, 22*(4), 596-602.

[196] The government contractor, or what we might call a political entrepreneur,1 would typically bid on building a structure for the government and would thus have predetermined revenues, but uncertain future costs.

[197] Thornton, M. (2020). Turning the word upside down: how cantillon redefined the entrepreneur. *Quarterly Journal of Austrian Economics, 23*(3-4), 265-280.

[198] Smith, A. (1776, 2002). *An Inquiry into ihe Nature and Causes of the Wealth of Nations*. London. (1759) *The Theory of Moral Sentiments.*

by government intervention, would lead to the efficient utilization of markets and price determination through the invisible hand. The book is organized into five sections, each delving into specific economic and political theory aspects. **Book I:** Of the Causes of Improvement in the productive Powers of Labour systematically scrutinizes the concept of the division of labor, elucidating its underlying principles. It presents two interpretations of market interactions: one emphasizes self-interest, and another (along with his Theory of Moral Sentiments) emphasizes sympathy and consideration for others. The first, and perhaps the more widespread interpretation, posits that individuals engage solely for personal gain, devoid of genuine concern for others in market interactions.



Source: Ekelund Jr, R. B., & Hébert, R. F. (1997, 2007, 2014). *A History of Economic Theory and Method*. Waveland Press. 129.

Book II: Of the Nature, Accumulation, and Employment of Stock, initiates a scholarly conversation on the division of capital (stock), delving into its implications. The intricacies surrounding capital accumulation, productive and non-productive labor, and the dynamics of interest on borrowed capital are subjected to rigorous analysis. **Book III:** Of the Different Progress of Opulence in Different Nations brings an insightful exploration of long-term economic growth and development. After the decline of agriculture's prominence, the contribution of urban trade to national development is systematically investigated. **Book IV:** Of Systems of Political Economy engages in a thorough exploration of the foundational principles underpinning commercial systems. Extraordinary restrictions, disadvantages, bounties, trade agreements, colonies, and motivations for establishing new colonies are comprehensively addressed. The **invisible hand** is an oft-referenced theme in the book, although Smith mentions explicitly it only once (Chapter 2).[199] In **Book V:** Of the Revenue of the Sovereign or Commonwealth, an exhaustive examination of the expenditures incurred by the sovereign or the Commonwealth is presented.

Why did Adam Smith never play hide and seek alone?
Because he believed in the invisible hand, but not in invisible friends!

David **Ricardo** (1772-1823), in his major work *Principles of Political Economy and Taxation* (1817),[200] presented a pessimistic theory on rent. He argued that in a scenario with a small population, domestic food supply from the best land would result in a low rent, leading to high output and profits. However, this focus on agriculture would be detrimental to industrial productivity. Ricardo also introduced the theory of comparative advantage, which posits that economic actors, be they individuals, companies, or countries, should specialize in producing goods and services with a lower opportunity cost than others. Comparative advantage is the ability of a country (or someone) to make a good or service at a lower opportunity cost than another country (or someone). This principle explains why countries engage in international trade, even if another country's labor force is more efficient in producing certain goods.

Thomas **Malthus** (1766-183), in his pessimistic work *Essay on the Principle of Population* (1798),[201] formulated the Malthusian trap. He asserted that population growth occurs exponentially (geometrically) while

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[199] Long, B. (2022). *Adam Smith and the invisible hand of God*. Routledge.
Van der Kooi, C., & Ballor, J. J. (2020). Providence, Divine Power, and the 'Invisible Hand'in Adam Smith. *Journal of Economics, Theology and Religion, 1*(1), 25-44.
Malakhov, S. (2022). Divine Proportion of Invisible Hand: a new look at Adam Smith's natural theology'. *Journal of Institutional Studies*, *14*(1), 36-54.
Mittermaier, K. (2020). *The hand behind the invisible hand: dogmatic and pragmatic views on free markets and the state of economic theory* (p. 278). Bristol University Press.
[200] Ricardo, D. (1817). On the Principles of Political Economy and Taxation. John Murray, 1817. and Ricardo, D. (1895). *The first six chapters of the principles of political economy and taxation of David Ricardo, 1817*. Macmillan and Company.
[201] Malthus, T. (1798). *An Essay on the Principle of Population*
Naso, P., Lanz, B., & Swanson, T. (2020). The return of Malthus? Resource constraints in an era of declining population growth. *European Economic Review, 128,* 103499.
Clark, G. (2007). *A Farewell to Alms: a brief economic history of the world*. Princeton University Press.

food supply growth follows a linear (arithmetic) progression, inevitably leading to poverty and starvation. When the two functions intersect, the event is called a Malthusian trap or catastrophe (or crisis, check, specter, crunch, population trap), in which the population growth outpaces agricultural production, causing famine or war, resulting in poverty and depopulation. Malthus suggested that checks on population growth were limited to misery, vice, and moral restraint.

John Baptiste **Say** (1767-1832), known for his *Treatise on Political Economy* (1803),[202] proposed the law of markets (Say's law), which posits that **supply** constitutes its own demand: "Inherent in supply is the wherewithal for its own consumption".[203] He argued that people work to buy goods and services, leading to an equilibrium in production and consumption, thus preventing overproduction.

John Stuart **Mill** (1806-1873), in his major *work Principles of Political Economy* (1848),[204] acknowledged the role of government in taxing excess earnings, particularly from landowners, to promote wealth distribution. He supported the idea that overproduction is impossible according to Say's Law, advocated for increasing returns to scale for large-scale firms, and recognized the role of trade unions in countering employer power. Mill also accepted the **theory of subsistence wages**, known as the **wage–fund doctrine**.[205] Mill's solution to increasing the wage rate above the subsistence level is to control the growth of the population. If the population grew faster than capital growth, wages would fall. If wages fell below subsistence levels, the population would decrease from disease and starvation. His **stages theory** of dialectical economic development is compendiously elaborated in his Preliminary Remarks in the Principles. Mill adapts the Scottish formalism of four

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[202] Say, J. B. (1803). *Treatise on Political Economy*
Numa, G. (2020). Money as a Store of Value: Jean-Baptiste Say on Hoarding and Idle Balances. *History of Political Economy*, *52*(5), 925-946.
Blanc, E., & Tiran, A. (2018). Jean-Baptiste Say on political power (1793–1832). *Power in economic thought*, 293-320.
[203] John Maynard Keynes coined the phrase "supply creates its own demand," becasue he criticized this law; but creates ≠ constitute
[204] Mill, J. S. (1848). Principles of Political Economy with some of their Applications to Social Philosophy. Longman, Green and Co.
Mabsout, R. (2022). John Stuart Mill, soft paternalist. *Social Choice and Welfare*, 1-26.
[205] Mill, J. S. (1869). Thornton on Labour and its Claims.
Stirati, A. (2020). Classical Roots of the Criticisms of John Stuart Mill’s Wage-Fund Theory. *New Perspectives on Political Economy and Its History*, 149-169.
Hansson, S. O. (2022). John Stuart Mill and the Conflicts of Equality. *The Journal of Ethics*, *26*(3), 433-453.

stages (hunting, shepherding, farming, and commercial) of historical change in more idealistic terms. As accumulated human capital, knowledge functions as the modus operatti of societal transformations. According to Mill, the accumulation and the subsequent diffusion of knowledge are crucial in transitioning from one stage to the next.[206] Mill believed societies inevitably move through these stages, driven by increasing knowledge, population growth, and technological advancements.

Core Elements of Mill's Stages Theory

Stage	Knowledge	Demography, Culture	Natural Capital	Politics
Hunting	Limited and non-concentrated knowledge	Inactivity Lack of aspiration	Mere subsistence	Tribal societies
Shepherd	Accumulation of knowledge	Emergence of religions	Domestication of animals	Despotism
Farming (Feudalism)	Knowledge is concentrated on kings, lords, etc. Catholic Church	Demographic pressure	New tillage techniques (systematic tillage)	Monarchies
Commercial (Capitalism)	Diffusion of wealth and knowledge	Births increase (Malthusian trap)	Negative externalities due to the production process	Representative government and Liberal teachings

Source: Meramveliotakis, G., & Manioudis, M. (2021). History, knowledge, and sustainable economic development: The contribution of John Stuart Mill's grand stage theory. *Sustainability*, *13*(3), 1468.

7.2. Historical School Of Economics

Friedrich **List** (1789-1846) pioneered the field of **historical economics**, recognizing the significance of historical context, national characteristics, and stages of development in shaping economic policies. He criticized the dogmatism of free-market ideologies, arguing that developing nations required temporary **protectionist measures** to nurture infant industries and effectively compete with established economies.[207] List advocated for **proactive government intervention**, endorsing infrastructure development, educational investments, and strategic industry support to stimulate economic

[206] Meramveliotakis, G., & Manioudis, M. (2021). History, knowledge, and sustainable economic development: The contribution of john stuart mill's grand stage theory. *Sustainability*, *13*(3), 1468.
[207] Soriano, M. R. (2020). Friedrich List and David Ricardo: Comparative Notes on National Development. *Available at SSRN 3822815*.

growth. His seminal work, The National System of Political Economy,[208] remains a cornerstone in economic literature, offering insights into the complexities of economic development and the role of government in shaping national economies.

Max **Weber** (1864-1920), renowned for his insightful exploration of economic history, examined the historical circumstances influencing the formation of modern societies and hindering others from achieving dynamic economic and social progress.[209] In his final work, *General Economic History,* compiled from lectures delivered in 1919–20, Weber addresses three key challenges in economic history: the division of labor, the economic focus on profit generation versus householding, and the interplay of rationality and irrationality in economic life.[210] The book explores early agrarian systems, including the manorial system, guilds, and the emergence of capitalism on plantations and estates. Furthermore, it delves into industrial and mining organizations, commerce, transportation of goods, and banking systems. Weber's examination culminates in an exploration of capitalism's evolution and its cultural underpinnings, notably discussing the relationship between religion and capitalism. Weber's comprehensive approach extends to topics such as pre-capitalist economic activities, feudal landownership, artisan guilds, trade enterprises, monetary history, and the emergence of modern capitalism. In the *Economy and Society,* he also investigates economic theories of ancient societies, societal foundations of cultural decline, and further the influence of Protestant beliefs on the spirit of capitalism, as famously detailed in his work *The Protestant Ethic and the Spirit of Capitalism* (1905).[211] The first journal, "Vierteljahrschrift für Sozial und Wirtschaftsgeschichte," began publication in German in 1903.

In Britain, Arnold **Toynbee** (1852-1883) advocated merging economics and history, highlighting concerns about the separation of contemporary

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[208] List, F. (1841). *Das nationale System der politischen Ökonomie* - The National System of Political Economy.
List F. (1827) Outlines of American political economy: in twelve letters to Charles J. Ingersoll (Neuausgabe: With a commentary by Michael Liebig), Dr. Böttiger Verlag, Wiesbaden 1996.
[209] Weber, M. (1922). Wirtschaft und Gesellschaft - Economy and Society. (1917). Wissenschaft als Beruf - Science as a Vocation
[210] Weber, M. *Wirtschaftsgeschichte* (*General Economic History*) (1923, translation 1927)
[211] Weber, M. (1905, 2013). *Die protestantische Ethik und der Geist des Kapitalismus - The Protestant ethic and the spirit of capitalism*. Routledge.

economics from historical context.[212] William **Ashley** (1860-1927) popularized this approach,[213] and George **Unwin** (1870-1925) became the first professor of economic history at the University of Manchester.[214] In the U.S. the Harvard established the first chair of Economic History in 1892.

7.3. Neo-Classicals I

Léon **Walras** (1834-1910) is renowned as the founder of neoclassical economics, pioneering the development of **general equilibrium theory**.[215] His work delved into the intricate interactions between supply and demand across all markets, providing a comprehensive understanding of economic dynamics. The theory attempts to explain the behavior and dynamics of supply, demand, and prices across an entire economy comprising numerous interacting and interconnected markets. It seeks to demonstrate that the interplay between supply and demand will ultimately lead to a comprehensive state of general equilibrium. **Walras's law** implies that the sum of the values of excess demands across all markets must equal zero, whether or not the economy is in general equilibrium. This means that if positive excess demand exists in one market, negative excess demand must exist in some other market. Walras emphasizes mathematical modeling, employing equations and diagrams to represent economic relationships with precision and rigor. He advocated for free markets, believing that the price mechanism could achieve an optimal allocation of resources under specific conditions. One of his key works, the Elements of Pure Economics, remains influential in economic literature.

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[212] Toynbee, A. (1884). Lectures on the Industrial Revolution In England: Public Addresses, Notes and Other Fragments, together with a Short Memoir by B. Jowett, London, Rivington's; Whitefish, Montana: Kessinger Publishing (pb 2004)

[213] Ashley, W. (1888, 1893). An Introduction to English Economic History and Theory, Part I: The Middle Ages. II: The End of the Middle Ages. (1914). *The Economic Organisation of England: An Outline History,* London: Longmans, Green & Co.

[214] Unwin, G. (1904) *Industrial Organisation in the Sixteenth and Seventeenth Centuries.* (1908) *The Gilds and Companies of London*

[215] Walras, L. (1874). Éléments d'Économie Politique Pure, ou Théorie de la richesse sociale. Lausanne: L. Corbaz & Cie.

Bichler, M., Fichtl, M., & Schwarz, G. (2021). Walrasian equilibria from an optimization perspective: A guide to the literature. *Naval Research Logistics (NRL), 68*(4), 496-513.

Kirtchik, O., & Boldyrev, I. (2023). "Rise and Fall" of the Walrasian Program in Economics: A Social and Intellectual Dynamics of the General Equilibrium Theory.

Alfred **Marshall** (1842-1924) played a pivotal role in bridging neoclassical and institutional economics, recognizing the significance of institutions, market dynamics, and historical context in economic analysis.[216] Marshall introduced the concept of marginal utility, elucidating consumer behavior based on the additional satisfaction gained from each unit consumed. His contributions emphasized the importance of time and uncertainty, analyzing how time preferences and future expectations influence economic decisions. He popularized the use of supply and demand functions as tools of price determination; their intersection is the so-called Marshallian cross.[217]

7.4. Socialism, Communism

How many Marxists does it take to screw in a lightbulb?
None - the bulb contains within it the seeds of its own revolution.

Socialism was affected by significant social and political transformations in response to the Industrial Revolution. Karl **Marx** (1818-1883), a prominent figure in socialist thought, articulated his ideas with Friedrich **Engels** (1820-1895) in the Communist Manifesto (1848).[218] They advocated the labor theory of value, aligning with Classical writers, positing that the value of a good is determined by the labor required for its production, rejecting the concept of an invisible hand. In his three-volume book, The Capital (1867, 1885, 1894),[219] Marx states that capitalists exploit the wealth created by labor, driven by the pursuit of profit, leading to increased demand for labor and, consequently, higher wages above subsistence levels. Capitalists resist paying higher wages as it impacts profitability. Technological advancements and new production methods aimed at reducing labor intensity contribute to unemployment in the pursuit of greater profits. In the pursuit of profit, wages

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[216] Marshall, A. (1890). Principles of Economics.

[217] The diagram itself, however, long predates Marshall; Antoine-Augustin Cournot originated it in 1838.And Karl Rau (184 l), Jules Dupuit (1844), Hans von Mangoldt (1863), and Fleeming Jenkin (1870) thoroughly developed it years before him.
Humphrey, T. M. (1992). Marshallian Cross Diagrams and their Uses before Alfred Marshall. *Economic Review*
Aspromourgos, T. (2020). Rationalising the supply-and-demand cross, 1838–1890. *The European Journal of the History of Economic Thought*, *27*(2), 194-208.

[218] Marx. K., Engels, F. (1848). *Manifest der Kommunistischen Partei - Das Kommunistische Manifest.* London

[219] Marx. K. (1867-1894) Das Kapital. *Kritik der politischen Oekonomie.* Verlag von Otto Meisner
Simliar evocation: Piketty, T. (2014). *Capital in the Twenty-first century*. Harvard University Press.

eventually decline, resulting in reduced demand and a vicious cycle of unemployment. Marx argued that workers, viewed merely as cogs in a machine for profit, become deskilled and alienated. The concentration of power in fewer capitalists is facilitated as profitable firms merge, leading to poverty, oppression, exploitation, and enslavement.

Socialism vs. Communism

Aspect	Socialism	Communism
Economic System	Social ownership and control of the means of production.	Common ownership of the means of production.
Goal	Fair distribution of wealth and resources.	Classless society where wealth and resources are shared.
Private Property	May allow for private property, but often limited.	Abolition of private property.
Government Role	Significant government involvement in the economy.	Temporary government control to transition to communism.
Class Structure	May still have social classes, but with more equality.	Abolition of social classes, aiming for equality for all.
Political System	Can range from democratic to authoritarian.	Aim for a stateless, classless society governed by the people.
Equality	Strives for equality of opportunity and outcome.	Aims for complete equality in all aspects of life.
Implementation	Can coexist with other systems, like capitalism.	Seen as a transitional phase towards communism.
Examples	Socialist countries in Eastern Europe, the Soviet Union (under Lenin and Stalin), Maoist China, North Korea	

Source: own compilation of the author

Key concepts include the (i) means of production (factories, land, raw materials, etc., owned by capitalists), (ii) labor power (the ability of workers to work, which they sell to capitalists for wages), (iii) surplus value (the disparity between the value workers produce and the wages they receive), (iv) commodity fetishism (the perception that objects or commodities possess intrinsic value, obscuring the labor exploited to produce them), (v) class struggle (the inherent conflict between capitalists and workers over the extraction and distribution of surplus value), and (vi) historical materialism (the interpretation of human history through the prism of economic systems and class relations).

These works and concepts led to Leninism, the October Revolution (1917-1923) and other **communist revolutions**, the establishment of the Soviet Union (Union of Soviet Socialist Republics, USSR, 1922-1991), and after World War II, other socialist countries with dictators, one-party regimes, the Eastern Bloc, the (Nuclear) Arms race, and the Cold war till the 1990s.

Why is the Soviet system superior to all others?
Because it successfully overcomes problems that no other system has.
Chrsitie Davies
Humour and protest: Jokes under Communism.
International Review of Social History, 52(S15), 2007

8. 20-21st Centuries

The 20th and 21st centuries witnessed a rich tapestry of economic thought, marked by the emergence and evolution of diverse schools of thinking that have shaped economic policy and theory. The Austrian School emphasizes that the market, guided by individuals and entrepreneurs acting freely, results in the most efficient allocation of resources. Keynesianism advocates for government intervention via fiscal policy to stabilize the economy during downturns. Monetarism posits that controlling the money supply is crucial for achieving economic stability and combating inflation. Neo-Classicals II argue that rational actors in competitive markets generally produce efficient outcomes, though selective government intervention may be warranted. Supply Side Economics promotes stimulating the economy's supply side through tax cuts and deregulation to foster growth. New Keynesianism, akin to Keynesianism, places greater emphasis on microeconomic foundations and long-term growth. Modern Monetary Theory (MMT) posits that a government with its own fiat currency can spend to achieve full employment without traditional budget constraints. Concurrently, a spectrum of heterodox schools of thought has flourished, including institutional economics, feminist economics, ecological economics, behavioral economics, complexity economics, developmentalist approaches, and debtonomics.

8.1. Austrian School

The **Austrian School of Economics** focuses on methodological individualism and free-market capitalism. Emphasizes the importance of subjective value and the role of entrepreneurship. Influential figures include Ludwig von **Mises** (1881-1973) and Friedrich **Hayek** (1899-1992). They advocate for free-market principles, emphasizing individual entrepreneurship, private property rights, and a decentralized market process. Austrian economists criticize the mainstream economic methodologies and central planning, promoting a more market-driven and individual-focused approach.

They introduced the concept of **catallactics**, which is a theory of the way the free market system reaches exchange ratios and prices. The Greek word catallaxy derives from the verb katallasso (καταλλάσσω), means to exchange, to reconcile. Forther more it refers not only "to exchange" but also "to admit in the community" and "to change from enemy into friend. (Hayek suggested καταλλαξία).[220] They expressed dissatisfaction with the term economy due to its Greek origin (oikonomia), which suggests household management, implying a shared goal among economic agents in a market economy. Catallactics is a **praxeological** theory,[221] it aims to analyse all actions based on monetary calculation and trace the formation of prices back to the point where an agent makes his or her choices.

Mises is known for his staunch advocacy of laissez-faire principles and opposition to government intervention, following the teachings of Carl Menger, a key figure in the Austrian School of Economics.[222] He introduced the foundation of **monetary theory** and the first **integration of microeconomics and macroeconomics**. He defined how money originated in the market, its power as a means of bartering, and how its value is based on its usefulness as a commodity.[223] Mises argued that money's value originated from the market and emphasized its role as a commodity. According to his **regression theorem**, the value of money today depends on the value of money yesterday, just as the value of money yesterday was dependent on a previous day's value. The **Austrian Business Cycle Theory** (ABCT) states that a government-led banking system's inflationary expansion of money encourages a boom in investment in certain lines of business and industries to finance long-term production processes. However, without continued injections of credit, these projects prove unprofitable and unsustainable.[224] He cautioned against centrally planned economies, emphasizing the importance of market prices

[220] Hayek, F.A. (1976). *Law, Legislation, and Liberty*. (The Mirage of Social Justice). Vol. 2. London: Routledge. pp. 108–109

[221] In philosophy, praxeology or praxiology (from Ancient Greek πρᾶξις (praxis) 'deed, action', and -λογία (-logia) 'study of') is the theory of human action, based on the notion that humans engage in purposeful behavior, contrary to reflexive behavior and other unintentional behavior. Praxeology rests on the fundamental axiom that individual human beings act, that is, on the primordial fact that individuals engage in conscious actions toward chosen goals. The praxeological method spins out by verbal deduction the logical implications of that primordial fact. In short, praxeological economics is the structure of logical implications of the *fact* that individuals act.

Rothbart M. N. (2019). Praxeology: The Methodology of Austrian Economics. Mises Institute (https://mises.org/library/praxeology-methodology-austrian-economics)

[222] Von Mises, L. (1912). *The Theory of Money and Credit*. Skyhorse Publishing, Inc. Von Mises, L. (1919). *Nation, state, and economy*. Liberty Fund. Von Mises, L. (1929). *Critique of Interventionism, A*. Ludwig von Mises Institute. Von Mises, L. (1947). *Planned chaos*. Ludwig von Mises Institute. Von Mises, L. (1969). *The historical setting of the Austrian school of economics* (pp. 53-76). New Rochelle, New York: Arlington House.

[223] Mises Institute (2023). The Theory of Money and Credit (https://mises.org/library/theory-money-and-credit)

[224] Rothbart M. N. (2020). Mises's Contribution to Understanding Business Cycles. Mises Institute (Mises's Contribution to Understanding Business Cycles)

in resource allocation. Mises critiqued Keynes' philosophy, which opposed laissez-faire principles and advocated for state economic intervention.

"Economics is the only field in which two people can get a Nobel Prize for saying exactly the opposite thing." Humor is evolving; now we have a refinement: "Economics is the only field in which two people can get a Nobel Prize for saying the opposite thing" is true, but is not strong enough. Better: "Economics is the only field in which two people can share a Nobel Prize for saying opposing things." Specifically, Myrdahl and Hayek shared one.[225]

Hayek prefers individualism and a free market. However, he believes that every state intervention generates another one. [226] The accelerating inflation resulting from excessively low unemployment can become unmanageable. He expressed regret for not refuting Keynesian economics in a book-length work. Sudha Shenoy took on this challenge, compiling Hayek's scattered writings on Keynesian policy into the book A Tiger by the Tail - The Keynesian Legacy of Inflation in 1972.[227] Hayek's metaphor likened **inflation** to a tiger, with central banks attempting to control it by holding its tail, a perilous and challenging task. He argued that inflation stemmed from government overspending, leading to the printing of more money and higher prices. Hayek believed Keynesian economists misunderstood inflation, attempting to control it through interest rates to no avail. According to Hayek, inflation erodes savings, discourages long-term planning, and leads to social unrest. He advocated reducing government spending and maintaining a stable money supply to combat inflation.

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[225] Here we reflect a news form 1974. The New York Times (Oct. 10, 1974): Myrdal and von Hayek Share a Nobel for their pioneering work in the theory of money and economic fluctuations and for their pioneering analysis of the interdependence of economic, social and institutional phenomena. The deep government involvement advocated by Myrdal and the hands-off policy voiced by Hayek have been characteristic of both since they began their careers in the early nineteen-twenties. Myrdal said wage and price controls were necessary to stabilize the economy and he suggested immediate gasoline rationing. Hayek said all major crises have been caused by previous inflation, which is far from being isolated and which sooner or later leads to collapse. The more action governments seem to take to combat inflation, he said, the more deeply embroiled they become.

[226] Hayek, F. A. (1944). *The road to serfdom*. London: George Routledge & Sons. Hayek, F. A. (1948). *Individualism and Economic Order*. University of Chicago Press. Hayek, F. A. (1972). *A Tiger by the Tail*. The Keynesian Legacy of Inflation. compiled by Sudha Shenoy. CATO Institute. Hayek, F. (1992). The Austrian School of Economics. The Fortunes of Liberalism: Essays on Austrian Economics and the Ideal of Freedom. Chicago: University of Chicago Press. 43.

[227] Hayek, F. A. (1972). *A Tiger by the Tail*. The Keynesian Legacy of Inflation. compiled by Sudha Shenoy. CATO Institute.

Keynes vs. Hayek

	Keynes	Hayek
Govern-ment & Economy	Pro-Government	Anti-Government (causes malinvestment)
	The government can steer the economy	The economy must consist of free market forces
	The economy can settle at a sub-optimal level without the help	The economy will settle at an opti-mal level unhindered. A govern-ment measure makes only another one.
	A circular flow of income exists.	Markets are not easily predictable.
Regulation	Economic regulation is good	Economic regulation is bad
Key factors	GDP and aggregate demand	Interest rate
Bail-outs	Must pull the economy out of the bust	Must avoid boom-bust cycles
	Bail-outs good	Bail-outs bad
Businesses	Kept bad businesses afloat to pro-tect jobs	Liquidation of bad businesses is necessary
Term	The short-run is the most im-portant	The long run is the most important
	Savings should be spent now.	Savings should be hoarded for fu-ture.
Respect	Respect for human suffering and job protection	Respect for entrepreneurship and economic stability
People & Govern-ment	People have chaotic 'animal spirit'	People are rational
	Government acts in the best inter-est of the public	People act in their own best inter-est

Source: own compilation of the author

8.2. Keynesianism

How many Keynesian economists does it take to change a light bulb? All. Because then you will generate employment, more consumption, dislocating the AD (aggregate demand) to the right,...

The **Keynesianism** emerged in response to the lessons learned from the Great Depression of the 1930s, recognizing that recessions presented significant challenges. It questioned the validity of Say's law, suggesting that unemployment might persist due to the rigidity of wages and the potential ineffectiveness of interest rates in stimulating economic growth.

John Maynard **Keynes** (1883-1946) major work, The General Theory of Employment, Interest and Money (1936), [228] was a response to the great economic depression.

> I shall argue that the postulates of the classical theory apply to a special case only and not to the general case, the situation which it assumes to be a limiting point of the possible positions of equilibrium. Moreover, the characteristics of the special case assumed by the classical theory happen not to be those of the economic society in which we actually live, with the result that its teaching is misleading and disastrous if we attempt to apply it to the facts of experience.
>
> John Maynard Keynes

He established **macroeconomics**, which starts from **aggregate demand** and explains fluctuations in **employment** and production. He observed and stated that the markets' self-correcting mechanism does not function in reality, furthermore the possibility and necessity of **state intervention** in the economy. The consequences of business cycles (unemployment, inflation) can be alleviated through fiscal and monetary policies, stimulating aggregate demand. He introduced the idea of crisis and recession management in economic policy. The **Keynesian Revolution** involved a significant overhaul of economic theory regarding the determinants of employment levels in the economy. According to Keynes, unemployment results from insufficient demand for goods and services, and the economy may experience prolonged periods of high unemployment. Emphasizing the short run, Keynes argued that wages often remain inflexible downward, provoking social and industrial unrest, a phenomenon known as sticky wages. During a recession, inadequate investment relative to supply leads to unemployment. Keynesian fiscal policy suggests that the state can prevent unemployment and economic recession. The state plays a regulatory role in the economy, intervening to raise aggregate demand through stimulus spending. This involves borrowing and investing, even if it means running budget deficits, to ensure the economy's overall health. By smoothing out the market cycle's bumps, characterized by boom and bust phases, state spending contributes to employment creation and prevents unemployment. Keynes acknowledged the presence of

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[228] Keynes. J.M. (1936). *The General Theory of Employment, Interest and Money*. Palgrave Macmillan. (1919) *The Economic Consequences of the Peace*. Routledge (1926) *The End of Laissez-Faire*. London: Palgrave Macmillan UK. (1930) A Treatise on Money. (1922) Inflation as a Method of Taxation. *Manchester Guardian* Commercial Reconstruction Supplement. (post, 1946) *Newton: the Man.* University of St Andrews School of Mathematics and Statistics.
Pigou, A. C. (1936). Mr. JM Keynes' General theory of employment, interest and money. *Economica*, *3*(10), 115-132.
Schumpeter, J. A. (1936). The General Theory of Employment, Interest and Money.

chaotic **animal spirits in people** and believed that the government should act in the public's best interest.

Keynes analyzed the **Treaty of Versailles** and its impact on post-World War I Europe.[229] He argues that the harsh reparations imposed on Germany would lead to economic instability and social unrest. He warns that these punitive measures could sow the seeds of future conflicts and advocates for a more moderate approach to reconstruction.

Despite participating in the creation of the International Monetary Fund (**IMF**), Keynes expressed disagreement with certain solutions and criticized it for imposing harsh economic adjustment programs on borrowing countries. He argued that such measures could worsen recessions and burden already struggling populations. Keynes advocated for government spending to stimulate demand and promote recovery during crises, expressing concerns about the IMF's lack of democratic accountability and transparency in decision-making.[230]

8.3. Monetarism

In the late 20th century, **monetarism** advocated that monetary policy, rather than fiscal policy, should be the primary tool for economic management, distinguishing itself from Keynesianism, which is deemed ineffective in addressing inflationary concerns. The concept is based on the function of money demand, interpreting inflation as a purely monetary phenomenon. It emphasizes the predictability of the money supply. By changing the amount of money, monetary policy is not capable of influencing the real economy by itself. Still, it is already capable of controlling the rate (dynamics) of changing the amount of money. Fiscal interventions divert the economy from equilibrium, a deviation corrected by the money market through changes in interest rates and inflation.

Milton **Friedman** (1912-2006), a key proponent of monetarism, asserted that the relationship between money supply and inflation is crucial, focusing on factors such as the competitiveness of exports.[231] He suggests

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[229] Keynes. J.M. (1919) *The Economic Consequences of the Peace*. Routledge

[230] Stiglitz, J. (2002). *Globalization and its Discontents*. New York: W. W. Norton. 38.

[231] Friedman, M. (1960). A Program for Monetary Stability. Fordham University Press. (1962). Capitalism and Freedom. (1968). The Role of Monetary Policy. *American Economic Review*, Vol. 58, No. 1 1–17. (1977). Inflation and Unemployment: Nobel Lecture. Journal of Political Economy. Vol. 85, 451–472.

more capital in the system lessens the need for government involvement. In the monetarist framework, increasing public spending is believed to lead to higher prices without a corresponding increase in output. To control inflation, emphasis is placed on regulating the money supply through tools such as interest rates, limiting loans, and controlling public spending. Additionally, monetarism promotes **supply-side policies** that influence labor supply and the supply of goods and services. This includes measures like (i) cutting income tax, (ii) fostering market competition, and (iii) reducing the role of trade unions in the labor market. A fundamental tenet of monetarism is the minimization of the state's role in the economy, advocating a return to laissez-faire principles reminiscent of Adam Smith's invisible hand. This involves privatizing state assets and encouraging business growth. Contrary to Keynesianism, monetarism prioritizes price stability as the most important economic goal, diverging from the emphasis on full employment found in the Keynesian framework.

How many Chicago School economists does it take to change a light bulb?
None. If the light bulb needed changing, the market would have already done it.

The **Chicago school** of economics, linked with the faculty at the University of Chicago, embodies a neoclassical approach to economic theory, advanced and disseminated by prominent figures associated with the institution. Milton **Friedman** and George **Stigler** are recognized as the foremost scholars of this school. Initially advocating monetarism over Keynesianism, Chicago macroeconomic theory underwent a shift in the mid-1970s towards new classical macroeconomics, emphasizing rational expectations. The former division between freshwater and saltwater economics has primarily diminished, as both traditions have integrated concepts from one another extensively.

8.4. Neo-Classicals II

In the early and mid-20th century, the resurgence of the Classical School, now referred to as **neo-classical**, prompted a reexamination of the paradox of value and the criteria for assessing the worth of a good. While Smith, Marx, and Ricardo adhered to the labor theory of value, positing that

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Friedman, M., Schwartz, A. (1963). A Monetary History of the United States, 1867–1960.
Tavlas, G. S. (2023). Milton Friedman and the road to Monetarism: a review essay. *History of Political Economy*, *55*(1), 173-192.

the cost of labor determines the price of a good, the Neo-Classical era introduced a novel perspective. The emergence of the idea that value is contingent on utility or consumer satisfaction gained prominence, with Marginal Utility reflecting the satisfaction derived from consuming additional units, becoming the determinant of price. In this paradigm, a higher Marginal Utility corresponds to a higher price, challenging the traditional emphasis on labor as the sole determinant of value. The neoclassicals, including Edward C. Prescott, Kenneth Arrow, Paul A. Samuelson, and Robert E. Lucas, seek to reconcile micro-level regularities of individual utility-maximizing behavior with rational expectations at the macro level.

In microeconomics, Paul A. **Samuelson** (1915-2009) introduced the concept of **revealed preference**, which deduces a consumer's utility function from their behavior, emphasizing observed choices over assumed preferences.[232] He also contributed to **welfare theory**, developing criteria for assessing economic welfare changes. Samuelson's work included contributions to the **efficient market hypothesis** in financial theory and public finance, although he maintained skepticism about its application to financial markets. He also delved into **public finance theory**, exploring the theory of public goods and optimal public financing of public goods in a market economy of private goods markets. In macroeconomics, he developed **neo-Keynesian mathematical models**, such as the overlapping generations model, explaining business cycles and recessions through the multiplier and accelerator effects. His neoclassical synthesis bridged neoclassical microeconomics with Keynesian macroeconomics, advocating for government intervention to achieve and maintain full employment alongside efficient market mechanisms. He also established the **fallacy of composition**, asserting a fallacy in which what is true of a part is, on that account alone, also alleged to be true on the whole.[233] The **Balassa-Samuelson effect** states that productivity differences between the production of tradable goods in different countries (i) explain significant observed differences in wages and in the price of services and between purchasing power parity and currency exchange rates, and (ii) it means that the currencies of countries with higher productivity will appear to be undervalued in terms of exchange rates; this gap will increase with higher incomes.[234]

[232] Samuelson, P. A. (1947). *Foundations of Economic Analysis*. Harvard University Press.
[233] Samuelson, P. A. (1955). *Economics: An Introductory Analysis,* New York: McGraw-Hill
[234] Balassa, B. (1964). The Purchasing Power Parity Doctrine: A Reappraisal. *Journal of Political Economy*, vol. 72, 1964, pp. 584–96.

Robert **Lucas** (1937-2023), in his critique, dismantles the tractability of economic policy, noting that while traditional econometric models may perform well in the short term and fit past data accurately, they are woefully inadequate for forecasting and particularly unsuitable for simulating economic policy actions.[235] Conventional methods of economic policy evaluation fail to account for the impact of policy on expectations. Even in its dynamic adjustment of the money supply, monetary policy proves incapable of influencing the real economy; for instance, high inflation does not necessarily yield low unemployment in all alternative monetary policy regimes. In attempting to model the effects of economic policy, previous models neglected that they are essentially working within another model. The Lucas critique shattered the illusion of easy and rapid economic policy modeling, demonstrating that while traditional econometric models may perform well in the short term and fit past data accurately, they are entirely unsuitable for forecasting and even more inadequate for simulating economic policy actions.

This essay has been devoted to an exposition and elaboration of a single syllogism, given that tile structure of all econometric model consists of optimal decision rules of economic agents, and that optimal decision rules vary systematically with changes in the structure of series relevant to the decision maker, it follows that any change in policy will systematically alter the structure of econometric models.

Robert Lucas

8.5. Supply-side economics

I recently came to a remarkable conclusion, which I commend to you, and that is that if something cannot go on forever, it will stop. So, what we have learned about all these things is that the Federal debt cannot rise forever relative to the GNP. Our foreign debt cannot rise forever relative to the GNP. But, of course, if they can't, they will stop.

Herbert Stein

Supply-side economics, associated with Robert D. **Atkinson** and Herbert **Stein**,[236] draws from the work of Robert **Mundell** and Arthur **Laffer**.[237]

Samuelson, P. (1964). Theoretical Notes on Trade Problems. *Review of Economics and Statistics*, vol. 46, no 2, 145–54.

[235] Lucas, R. E. (1976). Econometric policy evaluation: A critique. In *Carnegie-Rochester conference series on public policy* (Vol. 1, pp. 19-46). North-Holland.

[236] Atkinson, R. D. (2007). Supply-Side Follies: Why Conservative Economics Fails, Liberal Economics Falters, and Innovation Economics is the Answer, Rowman & Littlefield.

[237] Laffer, A. B., Sinquefield, J. C., & Domitrovic, B. (2022). *Taxes have consequences: An income tax history of the United States*. Simon and Schuster.

Laffer, A., Moore, S., Sinquefield, R. (2017). *Wealth of States: More Ways to Enhance Freedom, Opportunity and Growth*.

It posits that tax cuts, particularly for high-income earners and businesses, incentivize increased savings, investment, and innovation, leading to a broader economic expansion. This trickle-down effect suggests benefits eventually reach all levels of society. Deregulation is often linked to supply-side economics, aiming to reduce government intervention in markets and increase business flexibility. The well-being of consumers results from a greater supply of goods and services at lower prices, in addition to competition and increased employment. Stein propounded Stein's Law, which he expressed in 1986 as "If something cannot go on forever, it will stop."[238] Stein observed this logic in analyzing economic trends (such as rising US federal debt in proportion to GDP or increasing international balance of payments deficits in his analysis): if external factors limit such a process, there is no urgency for government intervention to stop it, much less to make it stop immediately, but it will stop of its own accord.

8.6. New Keynesianism

The New Keynesian trend, exemplified by scholars such as Stanley Fischer, John B. Taylor, Olivier Blanchard, David Romer, Joseph **Stiglitz**,[239] Paul **Krugman**,[240] and Gregory **Mankiw**,[241] emphasizes economic growth

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[238] Stein, H. (1986). A Symposium on the 40th Anniversary of the Joint Economic Committee, Hearings Before the Joint Economic Committee, Congress of the United States.
Stein, H. (1989). Problems and Not-Problems of the American Economy. The AEI Economist. American Enterprise Institute.

[239] Stiglitz, J. (2019). *People, power, and profits: Progressive capitalism for an age of discontent*. Penguin UK.
Stiglitz, J. E., & Greenwald, B. C. (2015). *Creating a learning society: A new approach to growth, development, and social progress*. Columbia University Press.
Stiglitz, J. E. (2007). *Making globalization work*. WW Norton & Company.
Stiglitz, J. E., Sen, A., & Fitoussi, J. P. (2010). Mis-measuring our lives: Why GDP doesn't add up. The report by the Commission on the Measurement of Economic Performance and Social Progress. New York, London: The New Press.
Stiglitz, J. E. (2012). *The price of inequality: How today's divided society endangers our future*. WW Norton & Company.

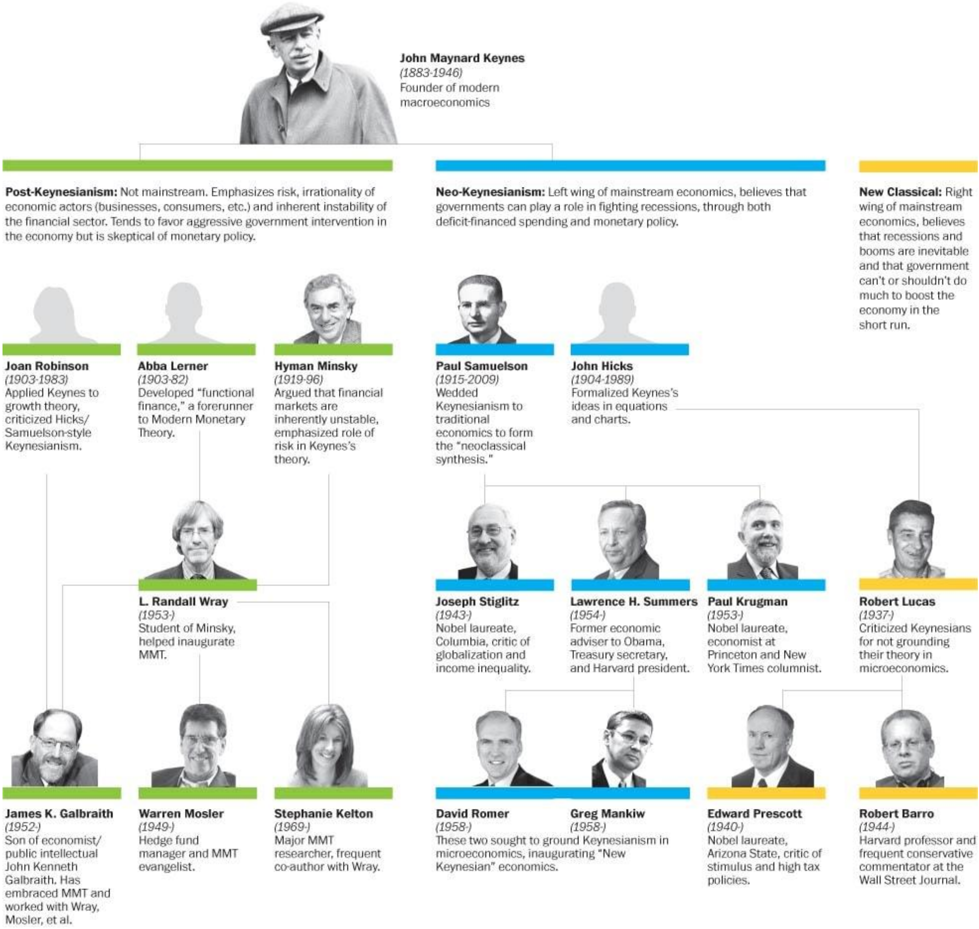
[240] Krugman, P. R., & Wells, R. (2009). *Economics*. Macmillan.
Krugman, P., & Smith, A. (Eds.). (2007). *Empirical studies of strategic trade policy*. University of Chicago Press.
Fujita, M., Krugman, P. R., & Venables, A. (2001). *The spatial economy: Cities, regions, and international trade*. MIT press.

[241] Mankiw, N. G. (2023). *Essentials of economics*. Cengage learning.
Mankiw, N. G., & Taylor, M. P. (2020). *Economics*. Cengage Learning EMEA.
Mankiw, N. G., Kneebone, R. D., & McKenzie, K. J. (2020). *Principles of microeconomics*. Nelson Education Ltd. Mankiw, N. G. (2019). Macroeconomics. Worth Publishers.

and stability over achieving full employment, rejecting the notion of self-regulating markets. This perspective recognizes errors and imperfections inherent in real markets, necessitating demand regulation. Unlike traditional Keynesianism, they use microeconomic principles to explain macroeconomic phenomena, incorporating imperfect competition and asymmetric information. Due to imperfect competition, the so-called inelastic, **sticky prices and wages** (following economic changes slowly) The **price rigidity** (e.g., monopolies can exist) grants large companies' discretion in setting prices; during fluctuating periods, they prefer not to decrease or increase prices. Similarly, **wage rigidity** in labor markets, influenced by individual circumstances and the actions of unions and firms, results in wage stagnation that does not reflect actual economic conditions. Additionally, real interest rates may differ from natural interest rates as monetary authorities adjust interest rates to avoid temporary macroeconomic instability. Unlike early Keynesians who assumed irrational actors, New Keynesians think agents understand and react to policies but still acknowledge limitations in their knowledge and abilities. Models attempt to capture the forward-looking behavior of households, firms, and policymakers, considering how current decisions affect future outcomes. While monetary policy receives more emphasis, it acknowledges a potential role for **fiscal policy** in addressing certain economic situations. Factors contributing to this justification include imperfect competition, price rigidity, wage rigidity, and disparities between real and natural interest rates. Monetary authorities adjust interest rates to mitigate temporary macroeconomic instability.

The **post-keynesian economics** builds upon the ideas of Keynes but diverges on certain aspects. Emphasizes the role of uncertainty, imperfect competition, and the importance of effective demand. Economists like Hyman **Minsky** and Joan **Robinson** are associated with this school. Post-Keynesians criticize neoclassical assumptions such as rational expectations and market clearing, highlighting the importance of fundamental uncertainty and the existence of involuntary unemployment.

Mainstream Economics and Modern Monetary Theory



Source: Matthews D., graphic by Seregi M. (2012). Mainstream economics and Modern Monetary Theory: A family tree. The Washington Post (https://www.washingtonpost.com/mainstream-economics-and-modern-monetary-theory-a-family-tree/2012/02/17/gIQAiy6RKR_graphic.html)

8.7. Modern Monetary Theory (MMT)

Modern monetary theory (MMT) integrates the insights of Georg Friedrich Knapp's state money approach (also called chartalist or chartalism, and adopted by Keynes),[242] the credit money view of Alfred Mitchell Innes,[243] Abba Lerner's functional finance approach,[244] Minsky's views of banking,[245] and Wynne Godley's sectoral balance approach.[246]

MMT makes the following five extensions. (i) The money of account, at least today, is virtually always a state money of account — a dollar chosen by the authorities. (ii) The authorities issue the currency, which consists of notes and coins denominated in that money of account, and the central bank (whether it is legally independent or not) issues bank reserves in the same unit. (iii) The authorities impose taxes and other obligations in the same unit, and accept their own liabilities (notes, coins and reserves, together high powered money, HPM), in payments to the state. (iv) The authorities issue HPM denominated in the same unit when they spend. (v) The authorities sell other types of (generally longer term) liabilities denominated in the same unit, accepting their own HPM IOUs[247] in payment for them.

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[242] Knapp, G. F. (1924) 1973. *The State Theory of Money.* Clifton: Augustus M. Kelley. Keynes, J. M. (1930) 1976. *A Treatise on Money*, Volumes 1 and 2, New York: Harcourt, Brace & Company. and (1914). What is Money?, review article in *Economic Journal*, 24(95), September, 419-421.

[243] Innes, A. M. (1913). What is money? *Banking Law Journal*. May: 377-408. and (1914). The credit theory of money. *Banking Law Journal*, January, 151-68; reprinted in L. R. Wray (ed.), *Credit and State Theories of Money*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar (2004), pp. 14–49.

[244] Lerner, A. P. (1943). Functional finance and the federal debt. *Social Research* vol. 10, 38-51

[245] Minsky, H. P. (1986). *Stabilizing an Unstable Economy*, New Haven and London: Yale University Press.

[246] Godley, W. (1996). Money, Finance and National Income Determination: An Integrated Approach. Levy Economics Institute, Working Paper 167
Fullwiler, S., Bell, S., & Wray, L. R. (2012). Modern Money Theory: a response to critics. *Working Paper Series: Modern Monetary Theory – A Debate*, Amherst, Massachusetts: Political Economy Research Institute. 17–26. Available at SSRN 2008542

[247] An IOU, a phonetic acronym of the words "I owe you," is a document that acknowledges the existence of a debt. An IOU is often viewed as an informal written agreement rather than a legally binding commitment.

MMT, advocated by Hyman P. **Minsky**,[248] Randall **Wray**,[249] William Mitchell, and Warren **Mosler**,[250] asserts that financing a country's expenditures in its own currency poses no difficulty, as the government can create its own currency limitlessly. Consequently, the government can spend virtually as much as it wants, as it cannot run out of its own money since it creates it itself. Therefore, as long as resources are available, **fiscal policy** can utilize them without concern for sufficient tax revenue or large budget deficits. The state creates money when it spends it and destroys it when it collects it. If a government borrows in its own currency, it can never be forced into bankruptcy. It is not the quantity of money that matters, but rather what is spent from it, which enters the economy (leading to growth or inflation). Monetary policy is unsuitable for managing inflation; fiscal policy should ensure economic and price stability. Central bank policies (such as raising interest rates) take time to have an effect, typically felt within a year. Hence, fiscal tools are preferable due to their quicker impact. To maintain financial stability, central banks should pursue a stable interest rate policy rather than fluctuating rates. The focus of fiscal policy should shift from budgetary balance towards achieving full employment and price stability.

> The major flaw of our type of economy is that it is unstable. This instability is not due to external shocks or to the incompetence or ignorance of policymakers. … The dynamics of a capitalist economy which has complex, sophisticated, and evolving financial structures leads to the development of conditions conducive to incoherence—to runaway inflations or deep depressions. But incoherence need not be fully realized because institutions and policy can contain the thrust to instability. We can, so to speak, stabilize instability.
>
> Hyman P. Minsky[251]

Minsky’s financial fragility and **Financial Instability Hypothesis** (FIH) contradicts traditional economic theories, which suggest that economic systems tend to move towards equilibrium and generally operate in a stable

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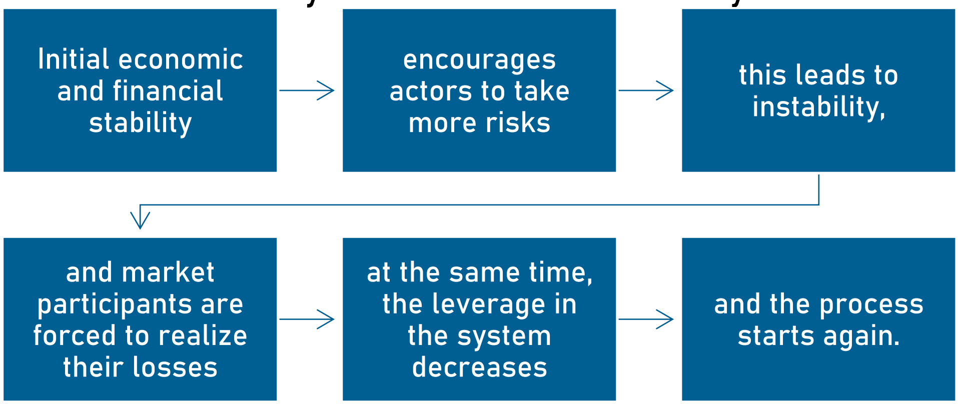
[248] Minsky, H. P. (2013). *Ending poverty: Jobs, not welfare*. Annandale-on-Hudson, NY: Levy Economics Institute.
[249] Wray, R. (1998). Understanding Modern Money: The Key to Full Employment and Price Stability.
Wray, L. R. (1990). Money and credit in capitalist economies. *Books*.
Mitchell, W., Wray, L. R., & Watts, M. (2019). *Macroeconomics*. Bloomsbury Publishing.
[250] Mosler, W., & Silipo, D. B. (2017). Maximizing price stability in a monetary economy. *Journal of policy modeling*, *39*(2), 272-289.; Forstater, M., & Mosler, W. (2005). The natural rate of interest is zero. *Journal of economic issues*, *39*(2), 535-542.; Mosler, W. (1995). *Soft currency economics*. West Palm Beach, FL: Adams, Viner and Mosler.
[251] Minsky, H. P. (1996). Uncertainty and the Institutional Structure of Capitalist Economics. *Journal of Economic Issues*. 30.2. 357-368.

state (Smith and Walras).[252] According to this theory, economic downturns and corrections are usually the results of external shocks, such as pandemics, wars, or decisions by OPEC. However, in economic systems, a constant equilibrium or stable state does not develop. The reason for this is that during periods of economic expansion and growth, market participants are increasingly willing to take on greater risks due to expected rising profits. This willingness to take on risks increases the level of leverage, which ultimately leads to a collapse in the financial system.

The Cycle of Financial Instability



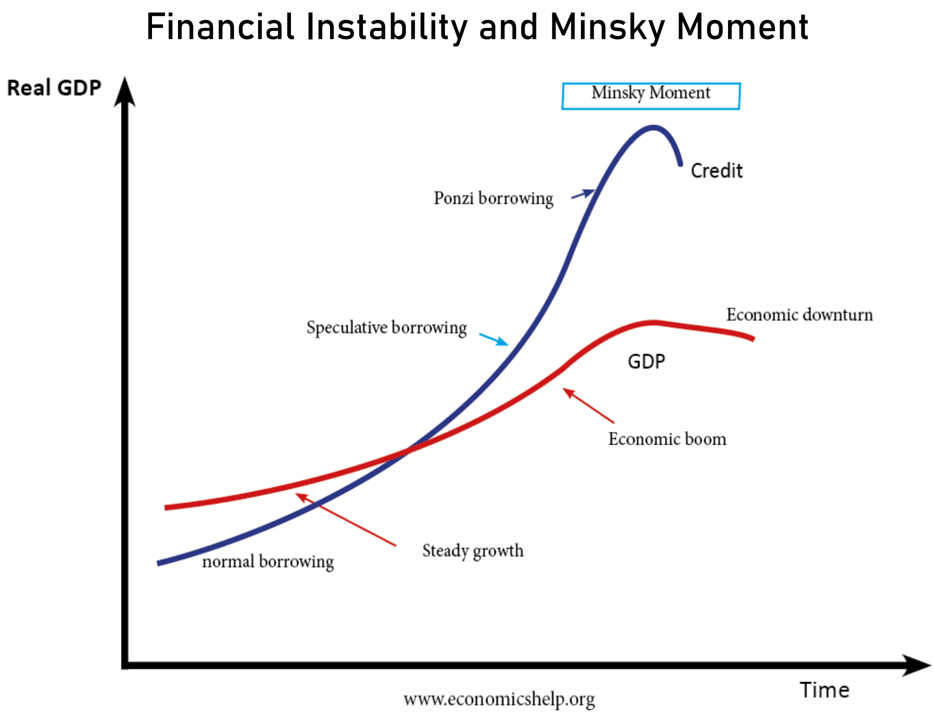
Source: own compilation of the author

The **Minsky Moment** refers to the onset of a market collapse brought on by the reckless speculative activity that defines an unsustainable bullish period. These moments generally occur after a long period of growth, which ultimately leads to overleveraging once prices stop rising. The crises generally occur because investors, engaging in excessively aggressive speculation, take on additional credit risk during bull markets. It represents the tipping point when speculative activity reaches an unsustainable extreme, leading to rapid price deflation and unpreventable market collapse.[253] Minsky defines

[252] Minsky, H. P. (1970). Financial instability revisited: The economics of disaster. (1977). Banking and a fragile financial environment. *Journal of Portfolio Management*, *3*(4), 16-22. (1977). The financial instability hypothesis: An interpretation of Keynes and an alternative to “standard” theory. *Challenge*, *20*(1), 20-27. (1982). The financial-instability hypothesis: capitalist processes and the behavior of the economy. (1992). *The Financial Instability Hypothesis* (No. 74). Working paper. (1994). Financial Instability and the Decline (?) of Banking: Public Policy Implications.

[253] Minsky, H.P. (1982). *Can ‘It’ Happen Again? Essays on Instability and Finance* .New York: Sharp. and Minsky, H.P. (1986). *Stabilizing an Unstable Economy*. New Haven, CT: Yale University Press.

three credit stages in capitalist markets: the hedge (normal), speculative, and Ponzi phases. He thought these perilous events resulted from a new form of capitalism, which he called "money manager capitalism."



Source: https://www.economicshelp.org/blog/6864/economics/financial-instability-hypothesis/

Minsky classified borrowers into three categories: hedge finance (stable cash flow), speculative finance (variable cash flow), and Ponzi finance (cash flow insufficient to cover debt). The blue curve illustrates the rise in leverage within the economic system. The buildup of leverage occurs in several phases. The initial hedge finance (normal borrowing) phase indicates that initially, only the smart money participates in the market. Borrowers can make debt payments from their cash flows, the economy is stable, and lenders are cautious. This is followed by the speculative phase (speculative borrowing) when a broader range of investors begins to invest their money. Borrowers rely on the appreciation of asset prices to refinance their debt. As optimism grows, lenders become less cautious, leading to increased leverage. Finally, we reach an unsustainable state referred to as Ponzi finance, alluding

Rosser, J. B. (2020). The Minsky moment as the revenge of entropy. *Macroeconomic Dynamics*, *24*(1), 7-23.

to the unsustainability of Ponzi schemes.[254] Borrowers rely on continuous appreciation of asset prices to meet debt obligations. Lenders become overly optimistic, leading to excessive leverage and speculative bubbles. Following the Minsky moment (when economic growth stalls), a drastic deleveraging occurs. Naturally, this period is accompanied by a sharp decline in asset prices, and as evident in the GDP curve, this coincides with a decrease in economic performance, namely, a recession.

8.8. Heterodox Schools

The heterodox economics challenges mainstream economic theories. Amartya Sen's capabilities approach highlights individual freedoms and human development. Institutional economics examines how institutions influence economic behavior. Feminist economics focuses on gender disparities, while ecological economics emphasizes environmental sustainability. Behavioral economics integrates psychology into economic analysis, and complexity economics views the economy as a complex adaptive system. Developmental economics addresses economic transformation in developing countries, and debtonomics explores the role of debt in modern economies.

Amartya **Sen**, an Indian, Nobel-prized economist and philosopher, "the Mother Teresa of Economics",[255] has revolutionized welfare economics, development economics, and social choice theory.[256] He emphasizes ethics in social welfare calculations and challenges traditional views on poverty and famine. Sen's notable contributions include the capability approach to human development, which focuses on individuals' abilities to achieve valued outcomes rather than just income. Sen champions public choice theory in wel-

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[254] The pyramid scheme is referred to as a pyramid game and a Ponzi scheme. The term originates from Charles Ponzi, who first established such a network in 1920 by promising investors a 50% return within months.

[255] Coy, Peter (1998). Commentary: The Mother Teresa of economics. *Bloomberg BusinessWeek*. New York.

[256] Sen, A. (2015). *The Country of First Boys*: And Other Essays. India: Oxford University Press. Sen, A.; Stiglitz, J. E.; Fitoussi, J. (2010). *Mismeasuring our lives: why GDP doesn't add up: the report*. New York: New Press Distributed by Perseus Distribution.
Sen, A.; Zamagni, S.; Scazzieri, R. (2008). *Markets, money and capital: Hicksian economics for the twenty-first century*. Cambridge, UK New York: Cambridge University Press.
Sen, A. Foster, J. E. (1997). *On economic inequality*. Radcliffe Lectures. Oxford New York: Clarendon Press Oxford University Press.
Sen, A. (1983). *Choice, Welfare, and Measurement*. Oxford: Basil Blackwell.

fare economics and critiques utilitarianism for overlooking individual inequalities. He shifts focus to human development indicators in development economics, leading to the Human Development Index.

Institutional economics, examines how the social institutions and structures (rules, norms, customs, organizations) as crucial determinants affect economic behavior and outcomes.[257] They focus on the formal and informal institutions' role in shaping economic behavior, emphasize the limitations of rational choice models, and explore bounded rationality. It rejects the assumption of perfect competition and explores the role of power and institutions, analyzing how property rights, contracts, and transaction costs influence markets. Notable figures include Thorstein Veblen, Douglass North, Elinor Ostrom, Oliver Williamson, and John R. Commons. Institutional economists critique neoclassical models for neglecting the impact of institutions on economic behavior and outcomes.

What did Chuck Norris get when he visited the feminist rally for women's rights?
He got his shirt ironed.

Feminist economics examines how gender roles and inequalities affect economic outcomes, addressing issues such as gender wage gaps, unpaid labor, and the impact of economic policies on women.[258] Critiques traditional economic models for neglecting issues related to gender and household production, the gendered division of labor, unpaid work, and power structures

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[257] Kostova, T., Beugelsdijk, S., Scott, W. R., Kunst, V. E., Chua, C. H., & van Essen, M. (2020). The construct of institutional distance through the lens of different institutional perspectives: Review, analysis, and recommendations. *Journal of International Business Studies*, *51*, 467-497.
Ayres, C. E., Chamberlain, N. W., Dorfman, J., Gordon, R. A., & Kuznets, S. (2021). *Institutional Economics: Veblen, Commons, and Mitchell Reconsidered*. University of California Press.
Myrdal, G. (1978). Institutional economics. *Journal of economic issues*, *12*(4), 771-783.
Ostrom, V. (1975). Public choice theory: a new approach to institutional economics. *American Journal of Agricultural Economics*, *57*(5), 844-850.
[258] Waring, M., & Steinem, G. (1988). *If women counted: A new feminist economics*. San Francisco: Harper & Row.
Akansel, I. (2020). The Relationship Between Old Institutional Economics (OIE) and Feminist Economics: An Essay on Veblen and Feminist Economics. In *Examining the Relationship Between Economics and Philosophy* (pp. 1-26). IGI Global.
Berik, G., & Kongar, E. (Eds.). (2021). *The Routledge handbook of feminist economics*. Routledge.
Ferber, M. A., & Nelson, J. A. (Eds.). (2020). *Feminist economics today: Beyond economic man*. University of Chicago Press.

in the economy. Economists like Claudia Goldin,[259] Nancy Folbre, Marilyn Waring, Diane Elson, and Julie A. Nelson contribute to this field. Feminist economists challenge the gender-blind assumptions of neoclassical economics, advocating for a more inclusive and gender-aware economic analysis.

Ecological economics integrates ecological and economic principles to address sustainability and environmental concerns.[260] Integrates environmental considerations into economic analysis, emphasizing sustainability and the interconnectedness of the economy with the natural environment. They consider the economy as embedded within the ecosystem with finite resources and limits to growth and advocate for policies that promote sustainability, resource conservation, and ecological well-being. It criticizes traditional economic models for not accounting for environmental limits and raises the attention on neoclassical models' failure to adequately account for environmental externalities and finite resource constraints. Herman Daly, Robert Costanza, Joan Martinez-Alier.

Behavioral economics incorporates insights from psychology to understand and predict economic decision-making and behavior.[261] It challenges the rational choice paradigm and explores cognitive biases, integrating psychology into economic models, recognizing bounded rationality, biases, and emotional influences, heuristics, cognitive biases. Notable figures include Daniel Kahneman, Richard Thaler, Ernst Fehr, and Herbert A Simon. Well-known example are using nudges, for example, to increase savings rates, designing efficient tax forms, and understanding consumer loyalty programs.[262]

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[259] Perrin, F. (2024). Claudia Goldin: Nobel Prize 2023 paving the way for women and gender perspectives in economics. *Cliometrica*, 1-7. Goldin, C. (2023). Why Women Won. Department of Economics. Harvard University

[260] Costanza, R., Cumberland, J. H., Daly, H., Goodland, R., & Norgaard, R. B. (1997). *An introduction to ecological economics*. CRC Press.; Victor, P. A. (2010). Ecological economics and economic growth a. *Annals of the New York Academy of Sciences*, *1185*(1), 237-245. Common, M., & Stagl, S. (2005). *Ecological economics: an introduction*. Cambridge University Press.

[261] Angner, E. (2020). *A course in behavioral economics*. Bloomsbury Publishing.
Wendel, S. (2020). *Designing for behavior change: Applying psychology and behavioral economics*. O'Reilly Media.; Angner, E., & Loewenstein, G. (2007). Behavioral economics. *Handbook of the philosophy of science: Philosophy of economic*, 641-690.

[262] Congiu, L., & Moscati, I. (2022). A review of nudges: Definitions, justifications, effectiveness. *Journal of Economic Surveys*, *36*(1), 188-213.; Gane, N. (2021). Nudge economics as libertarian paternalism. *Theory, Culture & Society*, *38*(6), 119-142.

Complexity economics applies concepts from complexity science to economics and focuses on economic systems' non-linear and dynamic nature.[263] They analyze emergent properties that arise from interactions between economic agents, and model dynamic and adaptive systems, including evolution, path dependence, and feedback loops, for example, in technological clusters, understanding systemic risks in financial systems. Brian Arthur and Leigh Tesfatsion are associated with this approach.

Developmental economics focuses on achieving long-term, sustainable economic development by investing in human capital, infrastructure, and productive capacity.[264] Fundamental principles include active government intervention in promoting economic growth through industrial policies, trade protectionism, and targeted subsidies. It emphasizes human development by investing in education, healthcare, and social safety nets to improve living standards and empower citizens. Examples of successful implementation include the East Asian Tigers (South Korea, Taiwan, Singapore, Hong Kong) and India's Green Revolution. Gunnar Myrdal, Paul Prebisch, Arthur Lewis.

The **debtonomics** deals with short-term economic stimulus through borrowing and increased government spending.[265] Using government debt, the state can finance infrastructure projects, social programs, or tax cuts to stimulate the economy in the short term (fiscal policy). It also involves central banks keeping interest rates low to encourage borrowing and investment (monetary policy). The assumption is that increased spending will lead to higher economic growth, generating future revenue to service the debt. Examples of debtonomics in action include the United States' response to the 2008 financial crisis and Japan's Abenomics.[266] Haruhiko Kuroda, Stephanie Kelton, Larry Summers.

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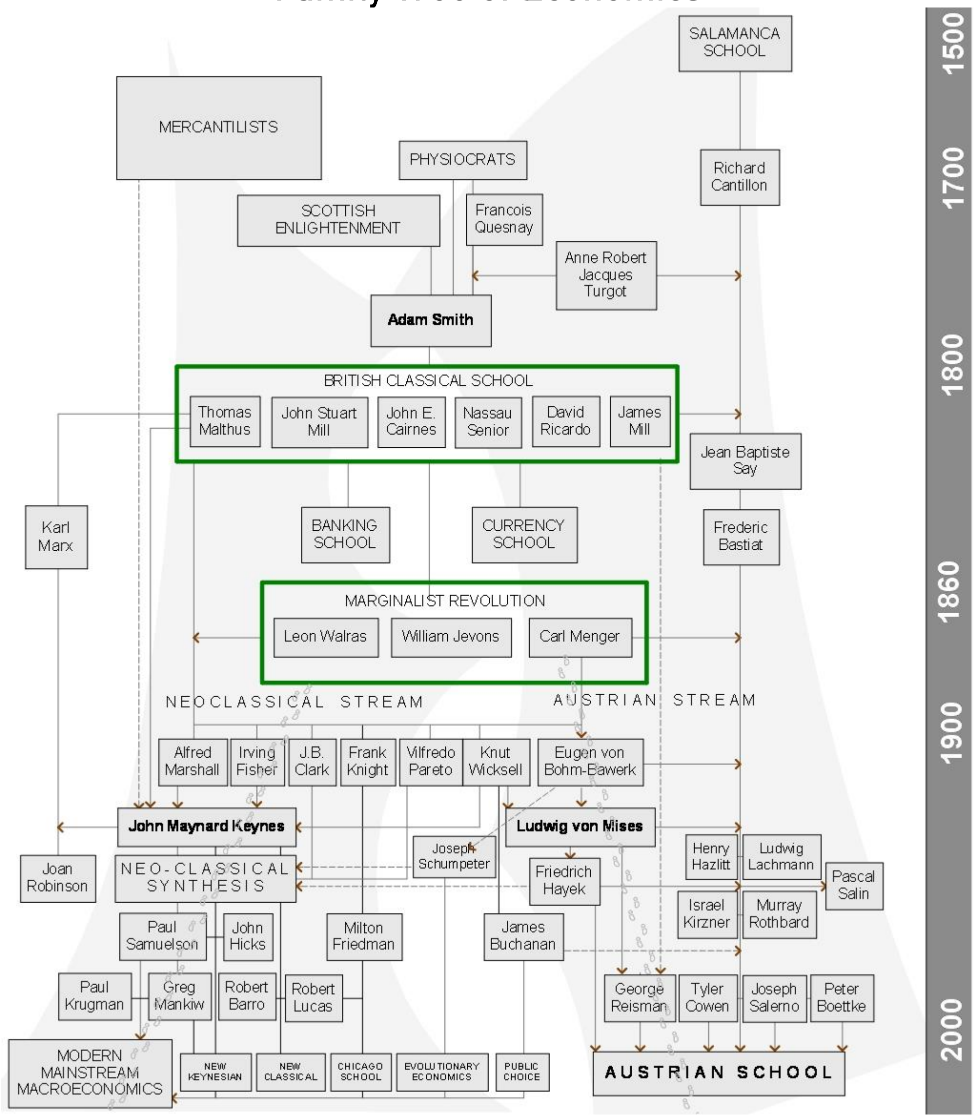
[266] Abenomics is a set of economic policies championed by Japanese prime minister, Shinzo Abe (2012). It was originally described as a three-arrow approach of increasing the money

Family Tree of Economics



Source: Cresswell P. (2010). Family Tree of Economics. (http://pc.blogspot.com/2010/03/family-tree-of-economics.html)

supply; government spending to stimulate the economy; economic and regulatory reforms to make Japan more competitive. It encompasses goals for female employment, sustainable growth, and a concept known as Society 5.0 - digitalization of Japan. Ito, T. (2021). An assessment of Abenomics: Evolution and achievements. *Asian Economic Policy Review*, *16*(2), 190-219.; Kawaguchi, D., Kawata, K., & Toriyabe, T. (2021). An assessment of Abenomics from the labor market perspective. *Asian Economic Policy Review*, *16*(2), 247-278.; Miyazaki, H., & Riles, A. (2022). Exchanging expectations: Abenomics and the politics of finance in post-Fukushima Japan. *Economy and Society*, *51*(4), 610-629.

Ten Schools of Economics I.

Category	Classical	Neo-classical
The economy is made up of …	Classes	Individuals
Individuals are …	Selfish but rationals (but rationality is described in class terms)	Selfish and rational
The World is …	Certain (‘iron laws’)	Certain with calculable risk
The most important domain of the economy is …	Production	Exchange and consumption
Economies change through …	Capital accumulation (investment)	Individual choices
Policy recommendations	Free market	Free market or interventionism, depending upon the economist’s view on market failures and government failures

Ten Schools of Economics II.

Category	Austrian	Keynesian
The economy is made up of …	Individuals	Classes
Individuals are …	Selfish but layered (rational only because of an unquestioning acceptance of tradition)	Not very rational (driven by habits and animal spirits); ambiguous on selfishness
The World is …	Complex and uncertain	Uncertain
The most important domain of the economy is …	Exchange	Ambiguous with a minority paying attention to production
Economies change through …	Individual choices but rooted in tradition	Ambiguous, depends upon the economist
Policy recommendations	Free market	Active fiscal policy, income redistribution towards the poor

Source: Durden, T., Hedge, Z. (2014): 9 Schools Of Economics Explained On A One-Page Cheat Sheet. Business Insider (https://www.businessinsider.com/table-different-schools-of-economics-2014-6?IR=T)

Ten Schools of Economics III.

Category	Schumpeterian	Develop-mentalism	Debtonomics
The economy is made up of …	No particular views	No strong views but more focused on classes	Firms, and everything else
Individuals are …	No strong views but the emphasis on non-rational entrepreneurship	No strong view	Advantage seekers, and those being taken advantage of
The World is …	No strong view but complex	Uncertain but no strong view	Deterministic and ruthless
The most important domain of the economy is …	Production	Production	Borrowing and debt
Economies change through …	Technological innovation	Developments in productive capabilities	Resource exhaustion and periodic crashes
Policy recommendations	Ambiguous – capitalism is doomed to atrophy, anyway	Free market	Restructure, or crash, then restructure if possible

Ten Schools of Economics IV.

Category	Institutionalism	Behavioralism	Marxism
The economy is made up of …	Individuals and institutions	Individuals, organizations and institutions	Classes
Individuals are …	Layered (instinct, habit, belief, reason)	Only boundedly rational and layered	Selfish and rational, Except for workers fighting for socialism
The World is …	Complex and uncertain	Complex and uncertain	Certain (laws of motion)
The most important domain of the economy is …	No strong views but, puts more emphasis on production than do the Neo-classicals	No strong views but some bias toward production	Production
Economies change through …	Interaction between individuals and institutions	No strong view	Class struggle, capital accumulation, and technological progress
Policy recommendations	Ambiguous, depending on the economist	No strong view, but can be quite accepting of government intervention	Socialist revolution and central planning

Source: Durden, T., Hedge, Z. (2014): 9 Schools of Economics Explained on a One-Page Cheat Sheet. Business Insider (https://www.businessinsider.com/table-different-schools-of-economics-2014-6?IR=T)

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II. ETHICS IN ECONOMICS

Ethics forms the cornerstone of human interaction, influencing decision-making processes and guiding behavior across various domains of life. This exploration of ethics in economics traverses through fundamental ethical principles, ancient virtue ethics, religious perspectives, and modern philosophical frameworks, illuminating the multifaceted nature of ethical decision-making within economic contexts. Ethics, as a concept, encompasses universal principles and values that govern moral conduct and guide individuals in distinguishing between right and wrong. At its core lies the Golden Rule, a principle of reciprocity and empathy that underscores the importance of treating others fairly, compassionately, and respectfully. Beyond this fundamental axiom, an overview of ethical concepts reveals diverse theoretical frameworks that inform ethical reasoning and decision-making. These include virtue ethics theory, divine command theory, deontology theory, utilitarian theory, justice theory, relativism theory, and egoism theory, each offering unique perspectives on morality and ethical conduct.

Delving into ancient virtue ethics, we explore the wisdom of two eminent philosophers: Aristotle in the West and Confucius in the East. Aristotle's virtue ethics focuses on cultivating moral character by developing virtues such as courage, temperance, and justice, providing a blueprint for ethical living within economic systems. Similarly, Confucian ethics emphasize moral cultivation, social harmony, and ethical leadership, shaping economic practices within East Asian societies through virtues such as benevolence, righteousness, and filial piety. Religious traditions provide additional insights into ethical principles and moral imperatives within economic contexts. Drawing from the ethical teachings of the Bible in Christianity and Judaism and the Qur'an in Islam, we uncover ethical guidelines that emphasize justice, compassion, and stewardship of resources. These religious concepts underscore the importance of ethical behavior and responsible economic stewardship as integral components of faith-based principles. In modern philosophical thought, ethical discourse continues to evolve through various conceptual frameworks. Deontology, utilitarianism, and theories of justice offer theoretical perspectives on ethical decision-making within economics. Deontological ethics prioritizes moral duties and principles, while utilitarianism seeks to maximize overall happiness or utility. Theories of justice, on the other hand, focus on principles of fairness, equality, and distributive justice within economic systems, providing frameworks for designing just and equitable economic institutions and policies.

It is becoming increasingly fashionable to sketch a similar trajectory based on industry 1.0 and 4.0 in almost any discipline. Here, we attempt to do so using the terminology of **Ethics 1.0 and 4.0.** We avoid presenting each stage as a linear progression with clear starting and ending points. Ethical perspectives often co-exist and influence each other over time.

Ethics 1.0 to 4.0.

Stage	Description	Key Features
Ethics 1.0	Traditional or Moralistic Ethics	• Rooted in religious or cultural traditions • Based on divine commands or absolute truths • Adherence to established rules or authorities
Ethics 2.0	Enlightenment or Humanistic Ethics	• Emphasis on reason and individual autonomy • Ethical theories like Kant's categorical imperative and Mill's utilitarianism • Focus on the consequences of actions
Ethics 3.0	Postmodern or Relativistic Ethics	• Questions universality of ethical principles • Views ethics as socially constructed and relative to cultural contexts • Emphasis on diversity and tolerance
Ethics 4.0	Integrated or Global Ethics	• Acknowledges interconnectedness of individuals, societies, and environment • Focuses on sustainability, social justice, and ethical implications of technology • Emphasizes collaboration and development of ethical frameworks transcending boundaries

Source: own compilation of the author

Ethics 1.0: Traditional/Moralistic Ethics represents the earliest forms of ethical thinking, often rooted in religious or cultural traditions. Moral principles, or the seeds of morality, are based on divine commands, established religious, legal, and cultural norms, philosophical ideas, or absolute truths. Ethical decisions are typically made based on adherence to established rules or authorities. Thinkers like Confucius emphasized social harmony, filial piety, and *ren* (benevolence),[267] while Hammurabi's Code codified justice through retributive principles, like *lex talionis* (retribution based

[267] Lu, M. (2022). The Metaphysical Foundation and Moral Cosmopolitanism of ren or Benevolence. In *The Metaphysics of Chinese Moral Principles* (pp. 132-160). Brill.

on equal harm).[268] Ancient Greeks debated justice, virtue, and the good life with figures like Socrates and Aristotle.

Ethics 2.0: Enlightenment/Humanistic Ethics emerged during the Enlightenment era (17th - 19th centuries); this stage emphasizes reason, autonomy, individual rights, and universal principles.[269] Philosophers like Immanuel Kant advocated for the categorical imperative, urging individuals to act based on principles they would universalize. John Stuart Mill's utilitarianism focused on maximizing overall happiness, leading to consequentialist approaches. This stage marked a move from rule-based to outcome-oriented thinking. Ethics is based on logical reasoning and objective principles, not just inherited norms. Individual rights emphasize human dignity, autonomy, and self-determination. Consequentialism focuses on the outcomes of actions and maximizing positive impact.

Ethics 3.0: Postmodern/Relativistic Ethics questioned the universality and objectivity of ethical principles by deconstructing universality (20th century and beyond). Postmodernist thought suggests that ethical values are socially constructed and relative to cultural contexts and experiences. Emphasis is placed on diversity, tolerance, and recognizing multiple perspectives in ethical decision-making. Michel Foucault (1926-84) analyzed power dynamics and the historical emergence of ethical norms.[270] Judith Butler

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[268] Even it can find in the Bible, and "an eye for an eye" is a commandment found in the Book of Exodus 21:23–27 expressing the principle of reciprocal justice measure for measure.

But if injury ensues, you shall give life for life, eye for eye, tooth for tooth, hand for hand, foot for foot, burn for burn, wound for wound, stripe for stripe. When someone strikes his male or female slave in the eye and destroys the use of the eye, he shall let the slave go free in compensation for the eye. If he knocks out a tooth of his male or female slave, he shall let the slave go free in compensation for the tooth.

Bruckshaw, T. (2020). Lex Talionis: A Look at the Conceptualization of the Victim in Exodus 21: 22–5. *Logos*, *5*, 5-7.

Jura, D. (2021). Biblical Interpretation of The Lex Talionis In the Old Testament and The Role of Christian Education in Educating Church Members. In *Proceedings from the 1st International Conference on Law and Human Rights*. ICLHR.

[269] Dierksmeier, C. (2011). *Humanistic ethics in the age of globality*. Palgrave Macmillan.

Ellis, B. (2023). Humanistic Ethics. In *On Civilizing Capitalism* (pp. 205-213). Cham: Springer Nature Switzerland.

[270] Foucault, M. (1990). *The history of sexuality: An introduction*. Vintage.

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(1956-) emphasized the social construction of gender and ethics.[271] The tolerance and diversity of respect for various viewpoints and cultural interpretations of right and wrong. for social justice, they focus on dismantling power imbalances and promoting equity for marginalized groups.

Ethics 4.0: Integrated/Global Ethics represents a contemporary and emerging stage that seeks to integrate diverse ethical perspectives and address global challenges and solutions. It acknowledges the interconnectedness of individuals, societies, and the environment. Among the key themes, sustainability ensures environmental well-being for present and future generations. The social justice entails addressing global inequalities and promoting human rights on a broader scale. The ethics of technology reflects to the implications of AI,[272] cyber- and biotechnologies,[273] and other advancements. There is a growing emphasis on collaboration, dialogue, and the development of ethical frameworks that transcend cultural and disciplinary boundaries. Global consciousness entails recognizing our shared responsibility for the well-being of people and the planet.

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[271] Butler, Judith; Weed, Elizabeth (2011). *The Question of Gender*: Joan W. Scott's Critical Feminism. Bloomington, IN: Indiana University Press.
Tohidi, N. (2017). An interview on feminist ethics and theory with Judith Butler. *Journal of Middle East Women's Studies*, *13*(3), 461-468.
[272] Rousi, R., Saariluoma, P., & Nieminen, M. (2022). Governance AI ethics. *Frontiers in Computer Science*, *4*, 1081147.
Boddington, P. (2023). Normative Ethical Theory and AI Ethics. In *AI Ethics: A Textbook* (pp. 229-276). Singapore: Springer Nature Singapore.
[273] Stückelberger, C., & Duggal, P. (2018). *Cyber ethics 4.0*. Geneva: Globethics. net.

9. Ethics

Although ethics teaches that virtue is its own reward,
in economics we get taught that reward is its own virtue.

Ethics, as a field of study, serves as a guiding framework for moral dilemmas and making principled decisions in various aspects of human life. At its core lies the Golden Rule, a universal principle advocating for treating others as one would wish to be treated oneself. This introduction provides an overview of ethical concepts, delving into fundamental principles underpinning ethical reasoning and behavior across different cultures and contexts.

9.1. Ethics in general

Ethics, derives from the Greek ethos (ἦθος), refers to character or moral nature. This term is used to describe the guiding beliefs or ideals that characterize an individual, a society, or a societal group. Ethics constitutes a set of moral principles and rules of conduct that offer guidance for our behavior. Moral philosophy, as a branch of philosophy, involves the systematization, defense, and recommendation of concepts related to right and wrong behavior. It seeks to resolve questions of human morality by defining concepts such as good ↔ evil, right ↔ wrong, virtue ↔ vice, and justice ↔ crime.

Major Areas of Ethics

Metaethics	Normative ethics	Applied ethics
• Concerning the theoretical meaning and reference of moral propositions • How their truth values (if any) can be determined	• Concerning the practical means of determining a moral course of action	• Concerning what a person is obligated (or permitted) to do in a specific situation or a particular domain of action
• How we understand, know about, and what we mean when we talk about what is right and what is wrong	• Study of ethical action • Examines standards for the rightness and wrongness of actions	• Apply ethical theory to real-life situations

Source: own compilation of the author

The field of ethics and aesthetics are concerned with matters of value. This places it within the branch of philosophy called **axiology**. As a field of intellectual inquiry, moral philosophy is also connected to other disciplines, such as moral psychology, descriptive ethics, and value theory. In essence, metaethics provides the foundation, normative ethics builds the framework, and applied ethics puts it into practice.

Metaethics

The branch of **metaethics** delves into the fundamental nature of morality itself.[274] It asks questions like: what do we mean when we say something is right or wrong? Can moral statements be objectively true and factual, or are they subjective expressions of preference? How do we justify our moral beliefs? Metaethics does not tell us **what** to do but instead examines the very foundation upon which all ethical systems are built. Beauchamp and Childress's work,[275] as well as Kitchener's adaptation[276] of their ideas for psychology, have established a common ethical foundation for many professionals today.

This foundation comprises **five meta-principles**: autonomy, nonmaleficence, beneficence, justice, and fidelity. These principles, supplementing professional codes of ethics, policies, and laws, are crucial for ethical practice. **Nonmaleficence**, the foremost principle, emphasizes the avoidance of harm and minimizing harm to all parties involved. Professionals must consider diverse cultural values and interpretations when assessing harm. **Beneficence** underscores the duty to do good. However, this duty may conflict with harm and societal benefits considerations, necessitating a delicate balance. **Autonomy** highlights the right to self-governance and respect for individuals' decisions. Maximizing autonomy requires examining decision-making processes, especially regarding informed consent and decision-making competence. **Justice**, the principle of fairness, demands equal access to services and treatment for all individuals. Professionals must grapple with challenging decisions regarding resource allocation and treatment distribution. **Fidel-**

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[274] Chrisman, M. (2023). *What is this thing called Metaethics?*. Taylor & Francis.
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Miller, A. (2014). *Contemporary metaethics: an introduction*. John Wiley & Sons.
[275] Beauchamp, T., & Childress, J. (1979). *Principles of Biomedical Ethics*. Oxford, England: Oxford University Press.
[276] Kitchener, K. S. (2000). *Foundations of Ethical Practice, Research, and Teaching in Psychology*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
Kitchener, K. S. (1984).Intuition, Critical Evaluation and Ethical Principles: the Foundation for Ethical Decisions in Counseling Psychology. *The Counseling Psychologist*. *12(3)*, 43-55.

ity, though debated as a meta-principle, emphasizes trust and loyalty in professional relationships. Maintaining confidentiality and truth-telling enhances trust between professionals and patients or clients. In John Heskett's position on the origins of the design, there are six meta principles: receptiveness, expressivity, committedness, credibility, inclusiveness, and improvability.[277]

The **four major metaethical theories** encompass naturalism, nonnaturalism (or intuitionism), emotivism, and prescriptivism.[278] Both naturalists and nonnaturalists agree that moral language possesses cognitive attributes, meaning moral claims can be deemed either true or false. However, they diverge in their methodologies for establishing such truths. **Naturalism** proposes that moral claims can be sufficiently justified through reasoning based on nonmoral terms or by defining moral terms using nonmoral (natural or fact-based) concepts.[279] **Intuitionism** rejects these notions, asserting that moral terms are unique and autonomous in their logical status. **Emotivism**, on the other hand, disputes the cognitive nature of moral utterances, contending that they primarily convey emotional expressions of approval or disapproval. Consequently, they advocate for a reinterpretation of moral reasoning and justification to accommodate this emotional characteristic. **Prescriptivism** adopts a somewhat similar stance, positing that moral judgments serve as prescriptions or prohibitions of action rather than factual statements about the world.[280]

Normative ethics

N**ormative ethics** concentrates on formulating **principles and frameworks** for guiding moral conduct. It explores different ethical theories, such as utilitarianism, deontology, and virtue ethics, each offering distinct criteria for judging the rightness or wrongness of actions.[281] Normative ethics provides a lens through which we can analyze various situations and identify the

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[277] Heskett, J. 2002. Design. Oxford Paperbacks.
Cockton, G. (2009, April). Getting there: Six meta-principles and interaction design. In *Proceedings of the SIGCHI conference on human factors in computing systems* (pp. 2223-2232).
[278] Britannica, T. Editors of Encyclopaedia (2023). *metaethics*. *Encyclopedia Britannica*. https://www.britannica.com/topic/metaethics
[279] Antony, L., & Garcia, E. V. (2023). Ethical Naturalism. *The Oxford Handbook of Moral Realism*, 193.
[280] Boylan, M. (2020). *Basic ethics*. Routledge.
[281] Kagan, S. (2018). *Normative ethics*. Routledge.
Driver, J. (2005). Normative ethics. *The Oxford handbook of contemporary philosophy*, 31-62.

most ethically sound course of action based on chosen principles. This branch of moral philosophy focuses on determining criteria for distinguishing between what is morally right and wrong. It involves developing moral rules that shape human actions, institutions, and lifestyles. This field is often contrasted with theoretical ethics, or metaethics, which examines nature rather than the content of ethical theories and moral judgments, and applied ethics, which involves the practical application of normative ethics to real-world problems.

The central inquiry of normative ethics revolves around how **fundamental moral standards** are established and justified. Responses to this inquiry typically fall into two broad categories: deontological and teleological (or consequentialist). **Deontological theories** establish ethical standards without relying on value considerations, emphasizing the inherent rightness of actions. In contrast, teleological theories assess the ethical value of actions based on the goodness or value they produce. While deontological theories emphasize obligation, duty, and right and wrong, **teleological theories** prioritize the good, the valuable, and the desirable outcomes. Deontological theories often employ formal or relational criteria like equality or impartiality, while teleological theories utilize material or substantive criteria such as happiness or pleasure (as seen in utilitarianism).

There are several **areas** within this approach. **Virtue ethics**, including Stoicism and contemporary virtue ethics, emphasizes developing virtuous character traits. **Intuitive ethics** relies on personal intuition and moral judgment in decision-making. **Hedonism**, including Cyrenaic hedonism and Epicureanism, prioritizes pleasure and happiness as the highest goods; in state consequentialism, the consequences of actions for the state or society determine their moral value. **Consequentialism** includes utilitarianism and value theories and evaluates actions based on their outcomes or consequences. **Ethical egoism** asserts that individuals should act in their self-interest. **Deontology**, which includes Kantianism, divine command theory, and discourse ethics, focuses on moral duties and principles. **Pragmatic ethics** emphasizes practicality and real-world consequences in ethical decision-making. **Ethics of care** focuses on empathetic and compassionate relationships in moral reasoning. **Role ethics** considers ethical obligations based on one's social roles and relationships. **Anarchist ethics** promotes autonomy and voluntary cooperation in ethical systems. **Postmodern ethics** challenges traditional ethical frameworks and emphasizes plurality and subjectivity in moral values.

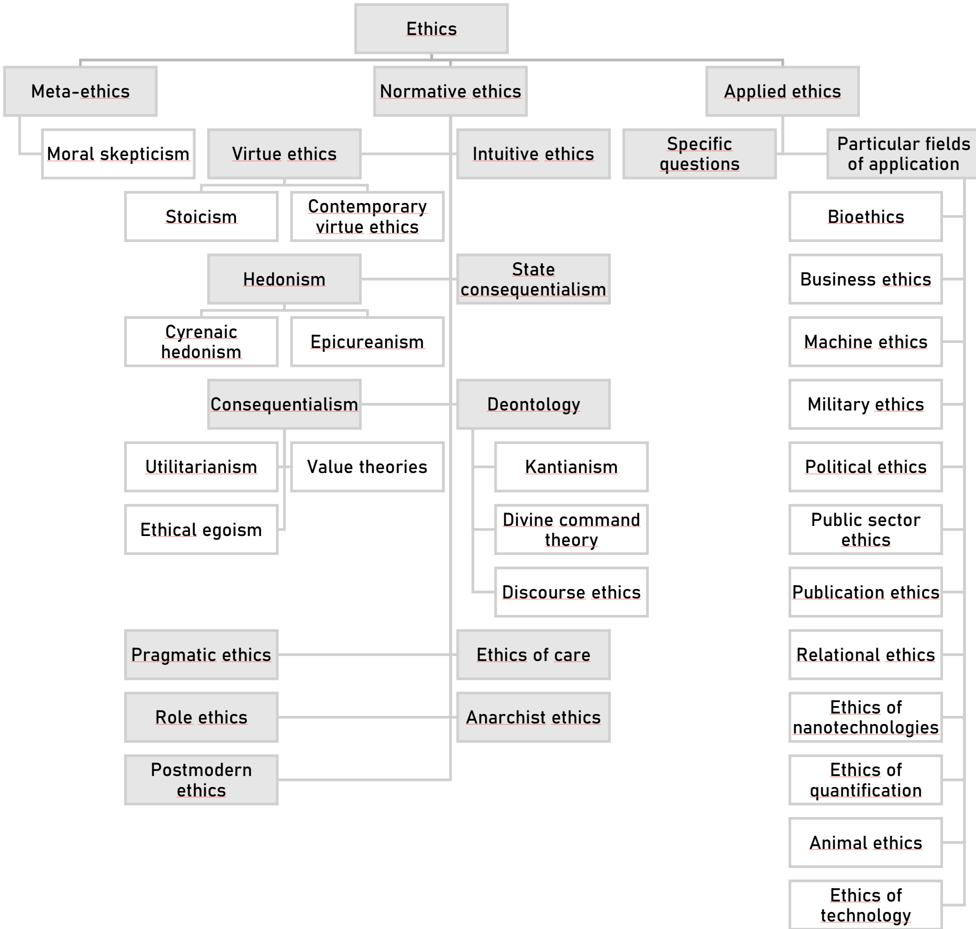
Applied ethics

A**pplied ethics** takes ethical theories from abstraction and applies them to concrete, practical situations in specific domains like medicine, technology, business, economy, or the environment. It grapples with real-world dilemmas, such as whether artificial intelligence should possess ethical decision-making capabilities or when medical interventions raise ethical concerns. Applied ethics bridges the gap between theoretical frameworks and practical action, translating abstract principles into concrete guidance for complex ethical challenges. This subdiscipline of ethics deals with major issues of the contemporary scene, including human rights, social equality, and the moral implications of scientific research, for example, in genetic engineering, further more bioethics, legal ethics, business ethics, animal rights, and environmentalism.[282]

Since Plato's time (428/427–348/347 BC), Western moral philosophers have grappled with practical issues such as suicide, women's treatment, and public officials' behavior. Notable Christian philosophers like St. Augustine (354–430) and St. Thomas Aquinas (1224/25–74) meticulously examined war, lying, and suicide. Practicality also drove thinkers like Thomas Hobbes (1588–1679), who advocated for absolute sovereign authority to prevent societal chaos. The Scottish Enlightenment philosopher David Hume (1711–76) wrote about the ethics of suicide. The British utilitarians, including Jeremy Bentham (1748–1832) and John Stuart Mill (1806–73), were very concerned with practical problems; indeed, they considered social reform to be the aim of their philosophy. During the first six decades of the 20th century, however, applied ethics received scant attention from moral philosophers despite the tumultuous events of the time. Bertrand Russell (1872–1970) was a notable exception, though he kept his ethical writings separate from his philosophical work. Applied ethics gradually gained recognition as an essential component of philosophy curricula worldwide, addressing diverse issues such as medical, environmental, and business ethics. These areas raise complex ethical questions that demand careful consideration and analysis.

[282] Singer, P. (2023). *applied ethics*. *Encyclopedia Britannica*. https://www.britannica.com/topic/applied-ethics

System of Ethics



Source: own compilation of the author

The vast scope of applied ethics necessitates division into dedicated **subfields**, each examining ethical considerations within distinct areas. This allows for a nuanced and context-specific analysis of challenging moral questions. **Ethics of Technology** encompasses the ethical considerations of various technologies beyond AI, ranging from social media to genetic engineering, considering their impact on individuals and society. **Machine Ethics** examines the ethical implications of artificial intelligence, focusing on questions of bias, accountability, and decision-making autonomy in machines. **Ethics of Nanotechnologies**, an emerging field, analyzes the potential risks and benefits of nanotechnology, considering its implications for environmental sustainability, safety, and privacy. **Ethics of Quantification** examines the ethical implications of relying heavily on quantitative data in decision-making, addressing issues like bias, privacy, and algorithmic fairness. **Bioethics** grapples with ethical issues in healthcare, research, and biotechnology, including topics like stem cell therapy, euthanasia, and genetic engineering. **Economic, Financial, and Business Ethics** explores the ethical obligations of corporations and individuals within the business sphere, addressing issues like fair labor practices, environmental sustainability, and responsible marketing. **Military Ethics** analyzes the ethical conduct of warfare, encompassing topics like just war theory, rules of engagement, and the treatment of prisoners. **Political Ethics** tackles ethical challenges within political systems, addressing issues like campaign finance, corruption, and fair representation. **Public Sector Ethics** focuses on ethical conduct within government and public institutions, examining issues like transparency, accountability, and conflicts of interest. **Animal Ethics** explores the ethical treatment of animals, considering issues like animal experimentation, factory farming, and animal rights. **Publication Ethics** ensures integrity and responsible research practices in scholarly publishing, addressing issues like plagiarism, authorship disputes, and data fabrication. **Relational Ethics** explores the ethical dimensions of interpersonal relationships, addressing issues like trust, conflict resolution, and social responsibility.

9.2. Golden Rule

The Golden Rule, a timeless principle of treating others as you want to be treated, is widely regarded as an ethic of reciprocity. This maxim can manifest as a positive, negative, or empathetic injunction governing conduct.

Three Forms of the Golden Rule

Positive or directive form	**Treat others** as you would like others to treat you.
Negative or prohibitive form	**Do not treat others** in ways that you would *not* like to be treated.
Empathetic or responsive form	**What you wish upon others**, you wish upon yourself.

Source: own compilation of the author

The **positive or directive form** of the Golden Rule is a beacon for fostering kindness and empathy. "Treat others as you would like others to treat you" encapsulates the essence of this principle. This proactive approach to interpersonal relationships transcends cultural boundaries, emphasizing the importance of benevolence and consideration in our interactions with others. The **negative or prohibitive form** of the Golden Rule articulates a sense of restraint and ethical responsibility. "*Do not treat others in ways that you would not like to be treated*" serves as a cautionary reminder against actions that may cause harm or discomfort to others. This formulation highlights the reciprocal nature of the principle, emphasizing the importance of avoiding behaviors that one would find objectionable. The **empathetic or responsive form** of the Golden Rule introduces a nuanced perspective on reciprocity. "What you wish upon others, you wish upon yourself" encourages individuals to consider the impact of their thoughts and actions on others. This formulation underscores the interconnectedness of human experiences, promoting a sense of empathy and shared humanity.

This fundamental concept is present in virtually every major religion, prominently appearing in Buddhism, Islam, Christianity, Hinduism, Judaism, Taoism, and Zoroastrianism. In Ancient Egypt during the Late Period (c. 664–323 BCE), a papyrus proclaimed, "That which you hate to be done to you, do not do to another." Ancient India, specifically in the Tamil tradition, emphasizes this ethical principle in the Kural 316: "Do not do to others what you know has hurt yourself." Confucianism articulates a similar sentiment in the form of a guiding principle: 己所不欲，勿施於人, meaning "What you do not wish for yourself, do not do to others."

In the Bible, the Old Testament, in Leviticus 19:18, adherents are instructed to "*Love your neighbor as yourself*." In the New Testament, specifically in Mark 12:30-31, a profound teaching states, "Love the Lord your God with all your heart and with all your soul and with all your mind and with all your strength. The second is this: 'Love your neighbor as yourself.' There is no commandment greater than these."

In **economics**, the Golden Rule has different meanings and contents. It often refers to a principle related to **optimal savings and investment** for long-term economic growth. It suggests that society should save and invest in capital (such as infrastructure, education, and technology) at a rate that maximizes the consumption level of future generations while maintaining a steady state of capital per worker. This concept originates from the work of economists like John Maynard **Keynes** and was further developed in growth theory. It emphasizes balancing consumption and investment to ensure sustainable economic development over time. A society can achieve intergenerational equity and long-term prosperity by investing in capital accumulation up to the point where the marginal product of capital equals the rate of time preference. This concept of **savings rate** comes from economic models like the **Solow-Swan model**, which analyzes long-term economic growth upon the labor market growth, capital investment, and technology.[283] It refers to the savings rate that maximizes the steady-state level of consumption per capita. In the short run, higher saving and investment does increase the rate of growth of national income and product in the short run; but, in contrast, higher saving and investment has no effect on the rate of growth in the long run. Essentially, it is the savings rate that allows future generations to consume the most amount per person over time. This rate generally depends on population growth and the rate of return on capital.

Within **fiscal policy**, the rule allows deficit financing only regarding public capital investments, thus prohibiting the financing of current expenses with loans. In practice, it requires equality between current expenditure and income, ideally for the entire cycle (and not just for a single year). The prohibition of debt financing for current expenditures may be justified by the fact that government borrowing causes an increase in the real interest rate, which crowds out private investment and ultimately threatens the economy's long-term growth prospects. At the same time, financing public investments (such as infrastructure development and support for basic research) with loans can also have positive external effects that support economic growth. In many cases, the market does not undertake to implement investments with slow or uncertain payback, or making them profitable does not serve the interests of society. In such situations, the state is responsible for implementing the necessary investments. In simpler terms, the government should only borrow money for projects that will generate long-term benefits for the future, not just cover daily expenses. This prevents accumulating excessive debt and leaving it for future generations to deal with. Policymakers use the rule to inform decisions related to fiscal policy, taxation, and public investment. It provides a framework for evaluating the long-term consequences of policy choices and prioritizing investments that yield sustainable societal benefits.

[283] Swan, T.W. (1956). Economic Growth and Capital Accumulation. *Economic Record* 32 (2): 334-361.
Solow, R.M. (1956). A Contribution to the Theory of Economic Growth. *Quarterly Journal of Economics* 70 (1): 65-94. Solow, R.M. (1957). Technical Change and the Aggregate Production Function. Review of Economics and Statistics 39 (3): 312-320.
Cayssials, G., & Picasso, S. (2020). The Solow-Swan model with endogenous population growth. *Journal of Dynamics & Games*, *7*(3).
Abreu, M. (2021). Neoclassical regional growth models. *Handbook of regional science*, 591-613.

Why does the economist love the Golden Rule?
Because it ensures maximum returns on investment:
"Treat others as you'd like them to invest in you!"

In 2023, the European Parliament's Committee on Economic and Monetary Affairs (ECON) stated that within the Stability and Growth Pact framework, an **investment-friendly golden rule** should limit deficit spending to net investments, which mirrors the creation of new productive capital. Current (primary) spending needs to be balanced (e.g., net investments in the account), for example, by a (structural) balanced budget rule. The rule may consider flexibility by allowing cyclically-adjustments and (limited) escape clauses during a crisis. The idea is that allowing productive investment (as an exception) to be financed by debt will lead to fiscal balance in current spending, higher incentives for public investments, and potentially self-financing of public debt in the long run. The golden rule must be targeted and accompanied by **fiscal rules** limiting the amount of debt-financed investment, such as a debt rule and an overall deficit rule binding for all expenditures, including investment. Fiscal rules may ensure more significant fiscal sustainability without preventing public investments and work as guidance for the maximum size of debt-financed investments, for example, limited by the deficit rule. Limiting debt-financed investments to a certain financial threshold or criteria is expected to increase incentives for efficient public capital spending and avoid excessive deficit spending. However, net investments could even be even higher than the targeted threshold for debt-financed investments if politicians finance further investments at the cost of other current expenses or by raising revenues.[284]

The Golden Rule can be found in other aspects. It suggests that by investing in capital at the right rate, an economy can achieve **sustainable economic growth** without exhausting its resources or causing environmental degradation, promoting a balanced approach to economic development that considers the needs of future generations. The concept helps economists determine the optimal level of investment in capital goods within the **optimal capital accumulation**. Too little investment may lead to underdevelopment and stagnation, while excessive investment may result in diminishing returns or overconsumption of resources. Highlighting the **intergenerational equity**, policymakers aim to ensure fairness and equity between current and future generations. It encourages responsible stewardship of resources and

[284] Blesse, S., Dorn, F. , Lay, M. (2023). A targeted golden rule for public investments? A comparative analysis of possible accounting methods in the context of the review of Stability and Growth Pact. ECON Committee

acknowledges the impact of present decisions on the well-being of future populations. The **dynamic efficiency** refers to an economy's ability to innovate and continuously adapt over time. By investing in education, research, and infrastructure, societies can enhance their productivity and competitiveness in the global economy.

Despite its theoretical appeal, implementing the Golden Rule in practice can be challenging. Determining the appropriate savings rate and balancing short-term needs with long-term goals require accurate economic forecasting and political consensus. Additionally, external factors such as technological change, demographic shifts, and global economic trends can complicate its application.

9.3. Overview of Ethical Concepts

The main ethical theories span the Greek and Chinese Virtue ethics, Divine Command theory, Deontology theory, Utilitarian theory, Justice theory, Relativism theory, and Egoism theory. These theories offer diverse perspectives on moral philosophy, exploring principles such as virtue, divine mandate, duty, utility, fairness, cultural relativism, and self-interest. Each theory provides unique insights into the nature of ethical decision-making and the foundations of moral reasoning.

Main Contents of the Ethical Concepts

Theory	Main content	Philosophers
Virtue ethics theory (Greek)	They focus on **what makes a good Individual or person** rather than what makes a good action. Every person must have specific virtue traits such as civility, cooperativeness, courage, fairness, friendliness, generosity, honesty, justice, loyalty, self-confidence, self-control, modesty, fairness, and tolerance.	Aristotle, Plato, Confucius, Mencius, Lao Tzu
Virtue ethics theory (Chinese)		
Divine Command theory	Ethically right means **commanded by God**, and ethically wrong or unethically means forbidden by God. **Religion is the only standard** to identify ethics.	Augustine, Thomas Aquinas, Maimonides, Ashvaghosha, Ramanuja
Deontology theory	It underlines the duty as a basis of **moral category,** which can be seen as a right or wrong judgment. It does not look at the consequences of action. And, there are **universal ethical actions** that everyone must accept.	Immanuel Kant

Theory	Main content	Philosophers
Utilitarian theory	"Ethically right' means the action results in a **greater number of utilities** than could be achieved by any other actions.	Jeremy Bentham, John Stuart Mill
Justice theory	The idea of **fairness** applied beyond the individual to include the community as well as analysis of social injustice with remedies to correct it.	John Rawls, Martha Nussbaum, Amartya Sen
Relativism theory	Ethics are **relative to a particular environment**. Different societies may have different ethical codes. There is **no universal truth** in ethical principles that all peoples can hold at all times.	Protagoras, Friedrich Nietzsche
Egoism theory	A person must always **perform in his/her own interest**. An action is considered to be ethically right only when it promotes a person's self-Interests.	Thomas Hobbes, Ayn Rand

Source: own compilation of the author

The Greek and Chinese **Virtue Ethics** can be regarded as a teleological ethical framework, which emphasizes the development of virtuous character traits, such as honesty, courage, and justice, as the foundation for ethical decision-making. It prioritizes cultivating individual good rather than judging actions as right or wrong. Key thinkers include Aristotle, Plato, Confucius, Mencius, and Lao Tzu. **Divine Command Theory** is a deontological system that grounds moral obligations in the commands of a divine being. Actions are deemed ethical based on their adherence to divine dictates, with religious scripture as the ultimate moral authority. The key representatives are Augustine, Thomas Aquinas, Maimonides, Ashvaghosha, and Ramanuja. As a non-consequentialist approach, **Deontological Ethics** focuses on the inherent rightness or wrongness of actions based on adherence to universal moral principles and duties, independent of the consequences. Immanuel Kant emphasized different concepts like justice, fairness, and universal moral laws. **Utilitarianism** is a consequentialist theory that holds that the most ethical action is the one that maximizes overall happiness or well-being for the greatest number of people. It judges actions based on their outcomes and potential to produce the most good. Key figures include Jeremy Bentham and John Stuart Mill. **Justice Theories** analyze fairness and distributive justice concepts, examining the just allocation of resources and rectifying social injustices. They often focus on promoting social equality and addressing systemic inequities. Key thinkers are John Rawls (Veil of Ignorance), Martha Nussbaum, and Amartya Sen. **Ethical Relativism** argues that moral values are contingent upon specific contexts and cultures. It rejects the existence of universal ethical principles, acknowledging the diversity of moral beliefs across societies and throughout history. Key figures include Protagoras and Friedrich Nietzsche. **Egoism** prioritizes individual self-interest, claiming that actions are only moral if they directly benefit the agent. It can manifest in various forms, from moderate self-preservation to extreme individualism. Key figures include Thomas Hobbes and Ayn Rand.

Comparison of the Main Ethical Concepts

Virtue ethics	Deontology	Utilitarianism	Contractarianism
Ethics should devote itself foremost to the development of **moral character**	Directs attention mainly to the **intrinsic features** of our actions	Primarily focuses on the **consequences** of our actions	Argues that moral principles are derived from the **agreement of all** those who are subject to their dictates
Argues that the cultivation of virtues and the pursuit of excellence in all its various forms are essential to good character	Asks what our moral obligations are in specific circumstances or according to general rules of conduct	Asks what ad or rule produces the greatest balance of good over evil	Moral principles are either compromises human agents agree to in order to get what they want, *or* are derived from the all agents are owed, *or* are best viewed as conventional solutions
Equates the right and the good with what persons of moral character would do in certain contexts	Equates the right or good with our basic moral duties	Equates the morally good with some notion of pleasure or happiness	Equates the right and the good with what people can reasonably agree to
Stresses moral development and moral education	Stresses the role of duty and respect for persons	Stresses promotion of happiness and utility	Provides a motivation for morality
Depends on homogeneous community standards for morality	Underestimates the importance of happiness and social utility	Ignores concerns of justice for the minority population	Offers only a minimal morality

Source: own compilation of the author

Within applied ethics, **Economic, financial, and business ethics** form integral components of contemporary ethical discourse, addressing the moral dimensions of economic systems, financial practices, and business operations. These fields of study explore ethical principles and values in resource allocation, wealth distribution, financial transactions, corporate conduct, and stakeholder relationships.

Economic, Financial, and Business Ethics

Aspect	Economic Ethics	Financial Ethics	Business Ethics
Definition	Concerned with moral principles in economic systems	Focuses on moral principles within financial systems	Concerned with moral principles within business operations
Scope	Broadly addresses economic principles and theories	Primarily deals with financial practices and decisions	Focuses on ethical conduct within business organizations
Key Concerns	Fair distribution of resources, wealth, and income	Transparency, integrity, and accountability in financial transactions	Integrity, honesty, fairness, and responsibility in business dealings
Examples	Just distribution of wealth, income inequality	Insider trading, fraud, conflicts of interest	Corporate social responsibility, fair labor practices, environmental sustainability
Impact	Influences economic policies and systems	Influences financial regulations and governance	Influences corporate culture and organizational behavior
Stakeholders	Governments, policymakers, economists	Financial institutions, investors, regulators	Employees, customers, shareholders, society

Source: own compilation of the author

Economic ethics, a branch of applied ethics, concerns the moral principles underpinning economic systems. It examines ethical considerations related to resource allocation, distribution, and utilization within societies, aiming to foster equitable outcomes and social justice. For instance, economic ethics delves into issues such as the fair distribution of wealth and the alleviation of income inequality, with the goal of promoting economic well-being for all members of society. This field of study engages with a wide array of economic principles and theories, including those from classical economics, neoclassical economics, and heterodox schools of thought. Through philosophical inquiry and empirical analysis, economic ethicists explore how economic systems can be structured and managed to uphold ethical values such as fairness, justice, and human dignity. Addressing income inequality and wealth distribution concerns, economic ethics seeks to identify and address systemic injustices perpetuating social and economic disparities. This includes examining the impact of policies related to taxation, welfare, and social safety nets on the distribution of resources and opportunities within society. The influence of economic ethics extends beyond academic discourse, shaping the development and implementation of economic policies by governments, policymakers, and international organizations. For example, ethical considerations may inform decisions regarding minimum wage laws, progressive taxation, and social welfare programs to promote greater economic equality and social cohesion.

Financial ethics, a subset of economic ethics, focuses on the ethical dimensions of financial systems and practices. It addresses issues such as transparency, integrity, and accountability in financial transactions and the ethical responsibilities of financial institutions, investors, and regulators. Issues such as insider trading, fraud, and conflicts of interest are among the focal points of financial ethics, as efforts are made to mitigate unethical behaviors and promote trust and confidence in financial markets. The influence of financial ethics extends to financial regulations and governance, where ethical considerations play a crucial role in shaping regulatory frameworks and guiding the conduct of financial institutions, investors, and regulators. In recent decades, there has been growing attention to the ethical implications of financial practices, particularly in the wake of financial scandals and crises. For example, the global financial crisis of 2008 highlighted the need for greater ethical oversight and regulation within the financial sector, leading to reforms aimed at preventing future crises and protecting the interests of consumers and investors.

Business ethics, another branch of applied ethics, centers on the moral principles that govern business operations and decision-making. It encompasses a wide range of ethical issues, including corporate governance, corporate social responsibility, and ethical decision-making in business settings. Business ethics is concerned with promoting ethical behavior and responsible business practices, which are seen as essential for building trust and maintaining legitimacy in the marketplace. Research has shown that companies with strong ethical cultures tend to outperform their peers financially and enjoy greater long-term success. Corporate social responsibility (CSR) is a key component of business ethics, emphasizing the ethical obligations of corporations to stakeholders beyond shareholders, including employees, customers, suppliers, and the communities in which they operate.[285] CSR initiatives encompass a variety of activities, such as environmental sustainability, philanthropy, and employee welfare programs, aimed at promoting social and environmental good while also creating value for the business. The influence of business ethics extends throughout the corporate world, shaping organizational culture, decision-making processes, and stakeholder relationships. Ethical leadership, ethical corporate governance, and effective compliance programs are among the strategies companies employ to foster a culture of integrity and ethical behavior within their organizations.

[285] Triswanto, V. S. (2023). Business Ethics and Social Ethics in Corporate Social Responsibility (CSR) in the 4.0 Industrial Revolution. *International Journal of Economics, Management, Business, and Social Science (IJEMBIS)*, *3*(1), 36-41.

10. Two Ancient Virtue Ethic Concepts

In exploring ethical frameworks, two prominent thinkers stand as pillars of virtue ethics: Aristotle in the Western tradition and Confucius in the Eastern tradition. Though separated by geography and culture, these ancient philosophers shared a profound commitment to understanding the nature of virtue and its role in human flourishing. Aristotle, hailing from ancient Greece, and Confucius, representing the rich philosophical tradition of China, each articulated comprehensive systems of ethics grounded in cultivating virtuous character. Despite the differences in their cultural contexts and philosophical methodologies, the ethical insights offered by Aristotle and Confucius continue to resonate across time and space, inviting contemporary scholars and practitioners to engage with their enduring wisdom. This comparative study of two ancient virtue ethic concepts sheds light on the universal aspects of ethical inquiry while honoring the diversity of human thought and experience.

Comparing the Virtue Ethics of West and East

	Aristotle	Confucius
Subject	self-determining person individual	relationship-determining person family, society
Character-istics	**phronesis** self-restraint temperance	self-regulation ability courage
Behavior	virtuous living happiness	**junzi** ru (humanity)
Goal	**eudaimonia** (happiness) (search for truth)	**harmony** 5 great relationships
Solution	golden mean	middle ground

Source: own compilation of the author

It is worth comparing the olden mean and the middle ground for the solutions. For example, in the case of courage, the extremes might be recklessness and cowardice. Being closer to recklessness would be the sweet spot or mean, rather than being in the middle, which might represent inaction.[286]

[286] Das, K. (2020). The mechanism of golden mean and middle path: the pursuit of happiness. *Int. J. Multidisc. Educt. Res*, *3*(4), 138-148.
Wei, X., & Wang, J. (2022). Comparison of the “golden mean” in the philosophy of Aristotle and Confucius. *Zeszyty Naukowe Politechniki Poznańskiej. Architektura, Urbanistyka, Architektura Wnętrz*.

The **golden mean** is a philosophical concept that originated in ancient Greek thought, particularly with Aristotle. It is also known as the doctrine of the mean or middle way, a value between excess and deficiency, usually closer to one extreme than the other. Aristotle suggested that virtue lies between extremes, and individuals should seek a moderate and balanced position between excess and deficiency. This idea applies to various aspects of life, including moral virtues, emotions, and actions. The golden mean encourages finding a balance and avoiding extremes. For example, courage is a virtue, but recklessness (excess) and cowardice (deficiency) are considered vices. The golden mean in this context would be to display courage in an appropriate and balanced manner.[287]

The **middle ground** is a more general term that can be applied in various situations and is not necessarily tied to philosophical or ethical principles. In a broader sense, finding the middle ground means seeking a compromise or a moderate position between opposing viewpoints, ideas, or actions. The concept of middle ground can be applied in negotiations, conflicts, or discussions where two or more parties try to reach a consensus without leaning too much towards one extreme or the other.

Timmerman identifies limitations in virtue ethics, highlighting challenges in providing actionable guidance and addressing broader social issues, underscoring the theory's ongoing relevance and areas for refinement. While emphasizing moral character development, virtue ethics faces challenges such as cultural relativity and subjective determination of virtues. Critics also note its difficulty in providing clear guidance for specific actions and its potential oversight of broader social issues.[288]

10.1. West: Aristotle

In his work *Nicomachean Ethics*, **Aristotle** (384–322 BCE) delves into teleology, defined as the examination of ends and the means directed towards those ends, with *telos* denoting a goal or aim. According to Aristotle, the telos of human beings is identified as **eudaimonia** (εὐδαιμονία), commonly translated as happiness or human flourishing, achieved through the exercise of

Ogunyomi, A. I., & Ogundele, E. A. (2021). Aristotle, Confucius and Rousseau on Human Nature and the Golden Mean: A Comparative Analysis.

[287] Ng, V., & Tay, L. (2020). Lost in translation: The construct representation of character virtues. *Perspectives on Psychological Science*, *15*(2), 309-326.

[288] Timmerman, T., & Cohen, Y. (2020). The limits of virtue ethics. *Oxford Studies in Normative Ethics*, *10*, 255-282.

reason. In this context, reason is considered supreme and is best employed to enhance character rather than amass wealth.

Aristotle posits that happiness is a virtuous activity of the soul, asserting, "*If we consider what the function of man is, we find that happiness is a virtuous activity of the soul.*" He further elucidates that happiness is an active, continuously evolving pursuit, not a static possession. Aristotle challenges the notion that happiness might be genetically predetermined in human beings, emphasizing the imperative for individuals to learn the art of happiness. The capacity to **act honorably and ethically** is central to Aristotle's ethical framework. However, individuals may deviate from their telos, intentionally or inadvertently. The concept of virtue forms the foundation of Aristotle's virtue ethics, an ethical system grounded in cultivating specific virtues and prioritizing character development.

Virtue, referred to as arête, is manifested in behavior demonstrating high moral standards and conformity to a recognized standard of morality. Aristotle distinguishes between two types of virtues: **intellectual (objective) virtues** encompassing knowledge (epistḗmē), wisdom (sophíā), and prudence (phrónēsis); and **moral (subjective) virtues** including courage, self-control, liberality, magnificence, loyalty, honor, patience, amiability, and temperance.

Intellectual vs. Moral virtues

Intellectual virtues	Moral virtues
Objective	**Subjective**
Acquired purely through **learning**	Acquired through **practice** and the **development** of habits
Focused on **external acts**	Focused on **internal acts** (done with character)
Knowledge, wisdom, **prudence**	Courage, self-control, liberality, magnificence, honor, patience, amiability, temperance

Source: own compilation of the author

In virtue ethics, the foundational ethical entity and primary agent of morality is the individual, establishing the centrality of personal character in ethical considerations. The correlation between intellectual and moral virtues is nuanced, with actions preceding the formation of character, highlighting the intricate nature of virtue development. The principal method for altering character within virtue ethics lies in consistent, intentional behavioral patterns directed towards virtue. The pivotal task in this ethical framework is cultivating the habit of leading a virtuous life, emphasizing the importance of sustained virtuous conduct for character refinement.

Prudence (phrónēsis), characterized as "common sense" or "practical wisdom," plays a crucial role in virtue ethics. It aids individuals in avoiding extremes and finding the golden mean between excess and deficiency. Moreover, prudence enables individuals to make morally sound decisions, asserting that only a prudent person can possess all the moral virtues. **Liberality**, within the context of virtue ethics, is defined as the quality of being open and sharing one's talents without apprehension of rejection or expectation of reciprocity. It is elucidated as an aspect of personality rather than a political or economic stance, contributing to this ethical framework's broader understanding of virtues.

The exploration of **honorable behavior in business**, constituting a life of virtue, is situated within the economic and political spheres. In the context of business ethics, competency and ethical conduct are identified as crucial elements that should govern business transactions. The virtue of prudence emerges as a guiding principle, facilitating honorable behavior among buyers, sellers, and all participants involved in transactions. According to this perspective, business thrives on the foundation of free and fair exchanges of goods, fostering not only the interaction of merchandise but also the collaboration of buyers, sellers, and public officials.

Plato's viewpoint suggests a perceived taint associated with business and money, reflecting his broader concept that the physical world serves as an imperfect expression or shadow of the ideal realm.

In the realm of **economics**, Aristotle, while harboring suspicions about business, acknowledges its significance in preserving and nurturing Athenian democracy.[289] Aristotle applauds the creation of **money** as a means to promote justice, enabling trades between individuals, such as a shoemaker and a housebuilder, on an equitable basis. He expresses concern about interest, deeming it unnatural, as money, being a sterile element, lacks the inherent capacity for natural reproduction, positioning usury as contrary to the natural order. The virtue ethics emphasize the importance of cultivating virtues such as moderation (sophrosyne), justice (dikaiosyne), and magnificence (megaloprepeia). **Moderation** warns against excessive wealth accumulation and extreme poverty, advocating for a balanced and moderate approach to material goods. **Justice** emphasizes fairness and equity in economic transactions

[289] Kristjánsson, K. (2022). Collective phronesis in business ethics education and managerial practice: A neo-Aristotelian analysis. *Journal of Business Ethics*, *181*(1), 41-56.

and argues that economic interactions should be guided by principles of distributive justice, ensuring that resources are allocated in a way that promotes the common good and benefits society as a whole. **Magnificence** involves the appropriate use of wealth for noble and worthy purposes, such as supporting public goods, philanthropy, and cultural endeavors. Aristotle emphasizes the importance of using wealth virtuously to enhance the well-being of society and contribute to the flourishing of the community. Applying ancient philosophical concepts to complex financial systems requires careful adaptation and consideration of specific practices within each **sector**, like business ethical codes, financial consumer protection, prudent operation in banking, solvency in insurance. Furthermore, the two neglected components of practical wisdom as outlined in Book VI of the Nicomachean Ethics, are synesis (judgement), a capacity to evaluate testimony perceptively, and gnomē (discernment), a capacity to discern exceptions to universal moral rules rightly. Practical wisdom is a product of experience, so examine the role that experience plays in developing these deliberative capacities, asking what it is that the practically wise will have taken away from their experiences. It is, in particular, a mundane experience that begets these excellences.[290]

10.2. East: Confucius

The foundational belief in Confucian virtue ethics, as elucidated by **Confucius** (551–479 BC, also known as Kung Fu Tzu or Master Kung),[291] is that individuals are inherently good, suggesting that curbing inhuman behavior involves cultivating their inherent goodness to enhance their humanity. Virtuous living is regarded as a transformative process that renders individuals more human, fostering both personal flourishing and establishing order in the world. "*It is the person who can broaden the Way, not the Way broadens the person.*" The five Confucian constants of humanity are righteousness, propriety, wisdom, and faithfulness.[292]

[290] Steyl, S. (2020). Aristotelian practical wisdom in business ethics: Two neglected components. *Journal of Business Ethics, 163*(3), 417-428.

[291] The name Confucius, a Latinized combination of the surname Kong 孔 with an honorific suffix “Master” (fuzi 夫子), has also come to be used as a global metonym for different aspects of traditional East Asian society.

Stanford Encyclopedia of Philosophy. (2020). Confucius (Mark Csikszentmihalyi)

Yuan, L., Chia, R., & Gosling, J. (2023). Confucian virtue ethics and ethical leadership in modern China. *Journal of Business Ethics*, *182*(1), 119-133.

[292] Wahing, R. J. (2021). Confucius on the Five Constant Virtues. Philpapers.

He revolves around the reiteration of **li**, denoting the proper order of the universe where every individual assumes a designated role, contributing to the overall harmony in the world. This concept is manifest in collaborative endeavors, such as organizational missions or projects, where tasks are executed collectively to achieve shared objectives. Confucius introduced the concept of the **junzi**, a person characterized by grace, magnanimity, and cultural refinement, epitomizing a flourishing human being. The junzi exhibits refinement, self-control, and balance qualities in all aspects, avoiding rash and timid behavior. The **dao** of humanity, or the Way, is the foundational principle that establishes humaneness within society. Within the Confucian framework, the dao of humanity encompasses three essential means. Firstly, whole-hearted sincerity and truthfulness are emphasized, promoting loyalty to truth as a virtue. This commitment is viewed as beneficial for everyone in the long run. Secondly, the concept of a constant means advocates for a balance between excess and deficiency in both an existential and practical sense. This equilibrium extends to action through ritual acts, perpetuating the maintenance of the five great relationships that underpin Chinese society: parent/child, husband/wife, elder/junior sibling, master/apprentice, and ruler/subject.

Three Meanings of Dao of Humanity

Whole-hearted sincerity and truthfulness	• To be loyal to the truth • Which would benefit everyone in the long run
Constant mean	• Balance between excess and deficiency in an existential and practical sense • Action through ritual acts • Maintain the 5 great relationships that support Chinese society: parent/child, husband/wife, elder/junior sibling, master/apprentice, and ruler/subject.
Expediency (quan)	• Righteousness as the virtue that would temper compassion and love • So that people could live together not just peacefully but justly • Allows people and institutions to prioritize responsive action over ritual and serves as the way to align what people do with who they are → recognizing the humanity

Source: own compilation of the author

The virtue of expediency, or **quan**, is extolled as righteous, tempering compassion and love to enable individuals to live together peacefully and justly. This ethical approach allows people and institutions to prioritize responsive action over ritual, aligning individual actions with their inherent humanity, thus recognizing and acknowledging humaneness. The term quan, originally referring to a piece of metal used in balancing scales, metaphorically underscores the importance of maintaining equilibrium and balance in ethical considerations.

Within Confucian virtue ethics, virtue places significant emphasis on relationships, asserting that the practice of virtue constitutes the essence of governance. Confucius believed that living out the virtues he taught would bring about social, political, and administrative reform and contribute to inner spiritual development. The expression of Confucian virtue ethics is channeled through ritual acts, exemplified by corporate rituals, serving to strengthen cohesion and identity within a group. Emphasizing the avoidance of extremes, this ethical framework underscores the importance of maintaining a middle ground between deficiency and excess.[293]

The **Confucian Business Model**, anchored in principles of wholeheartedness and sincerity, can be applied as paradigms for risk assessment and management,[294] demanding clearheaded thinking and actions that balance astuteness with regard for market dynamics, competitors, and stakeholders.[295] The constant mean, a central tenet of Confucian ethics, finds practical application in financial advisory settings where an investment advisor might advocate for a diversified portfolio and a long-term strategy for clients, ensuring stability and prudence. The spirituality emanating from *quan* as righteousness plays a pivotal role in compelling all parties involved in a transaction to act in good faith, avoiding actions that could risk disrupting the proper order of business affairs. Within this ethical framework, justice is construed to permit wealth creation, investment, and strategic planning, provided all participants fulfill their roles and adhere to the ethical standards exemplified by the *junzi*. A Confucian perspective encourages viewing corporate culture as a reflection of a broader network of relationships, emphasizing the interconnectedness of individuals within an organization.

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[293] Koehn, D. (2020). How would Confucian virtue ethics for business differ from Aristotelian virtue ethics?. *Journal of Business Ethics*, *165*(2), 205-219.
[294] Yang, Y. Integration of Confucian" Five Constants" Culture and Modern Enterprise Management.
[295] Provis, C. (2020). Business ethics, Confucianism and the different faces of ritual. *Journal of Business Ethics*, *165*(2), 191-204.
Tian, V. I., Tang, F., & Tse, A. C. (2022). Understanding corporate culture and business performance from a Confucian perspective. *Asia Pacific Journal of Marketing and Logistics*, *34*(4), 759-777.

The hierarchy and respect for authority are reflected in business structures where seniority and rank are highly valued. Decision-making often follows a top-down approach, and employees are expected to defy their superiors. Companies may prioritize the organization's collective goals over individual interests, fostering a sense of unity among employees. In business, they may lead to a preference for establishing enduring partnerships and maintaining strong relationships with clients, suppliers, and other stakeholders. Confucianism places a high value on education and self-improvement. In a business context, this can manifest in a commitment to continuous learning and professional development. Companies may invest in employee training and education to enhance skills and knowledge. The Confucian values include the concept of filial piety, which emphasizes loyalty and respect towards family and elders. This could extend to a strong sense of loyalty towards the company and its leadership among employees in a business setting. Many business scandals could be avoided if more people understood the value of human capital and the need to see the larger picture, to put it differently: **responsibility over profitability**.

However, critics argue that Confucianism faces challenges in adapting to the modern context, citing the emergence of high-frequency trading, blockchain technology, artificial intelligence, and robotics. Despite technological advancements, issues of personal irresponsibility persist, as evidenced by events such as the 2008 financial crisis and controversies involving companies like Uber and Volkswagen.

11. Religious Concepts

While economic, business, or financial ethics within different religious traditions can vary, here is a broad comparison table outlining some key principles associated with Christian, Muslim (Islamic), Hindu, Buddhist, and Taoist economic and financial ethics:

Key Aspects of Religious Economic Ethics

Aspect	Christian	Islamic	Hindu – Buddhist	Taoist
Core Principle	Stewardship of God's gifts	Fairness and justice	Dharma and karma Non-attachment and detachment	Harmony and balance
Concept of Wealth	A means to serve God and others	A blessing from God to be used responsibly	A tool for or a distraction from spiritual growth	A source of well-being and contentment
Concept of Wealth	Responsible stewardship of resources entrusted by God.	Responsible stewardship of wealth as trustees of God's wealth.	Responsible use and sharing of resources for the well-being.	Simplicity, moderation, and balance in financial matters.
Interest (Usury)	Varies among denominations; some emphasize fair lending practices.	Prohibits usury (Riba) in financial transactions, prefers profit sharing.	Discourages usury and excessive interest rates.	Discourages usury and excessive interest rates.
Social Justice	Social justice, caring for the less fortunate, and community	Social justice and equity, and discourages exploitative practices.	Social justice and economic equality.	Social and economic harmony.
Ethical Investment	Ethical and socially responsible investments; avoiding excess in material pursuits.	Ethical investments compliant with Sharia. Avoiding excess and extravagance.	Ethical and socially responsible investments. Avoiding exploitative practices, materialism, and extravagance.	Ethical and sustainable investment choices. Moderation.

Source: own compilation of the author

The **Christianity** often emphasize the concept of stewardship, which entails responsible management and care for resources, including financial resources. The principle of charity, or love for one's neighbor, is central in Christian teachings. This includes giving to those in need and practicing generosity. It advocates for fair treatment of all individuals in economic transactions and the pursuit of justice in economic systems. In the **Islam** (Muslim), zakat refers to the principle of giving a portion of one's wealth to those in need, which is obligatory for them. It prohibits charging or paying interest (riba), emphasizing fair and equitable transactions that avoid exploitation. Islamic economic ethics are often guided by Shariah law, which outlines principles for economic transactions, contracts, and business ethics.[296] The **Hindu** economic ethics are influenced by the concept of dharma, which encompasses duty, righteousness, and moral obligations. Economic activities should align with one's dharma. They believe in the concept of Karma, the law of cause and effect. This influences economic behavior as individuals seek to act in ways that generate positive consequences. Hinduism promotes reverence for nature and views the environment as sacred. Economic activities should be conducted with respect for the natural world. **Buddhism** teaches the importance of the right livehood and ethical and non-harmful occupations. Economic activities should not cause harm to oneself or others. Similar to Christianity, Buddhism emphasizes the practice of generosity and giving to those in need. This includes charitable acts and support for the less fortunate.[297] They advocate for mindful consumption, avoiding excessive materialism and consumption that leads to suffering or attachment. The **Taoist economic ethics** emphasize simplicity and frugality. Individuals are encouraged to live modestly and avoid unnecessary consumption. It promotes living in harmony with nature and aligning economic activities with the natural order. This involves respect for the environment and sustainable practices. The philosophy often advocates for non-interference in natural processes, which can influence economic attitudes towards regulation and intervention.[298]

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[296] Quddus, M., Bailey III, H., & White, L. R. (2009). Business ethics: perspectives from Judaic, Christian, and Islamic scriptures. *Journal of management, spirituality & religion*, *6*(4), 323-334.
[297] Tachibana, S. (2021). *The ethics of Buddhism*. Routledge.
[298] Xingfu, Z. (2008). Introduction to Business Ethics. *Journal of Business Ethics Education*, *5*, 295.
Yan, T., Hyman, M. R., Aguirre, G. C., & Zhou, W. (2024). A synthetic model of Chinese business ethics in business-to-business contexts. *Journal of Business-to-Business Marketing*, 1-20.

11.1. Bible: Christianity and Judaism

Christianity and Judaism provide principles and guidelines for ethical behavior, including in finance and business.[299] While the Bible does not offer specific regulations for modern economic systems, it does contain teachings that can be applied to ethical decision-making in the business and financial spheres. Here are some key principles from both religious traditions.

Judaism

Judaism places a strong emphasis on *tzedakah*, or charitable giving. In a business context, this can manifest as a commitment to social responsibility and giving back to the community. Jewish law emphasizes the importance of adhering to the laws of the land (Dina d'Malchuta Dina). This includes ethical business practices and financial dealings. The Torah explicitly prohibits deception and fraud. The concept of "Ona'ah" in Jewish law prohibits unfair business practices and exploitation. Merchants are encouraged to deal honestly and fairly with customers. Judaism encourages fair treatment of workers, including timely payment of wages and providing a safe working environment.[300]

Christianity

Christians believe in the concept of stewardship, where individuals are seen as stewards of God's resources. This implies a responsibility to manage resources, including finances, ethically and for the benefit of others. The Bible emphasizes the importance of love and charity. In a business context, this could mean acting with compassion and generosity, considering the well-being of employees, customers, and the community. Christian teachings emphasize honesty and integrity in all dealings. The Bible advocates for fair treatment of workers. Christians are encouraged to avoid exploiting others for personal gain. This is reflected in the Golden Rule, where believers are instructed to treat others as they would like to be treated.

Even though Saint **Augustine** of Hippo (354-430) did not write extensively on economic matters specifically, his broader ethical framework and

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[299] Rae, S., & Wong, K. L. (2009). *Beyond integrity: A Judeo-Christian approach to business ethics*. Harper Collins.
Hill, A. (2017). *Just business: Christian ethics for the marketplace*. InterVarsity Press.
Attridge, H. (Ed.). (2022). *Eusebius, Christianity and Judaism* (Vol. 42). Brill.
[300] Jackson-McCabe, M. (2020). *Jewish Christianity: the making of the Christianity-Judaism divide*. Yale University Press.

theological teachings provide insights into how economic ethics can be understood within the Christian tradition.[301] He emphasized the inherent dignity of every human being, rooted in their creation in the image of God. This principle underscores the importance of respecting the dignity and worth of individuals in economic interactions, such as fair wages and just treatment in employment relationships. With the concept of love, particularly *agape*, or selfless love, he stressed the importance of charity and care for others, especially the poor and marginalized. Economic ethics, therefore, should reflect a commitment to compassionate action and generosity towards those in need. He believed in the importance of justice and fairness in economic activities, promoting equitable distribution of resources and opportunities. While not explicitly addressing economic stewardship, Augustine's teachings on responsible management of God's gifts apply to economic ethics, urging Christians to use wealth for the common good.[302] He cautioned against excessive attachment to material possessions, emphasizing spiritual values over material accumulation in economic matters.[303]

Scholastic Business Ethics

Scholastic business ethics within the historical context of Scholasticism (1100-1450), as expounded by notable figures such as Anselm of Canterbury, Albertus Magnus, Scotus, Ockham, Bonaventure, and particularly **St. Thomas Aquinas** (1225–1274), involves the acceptance of foundational Aristotelian principles.[304] Aquinas supplements these principles with a Christian interpretation, emphasizing the centrality of virtues and the alignment of natural law with eternal law, conceived as the rational plan governing the entire creation. According to Aquinas, natural law represents how human beings participate in the eternal law, prescribing the imperative to pursue good and avoid evil.

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[301] Augustine, S. (426, 2009). *The city of God - De civitate Dei contra paganos*. Hendrickson Publishers.
Nunziato, J. (2020). *Augustine and the economy of sacrifice: ancient and modern perspectives*. Cambridge University Press.
[302] Natoli, G. (2008). Augustinian moral consciousness and the businessman. *Journal of business ethics*, *78*, 97-107.
[303] Chewning, R. C. (2012). Augustine and Aquinas: Their Theological Progeny come Face to Face with "Business as Mission". *Journal of Biblical Integration in Business*, *15*(2).
[304] Santori, P. (2021). *Thomas Aquinas and the civil economy tradition: the Mediterranean spirit of capitalism*. Routledge.

As conceptualized within this ethical framework, an **honorable person** embodies magnanimity, prudence, fairness, and an interest in self-advancement. Acting honorably involves aspiring to magnanimity in all transactions and transcending baser instincts. The ethical stance defended by Aquinas further includes concepts of property and profit, positing them as conveying relative, though never absolute, entitlements. The rejection of avarice, greed, and usury underscores the commitment to ethical economic practices.

Notably, Aquinas permits **gains** derived from sources not directly tied to labor, such as rent revenues or trade partnerships investments, on the condition that the invested capital serves a socially productive function. Businesses should not engage in practices that exploit or deceive customers, workers, or suppliers. While he acknowledged the legitimacy of **private property**, he cautioned against the excessive pursuit of wealth and emphasized the importance of using material resources for the common good. Within this ethical framework, the legitimacy of **commercial transactions** hinges solely on their societal contributions, aiming to benefit all involved parties and enhance the overall allocation of goods. Merchants are sanctioned to seek surplus returns for their labor, costs, and risks, as well as to realize moderate gains from fluctuations in general market prices. Aquinas noted that Jews had been promised abundance and allowed by God to loan to non-Jews.[305] The concept of a "**just price**" in trade, as defended by Aquinas, is not a fixed quantitative measure but rather a regulative idea of a qualitative nature. This underscores the emphasis on ethical considerations in determining fair and just economic exchanges within the Scholastic business ethics paradigm. Aquinas emphasized the importance of **prudence**, another cardinal virtue, in economic decision-making. Prudence involves the practical wisdom to discern what is morally right in specific circumstances, which is crucial for individuals engaged in business activities to complex ethical dilemmas. Other examples can be brought, like fair wages and working conditions, sustainable practices, honest marketing and advertising, community engagement, transparency and accountability.

Written around 1430 and published approximately in 1468, *De Contractibus Mercatorum* by the Dominican Friar Johannes **Nider** serves as a foundation for business and Christianity.[306] The evolution of business ethics stems from endeavors to harmonize Biblical principles, canon law, civil law,

[305] Aquinas, T. (1273, 1929). *Summa Theologica* (trans. Fathers of the English Dominican Province) (Burns Oates and Washbourne, Ltd., London). vol. 10, p. 332.
[306] Wren, D. A. (2000). Medieval or modern? A scholastic's view of business ethics, circa 1430. *Journal of Business Ethics*, *28*, 109-119.

the wisdom of Church Fathers, and the early philosophers' insights with the practicalities of burgeoning economic endeavors: *in these modern times, the operations of merchants are recognized to be wrapped up in so many suspicious contracts that expert physicians of souls can hardly separate what is just from what is unjust*.[307] Furthermore, in his book he wrote about the moral guide for merchants, the just price and the market, buying and selling justly and bankers. Nider observed that loans could be for consumable items (bread, wine) or durable goods (house, axe), but didn't fully distinguish between consumer and producer goods. He noted that interest on loans for durable goods was justifiable since ownership was not transferred and the object was not consumed. Additionally, following Aquinas, he argued that it was unjust for anyone to be worse off due to a loan, hence justifying interest to ensure the lender doesn't lose out on potential returns. Finally, he stated that lenders expecting profit could ethically charge interest beyond the principal amount.

School of Salamanca

The School of Salamanca, a group of Iberian Catholic scholastics who worked primarily in the 16th and early 17th centuries (the golden age was 1526-1614), made significant contributions to the field of business ethics.[308] The School continued the Thomist philosophy, mainly among the Dominicans and Jesuits. Notable Salamancan theologians are Francisco de Vitoria (1483–1546), Domingo de Soto (1494–1560), Pedro da Fonseca (1528–1599), Luis de Molina (1535–1600), Gabriel Vásquez (†1604), and Francisco Suárez (1548–1617). While the School of Salamanca may not have directly addressed business ethics in the way we understand it today, its ethical principles, such as just price theory, concerns for the treatment of indigenous peoples, and contributions to natural law, have provided a foundational framework for ethical considerations in economic and business contexts.[309]

They argued that **natural law principles** are relevant to business ethics because they provide guidelines for how businesses should operate in a just and fair way. Businesses have a moral obligation to act just and fairly, avoid

[307] Nider, J. (1468). *De Contractibus Mercatorum*. (1468). p. xi, Nider, J.: 1966, On the Contracts of Merchants, trans. C. H. Reeves, ed. R. B. Shuman (The University of Oklahoma Press, Norman, OK).
[308] Duve, T., Luis Egío, J., & Birr, C. (2021). *The School of Salamanca: A case of global knowledge production* (p. 430). Brill.
Melé, D. (1999). Early business ethics in Spain: The salamanca school (1526--1614). *Journal of Business Ethics*, 22, 175-189.
[309] Rivas, L. G. (1999). Business ethics and the history of economics in Spain" the school of salamanca: A bibliography". Journal of Business Ethics, 22, 191-202.

harming others, fulfill their contracts, and treat their employees with respect. The twofold theory of money value (objectivism - metallism, and subjectivism - chartalism) proposed by late scholastic thinkers constitutes a nuanced iteration of the multidimensional approach to money.[310] The **market economy** can be a moral system that can promote human flourishing but also produce negative outcomes (monopolies, fraud, and inequality).[311] Government has a role to play in regulating markets to prevent harm and promote the common good. In the economic transactions, the just price should be determined by the cost of production, the scarcity of the good or service, and the needs of the buyer; reflecting the real value of goods and services. This concept emphasizes fairness and avoiding exploitation.[312]

Verses from the Bible

Among the rich teachings, certain verses stand out as beacons of insight into fundamental aspects of human conduct and endeavors. In this exploration, we delve into verses that touch upon diverse themes such as calling, honesty, skills, talents, avoiding get-rich-quick schemes, serving others, conducting business, achieving success in business, crafting effective business strategies, and managing the intricate realms of money, lending, and taxes. These verses offer timeless principles that continue to inspire and illuminate the path toward virtuous living, ethical conduct, and successful engagement in the complexities of life.[313]

Verses about calling

Luke 19:13: "Calling ten of his servants, he gave them ten minas, and said to them, ‘Engage in business until I come.’”

Verses about honesty

Leviticus 19:11: "You shall not steal; you shall not deal falsely; you shall not lie to one another."

Leviticus 19:13: "You shall not oppress your neighbor or rob him. The wages of a hired worker shall not remain with you all night until the morning. "

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[310] Mohammadhosein, B. K., & Mohammadjavad, S. (2023). The School of Salamanca on Value of Money: A Reassessment. *Journal des Economistes et des Etudes Humaines, 29*(1), 79-96.

[311] Alves, A. A., & Gregório, I. (2021). Price controls and market economies. *Christianity and Market Regulation*, 213-232.

[312] Alves, A. A., & Moreira, J. M. (2013). Business ethics in the school of Salamanca. Handbook of the philosophical foundations of business ethics, 207-225.

[313] Locke, L. G., Shelton, T., & Smith, B. (2021). A defense of Biblical ethics in business. *Journal of Biblical integration in business, 24*(1), 80-89.

Leviticus 25:14: " And if you make a sale to your neighbor or buy from your neighbor, you shall not wrong one another."

Deuteronomy 25:13: " You shall not have in your bag two kinds of weights, a large and a small. You shall not have in your house two kinds of measures, a large and a small. A full and fair weight you shall have

Psalm 112:5: "It is well with the man who deals generously and lends; who conducts his affairs with justice."

Proverbs 11:1: "The Lord detests dishonest scales, but accurate weights find favor with him."

Proverbs 22:16: "Whoever oppresses the poor to increase his own wealth, or gives to the rich, will only come to poverty."

Verses about skills and talents

Proverbs 22:29: "Do you see a man skillful in his work? He will stand before kings; he will not stand before obscure men."

Verses about avoiding get-rich-quick schemes

Proverbs 13:11: "Wealth gained hastily will dwindle, but whoever gathers little by little will increase it."

Proverbs 14:23: "In all toil there is profit, but mere talk tends only to poverty."

Proverbs 16:8: "Better is a little with righteousness than great revenues with injustice."

Proverbs 28:6: "Better is a poor man who walks in his integrity than a rich man who is crooked in his ways."

Verses about serving others

Matthew 20:26: "It shall not be so among you. But whoever would be great among you must be your servant."

Colossians 3:23: "Whatever you do, work heartily, as for the Lord and not for men, knowing that from the Lord you will receive the inheritance as your reward. You are serving the Lord Christ."

Verses about business

Proverbs 10:4: "A slack hand causes poverty, but the hand of the diligent makes rich."

Proverbs 12:24: "The hand of the diligent will rule, while the slothful will be put to forced labor."

Proverbs 14:15: "The simple believes everything, but the prudent gives thought to his steps."

Proverbs 15:22: "Without counsel plans fail, but with many advisers they succeed."

Proverbs 19:21: "Many are the plans in the mind of a man, but it is the purpose of the LORD that will stand."

Proverbs 20:4: "The sluggard does not plow in the autumn; he will seek at harvest and have nothing."

Deuteronomy 8:18: "You shall remember the LORD your God, for it is he who gives you power to get wealth, that he may confirm his covenant that he swore to your fathers, as it is this day."

Verses about money, lending and taxes

Exodus 22:25–27: "If you lend money to any of my people with you who is poor, you shall not be like a moneylender to him, and you shall not exact interest from him. [26] If ever you take your neighbor's cloak in pledge, you shall return it to him before the sun goes down, [27] for that is his only covering, and it is his cloak for his body; in what else shall he sleep?"

Deuteronomy 23:20: "You may charge a foreigner interest, but you may not charge your brother interest"

Leviticus 25:35-37: "When one of your kindred is reduced to poverty and becomes indebted to you, you shall support that person like a resident alien; let your kindred live with you. Do not exact interest in advance or accrued interest, but out of fear of God let your kindred live with you. Do not give your money at interest or your food at a profit."

Leviticus 25:39: "If your brother becomes poor beside you and sells himself to you, you shall not make him serve as a slave"

Proverbs 22:1: "A good name is to be chosen rather than great riches, and favor is better than silver or gold."

Matthew 6:24: "No one can serve two masters, for either he will hate the one and love the other, or he will be devoted to the one and despise the other. You cannot serve God and money (mammon)."

Matthew 22:21: "Therefore render to Caesar the things that are Caesar's, and to God the things that are God's."

James 5:4: "Look! The wages you failed to pay the workers who mowed your fields are crying out against you."

Romans 13:7: "Pay to all what is owed to them: taxes to whom taxes are owed, revenue to whom revenue is owed, respect to whom respect is owed, honor to whom honor is owed. "

11.2. Qur'an: Islam

The Qur'an, the holy book of Islam, guides various aspects of life, including ethical principles that are relevant to business and commerce, emphasizing fairness, accountability, and adherence to moral values.

Principles of Islam Business Ethics

The principles of Islam pertaining to business ethics dictate the prohibition of interest and usury (*riba*) payments.[314] The imperative guides business activities that should not be directed towards producing goods or services with objectives contrary to the values of Islam and agreements should not be concluded for goals inconsistent with Islamic principles.[315] Unjust practices, deception, and exploitation are strongly discouraged. Transactions must not involve individuals whose actions are contrary to the ethical standards of Islam. Engaging in otherwise avoidable risks is prohibited, and business entities are advised to refrain from speculative transactions. In adherence to the principles of mutual responsibility, members of a business venture are required to undertake mutual insurance against potential losses. Furthermore, transactions must incorporate the display of charitable donations, specifically in the form of a religious tax (*zakah*).[316] Contrary to any misconceptions, the transfer of part of the profits is not prohibited within the Islamic

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[314] Musyahidah, S., Ermawati, E., & Nurdin, N. (2021). The Effect of Riba Avoidance and Product Knowledge on the Decision to Become a Customer of Islamic Banks. *International Journal of Multidisciplinary Research and Analysis*, *4*(08).
Musa, M. A., Sukor, M. E. A., Ismail, M. N., & Elias, M. R. F. (2020). Islamic business ethics and practices of Islamic banks: Perceptions of Islamic bank employees in Gulf cooperation countries and Malaysia. *Journal of Islamic Accounting and Business Research*, *11*(5), 1009-1031.

[315] Ahmad, M. (2009). *Business ethics in Islam*. International Institute of Islamic Thought (IIIT).
Abeng, T. (1997). Business ethics in Islamic context: Perspectives of a Muslim business leader. *Business ethics quarterly*, *7*(3), 47-54.

[316] Dewi, D. T. (2023). Zakah Management in Islamic Financial Institutions: Mapping Research Topics using VOSviewer Bibliometric and Library Research Nuzulul Nasoihul Ibad, Gentur Pratopo, Eka Wahyu Hestya Budianto, Nindi.
Hoque, N. (2023). Promoting business zakah as a product of Islamic finance to fund social causes for well-being of the underprivileged: evidence from Bangladesh. *Journal of Islamic Marketing*, *14*(4), 966-987.
Bin-Nashwan, S. A., Abdul-Jabbar, H., Aziz, S. A., & Sarea, A. (2021). Zakah compliance in Muslim countries: an economic and socio-psychological perspective. *Journal of Financial Reporting and Accounting*, *19*(3), 392-411.

ethical framework; this can be regarded as the foundation of Islamic finance and banking.

The Islamic principles in business and commercial transactions encompass several key tenets.[317] Ensuring a sincere intention in transactions involves pursuing a livelihood through lawful means to fulfill basic needs. This intention aims to facilitate a better focus on worshipping Allah, discouraging the worship of wealth with potentially detrimental effects. The adherence to high moral standards in transactions serves as a testimony to one's genuine worship and obedience to Allah. It opts for lawful projects, even if the potential profits are minimal. The selection of partners and laborers based on sound moral conduct is emphasized, as this practice is believed to lead to success and increased profits. Ensuring that laborers receive their dues promptly, "before their sweat dries up," serves as motivation for vigorous work. Giving priority to fellow Muslims in dealings is encouraged, the Quranic principle states that believers are protecting friends to one another. Avoiding transactions with those openly opposing the Islamic faith is advised to prevent potential trials and tribulations. Resolving disputes through amicable settlements supervised by righteous individuals is highlighted as a preferred approach. Retaining friendliness and love for Allah's sake is recommended, even in the dissolution of a business partnership. Turning to Allah in repentance and seeking forgiveness for transactions contrary to Islamic principles is emphasized as a necessary step in maintaining ethical integrity.[318]

Verses from the Qur'an

The Qur'an, the holy book of Islam, guides various aspects of life, including ethical principles relevant to business and commerce. It reflects the broader Islamic ethical framework, which aims to guide individuals in their personal and business lives. They emphasize the importance of integrity, justice, responsibility, and compassion in all aspects of human behavior, including economic and business activities.[319]

To Seek knowledge
Qur'an 2:32 "We have no knowledge except what You taught us„
Prophet Muhammad "Seek knowledge from cradle to the grave"

[317] https://www.islamic-banking.com/moral-oath/islam-and-business-ethics
[318] Aravik, H., Harun, M., & Febrianti, R. (2023). The Urgency of Islamic Business Ethics In The Era of The Industrial Revolution 4.0. *Islamic Banking: Jurnal Pemikiran dan Pengembangan Perbankan Syariah*, *8*(2), 303-326.
[319] Qadri, H. (2019). *Business ethics in Islam*. Routledge.

Qur'an 2:256 "There is no compulsion in religion, truly the right way has become distinct from error"

Qur'an 93:7-8 "And He found you lost and guided [you]. And He found you poor and made [you] self-sufficient."

To Be righteous, fair and just

Qur'an 4:58 "… render back your trusts to those to whom they are due; and when ye judge between man and man, that ye judge with justice"…

Qur'an 3:130 "… Devour not riba (usury), doubled and redoubled …"

Qur'an 11:85 " … give just measure and weight, not withhold from the people the things that are their due.."

Qur'an 9:4 "Treaties are not dissolved with those with whom you have entered into alliance and have not subsequently failed you … so fulfil your engagements with them to the end of their term…"

Qur'an 2:188 "And do not consume one another's wealth unjustly or send it [in bribery] to the rulers in order [for them] to aid [you] with the [government's] authorities and power, while you [have the means to] acquire it yourselves."

Qur'an 2:282 "… When ye deal with each other, in transactions involving future obligations in a fixed period of time, reduce them to writing. Let a scribe write down faithfully as between the parties"

Engage in moral and lawful activities

Qur'an 2.188 "And do not eat not up your property among yourselves for vanities, nor use it as bait for the judges with the intent that ye may eat up wrongfully and knowingly a little of (other) people's property".

Qur'an 3:130 "O you who have believed, do not consume usury, doubled and multiplied, but fear Allah that you may be successful."

Qur'an 8:27 "O ye who believe! Betray not the trust of Allah and the Messenger, nor misappropriate knowingly things entrusted to you"

Qur'an 5:2 "Help ye one another in righteousness and piety, but help ye not one another in sin and rancour…"

Be Responsible and accountable for actions

Qur'an 6:165 "It is He who has made you (His) vicegerents, inheritors on the earth …"

Prophet Muhammad " Each one of you is a guardian and each guardian is accountable to everything under his care"

Qur'an 2:280 "If the debtor is in difficulty, grant him time till it is easy for him to repay. But if ye remit it by way of charity this is the best way for you.."

Give due alms (gift, donation, charity)

Qur'an 3:92 "By no means shall ye attain righteousness unless ye give freely of that which ye love .."

Qur'an 2:110 "And establish prayer and give zakah, and whatever good you put forward for yourselves - you will find it with Allah. Indeed, Allah of what you do, is Seeing."

Islam Business Ethics vs. Other theories

Theory	Main concept	Islamic perspective
Divine Command theory	Ethically **right** means **commanded by God**, and ethically **wrong** or unethically means **forbidden by God**. Religion is the only standard to identify ethics.	***Accepted***, but this theory was rejected in the Western literature.
Utilitarian theory	Ethically right means the action results in a greater number of utilities than could be achieved by any other actions.	***Rejected*** because the only basis for this theory is the greatest consequences for greatest number.
Deontology theory	It underlines the duty as a basis of moral category, which can be seen as a right or wrong judgment. It does not look at the consequences of action. And, there are universal ethical actions that everyone must accept.	***Rejected*** because the theory is not clear about the source of these universal ethics since the only source of ethical system in Islam is the Islamic principles.
Virtue ethics theory	This theory focuses on what makes a good Individual or person rather than what makes a good action. There are specific virtues: civility, cooperativeness, courage, fairness, friendliness, generosity, honesty, justice, loyalty, self-confidence, self-control, modesty, fairness, and tolerance.	***Rejected*** because the only basis for this theory are the virtues.
Relativism theory	Ethics are relative to a particular environment. Different societies may have different ethical codes. There is no universal truth in ethical principles that all people can always hold.	***Rejected*** because maybe a particular society's culture is against Islamic principles.
Egoism theory	A person must always perform in his/her own interest. An action is considered to be ethically right only when it promotes a person's self-interest.	***Rejected*** because it is against the Islamic principles of justice, helping others, and altruism.

Source: own compilation of the author

12. Modern Philosophical Concepts

In contemporary discussions of business ethics and economic philosophy, modern philosophical concepts are pivotal in shaping ethical frameworks and guiding decision-making processes within the business world.[320] Among these concepts, deontology, utilitarianism, and the theory of justice stand out as influential moral theories that offer distinct perspectives on ethical behavior and moral responsibility in business contexts. **Deontology**, particularly Kantian business ethics, emphasizes the importance of moral duties and principles in guiding ethical decision-making. Rooted in the work of Immanuel Kant, this approach prioritizes the inherent rightness or wrongness of actions based on adherence to moral rules or principles, regardless of their consequences. Kantian business ethics provides a structured framework for assessing the moral permissibility of business practices and decisions, emphasizing principles such as honesty, fairness, and respect for human dignity. **Utilitarianism**, developed by philosophers such as Jeremy Bentham and John Stuart Mill, focuses on maximizing overall utility or happiness as the foundation of ethical evaluation. In the context of business, utilitarianism assesses the consequences of actions and policies in terms of their impact on stakeholders' well-being, aiming to maximize overall welfare or utility. Utilitarianism in business ethics raises questions about the ethical implications of decisions regarding resource allocation, corporate social responsibility initiatives, and stakeholder management. **Theory of Justice**, notably advanced by political philosopher John Rawls, explores principles of fairness, equality, and distributive justice within society. Rawlsian justice theory posits that principles of justice should be derived from a hypothetical social contract among rational individuals under conditions of equality and impartiality. In the realm of business, discussions of justice often revolve around issues of fair distribution of resources, opportunities, and rewards, as well as the ethical responsibilities of corporations in addressing social inequalities and promoting equitable outcomes.

[320] DeTienne, K. B., Ellertson, C. F., Ingerson, M. C., & Dudley, W. R. (2021). Moral development in business ethics: An examination and critique. *Journal of Business Ethics*, *170*, 429-448.
Ciulla, J. B., & Ciulla, J. B. (2020). *Business ethics as moral imagination* (pp. 121-129). Springer International Publishing.
Heath, J., Moriarty, J., & Norman, W. (2010). Business ethics and (or as) political philosophy. *Business Ethics Quarterly*, *20*(3), 427-452. De George, R. T. (2006). The Relevance of Philosophy to Business Ethics: A Response to Rorty's "Is Philosophy Relevant to Applied Ethics?. *Business Ethics Quarterly*, *16*(3), 381-389.

12.1. Deontology

Kant's joke. - Kant wanted to prove, in a way that would dumbfound the whole world, that the whole world was right: that was the secret joke of this soul. He wrote against the scholars in favor of popular prejudice, but for scholars and not for the people.

Friedrich Nietzsche
Die fröhliche Wissenschaft (1882) sec. 193
The Gay Science

As expounded by Immanuel **Kant** (1724–1804) in his seminal work Critique of Pure Reason (Kritik der Reinen Vernunft, 1781), deontology underscores ethics as a duty.[321] Kant focused on the motives and willingness of individuals to act for the greater good of others, even when such actions might entail personal loss. Within his ethical framework, the motivation behind an action held greater significance than the specific outcomes it yielded. Kant critiqued rationalism, particularly the assumption of absolute truth by **pure reason**, and presented a novel system for comprehending experience and reality. In addition, he defended religious faith against atheism and championed the scientific method against the skepticism prevalent during the Enlightenment. Central to Kant's deontological philosophy was the concept of **the categorical imperative** (der kategorischer Imperativ), rooted in the inherent and unconditional duty within the complex structures of the mind to act ethically. The principle encapsulates this imperative: "*Act only according to that maxim whereby you can at the same time will that it should become a universal law*."[322] The imperative necessitates actions grounded in goodwill rather than self-interested motives that exclusively benefit oneself at the expense of others.[323] Moreover, it dictates that individuals must never treat others merely as a means to ends that benefit themselves, without considering the inherent value of others as ends in themselves.

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[321] Kant, I. (1781, 1998). *Kritik der reinen Vernunft - Critique of pure reason*. Cambridge University Press.; Gava, G. (2023). *Kant's Critique of Pure Reason and the Method of Metaphysics*. Cambridge University Press.; Longuenesse, B. (2020). *Kant and the Capacity to Judge: sensibility and discursivity in the transcendental analytic of the Critique of Pure Reason*. Princeton University Press.; Møller, S. (2020). *Kant's tribunal of reason: Legal metaphor and normativity in the critique of pure reason*. Cambridge University Press.

[322] Kant, I. (1785, 2017). *Grundlegung zur Metaphysik der Sitten - Groundwork for the Metaphysic of Morals*. Jonathan Bennett. Chapter 2. 24.
There is, therefore, only a single categorical imperative and it is this: act only in accordance with that maxim through which you can at the same time will that it become a universal law. Kant, I. (1785, 2017). *Grundlegung zur Metaphysik der Sitten - Groundwork for the Metaphysic of Morals*. Cambridge Texts in the History Of Philosophy. 4:421. 31.

[323] Joshi, I. D. (2023). Absolute or Obsolete: Issues with the Categorical Imperative Theory. *Issue 2 Indian JL & Legal Rsch.*, *5*, 1.

Hypothetical vs. Categorical Imperative

	Hypothetical imperative	Categorical imperative
Definition	Hypothetical imperatives are moral commands that are conditional on personal desire or motive	Categorical imperatives are commands you must follow irrespective of your desires and motives
Clarification	A command you should follow if you want something; thus, it tells you how to achieve a specific goal	An absolute moral obligation derived from pure reason
Basis	An imperative based on desire or inclination	An imperative based on reason alone
Nature	Not universal or relative, dependent	Universal or absolute
	a posteriori, desires / inclinations	*a priori*, through reason
Goal	Teach us how to reach a specific goal	Help us to evaluate our moral actions and to make moral judgments
Motive	Consequential (conditional)	Deontological (unconditional)
	The end justifies the means	Duty for duty's sake
Example	If you want to get a good grade, you should study; If you want to earn money, you should get a job	Treat others as you would like others to treat you

Source: own compilation of the author

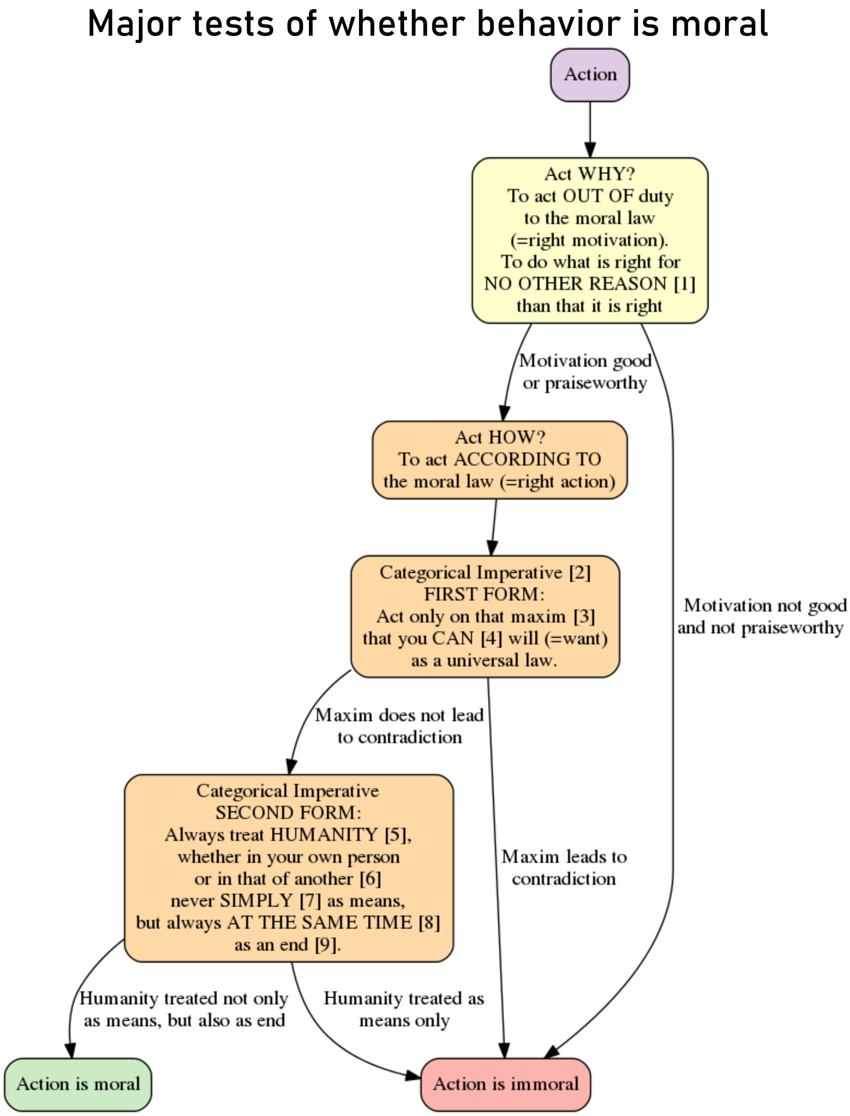
Kant's ethical framework prioritizes duty over aesthetics and morality over personal happiness. The categorical imperative is formulated in three main principles:

Three Forms of Categorical Imperative

The First Formulation: The Formula of Universality and Law of Nature	Act only according to that maxim whereby you can at the same time will that it should become a universal law. (4:421)
The Second Formulation: The Formula of Humanity	Act in such a way that you treat humanity, whether in your own person or in the person of any other, never merely as a means to an end, but always at the same time as an end. (4:429)
The Third Formulation: The Formula of Autonomy	Thus the third practical principle follows [from the first two] as the ultimate condition of their harmony with practical reason: the idea of the will of every rational being as a universally legislating will. (4:431)

Source: own compilation of the author based on Kant, I. (1785, 2017). *Grundlegung zur Metaphysik der Sitten - Groundwork for the Metaphysic of Morals*. Cambridge Texts in the History Of Philosophy. 4:421. 429. 431

Reflecting to justice, as the phrase *fiat iustitia, et pereat mundus* (let justice be done, though the world perish), it occurs in the Perpetual Peace, where he employs this to encapsulate the non-utilitarian essence of his moral philosophy. Kant paraphrases this as "Let justice prevail, even if all the scoundrels in the world should perish because of it."[324]



Sorce: American Society for Engineering Education (2021). Teaching Ethical Theory and Practice to Engineering Students: Pre-Pandemic and Post-Pandemic Approaches. 20. Paper ID #32562

[324] Kant, I. (1796). *Zum ewigen Frieden: ein philosophischer Entwurf*. Nicolovius.

Kantian Business Ethics

Kantian ethics, while providing a distinctive framework for individual moral development through the categorical imperative, encounters challenges in practical application.[325] This imperative, emphasizing humanity and autonomy, addresses a crucial aspect of business ethics: the personal dimension. The formation of character and morality is deemed essential for fostering an ethical organizational culture. Numerous instances in business and government history, such as the Uber and Volkswagen crises, underscore the repercussions of leaders' failure to act on the basis of goodwill and consideration for others. Kant's categorical imperative, being categorical and unconditional, mandates morally upright behavior irrespective of external circumstances or historical context. However, applying unconditional ethics poses challenges for global organizations in dealings with suppliers, customers, and competitors. A fundamental philosophical question arises: is Kant's assertion that morality and mental categories are independent of experience accurate, or can they be culturally conditioned, rendering them relative rather than absolute?

Kantian business ethics suggests that individuals, including business professionals, have the capacity for rational moral judgment and should be treated as ends in themselves, not merely as means to an end. This translates to making decisions that align with moral duties and principles. Treating others with respect and dignity includes respecting the autonomy and rights of employees, customers, suppliers, and other stakeholders. Business professionals are expected to communicate truthfully and not manipulate or deceive others for personal or corporate gain. Kantian ethics discourages the exploitation of others for personal or corporate gain. Business practices that involve manipulation, coercion, or taking advantage of vulnerabilities are considered ethically problematic. While it explicitly prescribes specific Corporate Social Responsibility (CSR) initiatives, treating stakeholders respectfully and avoiding actions that exploit or harm others align with ethical corporate behavior. Translating Kantian ethics from an individual to an organizational and societal level prompts considerations of how corporate acts align with the interests of leadership, stockholders, and other stakeholders. Kant would

[325] Robinson, R. M. (2021). *Business Ethics: Kant, virtue, and the nexus of duty: Foundations and case studies*. Springer Nature.
Steigleder, K. (2020). Kantian moral philosophy, universality, and business legitimacy. *Handbook of Business Legitimacy: Responsibility, Ethics and Society*, 101-119.
Bowie, N. E. (2002). A Kantian approach to business ethics. *Ethical issues in business: A philosophical approach*, *7*, 61-71.

evaluate a corporate act as ethical only if it benefited others simultaneously, benefiting company leadership and stockholders, without prioritizing their interests over other stakeholders. While the qualitative and humanizing elements of Kantian ethics hold broad appeal, their implementation is contingent on an organization's culture and leadership. In general, many companies deviate from strict adherence to Kantian theories, emphasizing the evaluation of decision outcomes rather than motives.

12.2. Utilitarianism

Utilitarianism is one of the most influential ethical theories in contemporary discourse, offering a pragmatic approach to moral decision-making based on maximizing overall happiness or utility. Developed by philosophers such as Jeremy **Bentham** and John Stuart **Mill**, utilitarianism posits that the rightness or wrongness of an action is determined by its consequences, with the greatest good for the greatest number serving as the guiding principle. Within the realm of business ethics, utilitarianism provides a framework for evaluating the ethical implications of corporate actions, policies, and practices in terms of their impact on stakeholders' well-being and societal welfare. This introduction provides an overview of utilitarianism, tracing its intellectual roots in the works of Bentham and Mill, and explores its application and challenges in the context of business ethics.[326] Henry John McCloskey gave a classic version of this criticism in his 1957 **sheriff scenario**:[327]

> Suppose that a sheriff was faced with the choice of framing a Negro for a rape that had aroused hostility to the Negroes (a particular Negro generally being believed to be guilty but whom the sheriff knows not to be guilty)—and thus preventing serious anti-Negro riots which would probably lead to some loss of life and increased hatred of each other by whites and Negroes—or of hunting for the guilty person and thereby allowing the anti-Negro riots to occur while doing the best he can to combat them. In such a case, the sheriff, if he were an extreme utilitarian, would appear to be committed to framing the Negro.
>
> Henry John McCloskey

[326] Scarre, G. (2020). *Utilitarianism*. Routledge.
Sen, A. (1979). Utilitarianism and welfarism. *The journal of Philosophy*, *76*(9), 463-489.
Smart, J. J. C., & Williams, B. (1973). *Utilitarianism: For and against*. Cambridge University Press.
Driver, J. (2009). The history of utilitarianism.
[327] McCloskey, H. J. (1957). An examination of restricted utilitarianism. *The Philosophical Review*, *66*(4), 466-485.

Bentham

Utilitarianism, as conceptualized by Jeremy **Bentham** (1748–1842), is grounded in the premise that if happiness is synonymous with leading the good life, a fundamental question arises: what defines the good life, and, more critically, who possesses the authority to determine what is deemed good? Bentham, influenced by his time's social and industrial revolutions, articulated a utilitarian ethical framework that rested on reason and science, asserting that ethics must be empirical, quantifiable, verifiable, and reproducible across different temporal and spatial contexts.[328]

Central to Bentham's utilitarian philosophy is the concept of utility, positing pleasure and the avoidance of pain as the fundamental units of human action. The **principle of utility** approves or disapproves of every action whatsoever. According to the tendency it appears to have to augment or diminish the happiness of the party whose interest is in question: what is the same thing to promote or oppose that happiness. He said of every action whatsoever, and therefore not only of every action of a private individual but of every government measure. He described **utility** as the property of something whereby it tends to produce benefit, advantage, pleasure, good, or happiness (all equivalent in the present case) or (this being the same thing) to prevent the happening of mischief, pain, evil, or unhappiness to the party whose interest is considered. If that party is the community in general, then the happiness of the community; if it is a particular individual, then that individual's happiness.[329]

Characteristics of Utility

Universality	Because it applies to all acts of human behavior, even those that appear to be done from altruistic motives
Objectivity	Meaning it operates beyond individual thought, desire, and perspective
Rationality	Because it is not based in metaphysics or theology
Quantifiability	In its reliance on utility

Source: own compilation of the author

[328] Bentham, J. (1781). *An introduction to the principles of morals and legislation*. History of Economic Thought Books.
Bentham, J. (1776). *A Fragment on Government: Being an Examination of what is Delivered, on the Subject of Government in General, in the Introduction to Sir William Blackstone's Commentaries: with a Preface, in which is Given a Critique on the Work at Large* (No. 2). T. Payne... P. Elmsly... and E. Brooke.
[329] Bentham, J. (1781, 2017). *An introduction to the principles of morals and legislation*. History of Economic Thought Books. Jonathan Bennett 2017, Introduction. Chap. I. ii. III

This concept simplifies the notion of the good to a single instinct – the pursuit of pleasure and the mitigation of pain. Bentham's utilitarianism advocates that all social morals and government legislation should be directed towards maximizing the overall happiness for the greatest number of individuals. This utilitarian ethic exhibits key characteristics, including universality, applying to all human behaviors even those seemingly motivated by altruism; objectivity, operating beyond individual thought, desire, and perspective; rationality, devoid of metaphysical or theological foundations; and quantifiability, relying on the measure of utility.

Bentham's **utilitarianism**, rooted in reason and empirical analysis, provides a framework for assessing the morality of actions based on their utility. It places emphasis on the objective pursuit of happiness for the greatest number, transcending individual perspectives and incorporating quantifiable assessments of utility.

Utilitarianism entails the reduction of utility to a singular index, allowing for the assignment of numerical and even monetary values that could be subject to legal regulation. The **utility function**, measured in utils, assesses the value of a good, service, or proposed action concerning the greater good, specifically, the augmentation of happiness or the diminution of pain. The hedonic calculus is employed to gauge the utility of proposed actions, considering factors such as intensity, duration, certainty, and the probability of certain consequences.

This approach seeks to provide a systematic method for evaluating ethical choices based on their overall happiness or utility consequences. This approach provides a reasoned foundation for making value judgments, eschewing subjectivity, intuition, or opinion. Utilitarianism involves the evaluation of acts based on their potential to generate the maximum good, understood as pleasure, for the greatest number of people. However, it is crucial to note that utility is considered unjustified if it coerces individuals into actions they do not wish to undertake.

The **felicific calculus** is an algorithm that aims to quantify and compare the pleasure and pain produced by different actions to determine the most morally favorable course of action.[330] Bentham proposed that the moral

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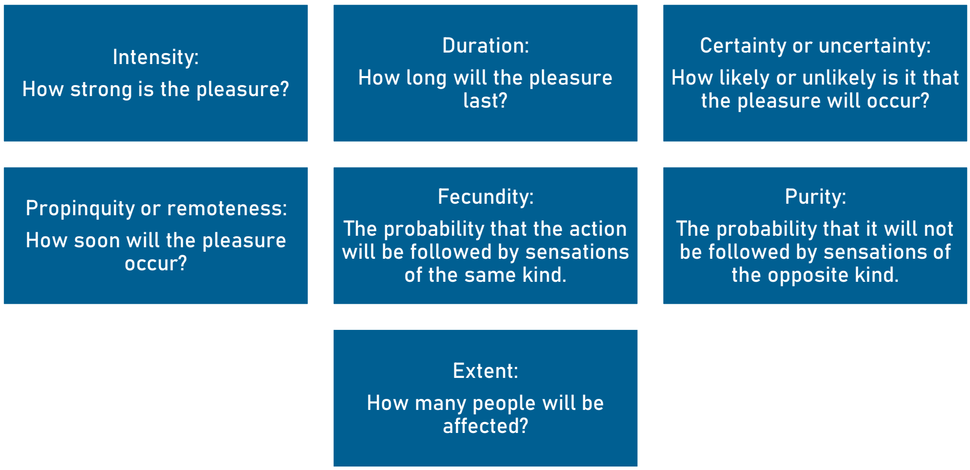
[330] Brunon-Ernst, A. (2017). The Felicific Calculus Jeremy Bentham's Definition of Happiness1. *C. Coron C., Dalingwater L.(eds.), Welfare*, 21-36.
Lapidus, A., & Sigot, N. (2000). Individual utility in a context of asymmetric sensitivity to pleasure and pain: an interpretation of Bentham's felicific calculus. *European Journal of the History of Economic Thought*, *7*(1), 45-78.

worth of an action could be assessed by its ability to maximize pleasure and minimize pain for the greatest number of people. The felicific calculus involves considering factors such as intensity, duration, certainty, propinquity, fecundity, purity, and extent of pleasure or pain resulting from an action. This calculation has several variables (or vectors), which Bentham called circumstances.

7 circumstances in the Felicific Calculus



Source: own compilation of the author

Consequentialism, an inherent aspect of utilitarianism, dictates that actions are assessed exclusively by their consequences, devoid of consideration for character, motivation, or any conceptualization of good and evil, and independent of their capacity to foster happiness and pleasure. In utilitarianism, the morality of actions is determined solely by the outcomes they produce.[331] This stands in stark contrast to Aristotelian and Confucian virtue ethics, where the individual's character is central to assessing the morality of an action. Utilitarianism, thus, emphasizes the consequential nature of actions as the primary determinant of their moral standing.

In the **critique** of utilitarianism, it has been argued that the ethical framework places human beings on a comparable plane with animals, reducing individuals to mere utility functions. Thomas Hodgskin (1787–1869) criticized this perspective, denouncing it as an absurdity where he asserted

[331] Andersen, M. M. (2022). Consequentialism. In *Oxford Research Encyclopedia of Politics*. Wolbert, W. (2022). Consequentialism. *Encyclopedia of Religious Ethics*, 170-177. Card, D., & Smith, N. A. (2020). On consequentialism and fairness. *Frontiers in Artificial Intelligence*, *3*, 34. Driver, J. (2011). *Consequentialism*. Routledge.

that the rights of individuals are derived from the legislator rather than from nature.[332] Similarly, Samuel Taylor Coleridge (1772–1834) accused Bentham of conflating morality with law, suggesting a conceptual confusion within the utilitarian approach.[333] Additionally, concerns have been raised that the utility calculus associated with utilitarianism has the potential to lead to tyranny, as it may prioritize collective utility over individual rights.

Mill

John Stuart **Mill** (1806–1873) **responded to these criticisms** by introducing limitations to utilitarianism, seeking to strike a balance between utility and freedom.[334] He refined Bentham's system by incorporating human rights considerations, presenting a synthesis that aimed to harmonize utility and the recognition of individual rights. Mill's harm principle was pivotal in this synthesis, stating that the only justifiable exercise of power over an individual, against their will, is to prevent harm to others, with one's own good not serving as sufficient justification.[335]

However, Mill's synthesis is not immune to **criticism**. The definition of harm in the harm principle is questioned, as it is described as an action setting back one's interests, a term subject to subjective interpretation. Moreover, the harm principle does not adequately account for emotional or cognitive harm, dimensions that are not easily measurable in physical terms. Another challenge posed by Mill's framework is whether society bears culpability for not intervening in cases of self-destructive activities, raising questions about the societal responsibility to prevent harm in various contexts.[336]

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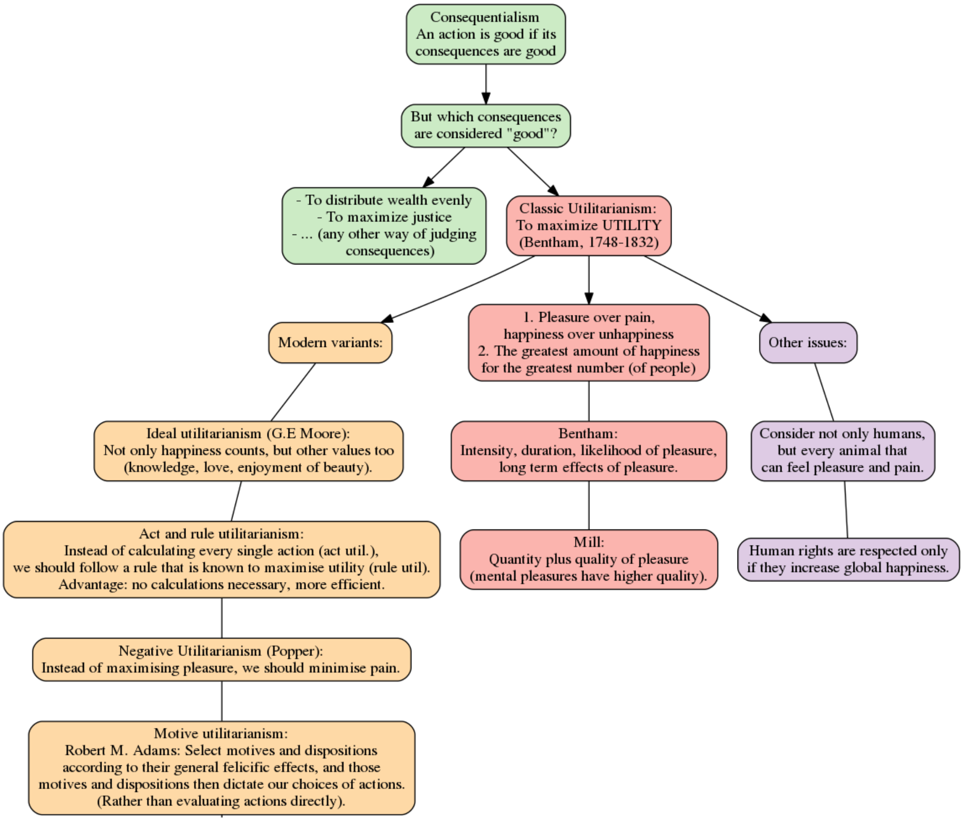
[332] Hodgskin, T. (1832). *The Natural and Artificial Right of Property Contrasted: a series of letters, addressed without permission, to H. Brougham*. B. Steil.
[333] Coleridge, S. T. (1818) Biographia Literaria, ed., J. W. Shawcross. Oxford: Oxford University Press, 1907), Vol. 1, Ch. 13, p. 202.
37. J. W. Shawcross, "Coleridge's 'Fancy' and Imagination,'" reprinted in, J. S. Hill, ed., The Romantic Imagination (London and Basingstoke: The Macmillan Press, 1
[334] Mill, J. S. (1859, 1863, 2021). *On Liberty (1859): and Utilitarianism (1863)*. SSEL. Mill, J. S. (2016). Utilitarianism. In *Seven masterpieces of philosophy*. Routledge.
[335] Bianchini, V. (2023). The Felicific Calculus and the Art of Life according to James and John Stuart Mill. In *James Mill, John Stuart Mill, and the History of Economic Thought* (pp. 45-57). Routledge. Bianchini, V. (2023). James and John Stuart Mill on The Felicific Calculus: Two Close Views?.
[336] Dilek, A. R. L. I. (2021). The Critique of Mill's Utilitarianism Concerning Virtue. *Humanitas-Uluslararası Sosyal Bilimler Dergisi*, *9*(17), 45-58. Jacobson, D. (2008). Utilitarianism without consequentialism: the case of John Stuart Mill. *Philosophical Review*, *117*(2), 159-191. Qizilbash, M. (2016). Utilitarianism and some of its critics. *Theorizing Justice*, 75-91. Anomaly, J. (2005). Nietzsche's critique of utilitarianism. *Journal of Nietzsche Studies*,

Consideration of Utility



Sorce: American Society for Engineering Education (2021). Teaching Ethical Theory and Practice to Engineering Students: Pre-Pandemic and Post-Pandemic Approaches. 25. Paper ID #32562

Utilitarianism in business

In the assessment framework of **utilitarianism in contemporary business**, two primary questions are posed: Question No.1 examines whether the action causes harm to others, and if affirmative, Question No.2 delves into whether there is still a greater good for the greatest number, with a consideration of who constitutes this majority.[337] Utilitarianism frequently applies in

1-15. Tamunosiki, V. O. (2018). John Stuart Mill's Utilitarianism: A Critique. *International Journal of Peace and Conflict Studies*, *5*(1), 65-76.

[337] Adhitya, B., & Prihandini, W. (2020). Business Ethics Utilitarianism Perspective on Financial Engineering and the Impact to the Company. *American International Journal of Business Management* (AIJBM) 3:4. 94-98.

various domains, particularly in cost-benefit analysis, often referred to as utilitarian determination or utilitarian calculus. This analytical approach is employed by business leaders when making crucial decisions concerning matters such as expansion, store closings, hiring, and layoffs. It necessitates the consideration of all stakeholders and entails a comprehensive assessment of externalities, worker preferences, potentially coercive actions related to customers, as well as community and environmental effects. Additionally, utilitarianism is integrated into risk management, risk assessment, and strategic planning processes. When coupled with data analytics, market evaluations, and financial projections, the utility function emerges as a valuable tool for managers to measure the viability of prospective projects.

Within organizational contexts, utilitarian principles can influence individual motivation, fostering a propensity to take initiative, assume greater responsibility, and act in ways that contribute to enhancing the organization's reputation rather than tarnishing it.[338] Furthermore, utilitarianism underscores the importance of free speech in correcting errors and creating value for both the individual and society at large. This ethical framework acknowledges the role of discourse in the pursuit of truth and the generation of societal value.[339]

Utilitarianism and Deontology

In **comparison to utilitarianism** (Bentham, Mill) **with deontology** (Kant), utilitarianism prioritizes the consequences of actions and seeks to maximize overall happiness; deontology focuses on the inherent nature of actions and the adherence to universal moral principles and duties.[340] **Utili-**

Gustafson, A. (2013). In defense of a utilitarian business ethic. *Business and Society Review*, *118*(3), 325-360.
Frederiksen, C. S. (2012). The presentation of utilitarianism within the field of business ethics. *Journal of Business Ethics Education*, *9*, 193-214.

[338] Carmeli, A., Dothan, A., & Boojihawon, D. K. (2023). Engagement in sustainability behaviors in normative social and utilitarian economic-driven organizations. *The Journal of Applied Behavioral Science*, *59*(1), 155-176.

[339] Marques, J. (2015). Universalism and Utilitarianism: An evaluation of two popular moral theories in business decision making. *The Journal of Values-Based Leadership*, *8*(2), 3.

[340] Tseng, P. E., & Wang, Y. H. (2021). Deontological or utilitarian? An eternal ethical dilemma in outbreak. *International journal of environmental research and public health*, *18*(16), 8565. Körner, A., & Deutsch, R. (2023). Deontology and utilitarianism in real life: A set of moral dilemmas based on historic events. *Personality and Social Psychology Bulletin*, *49*(10), 1511-1528. Gawronski, B., & Beer, J. S. (2017). What makes moral dilemma judgments “utilitarian” or “deontological”?. *Social Neuroscience*, *12*(6), 626-632.

tarianism aims to maximize overall happiness and minimize pain by evaluating actions based on their consequences. The morality of an action is determined by whether it leads to greater overall happiness. Intentions are considered less significant, and the principle is applied universally for the greatest good. Utilitarianism is flexible, adapting to circumstances, and is often used in contexts where outcomes and consequences can be measured, such as cost-benefit analyses. **Deontology**, on the other hand, emphasizes the inherent right or wrong nature of actions, with morality based on adherence to universal moral principles or duties. Intentions are crucial, and actions are deemed right or wrong regardless of their consequences. Moral principles are considered universal and not subject to variations based on circumstances. Deontology is less flexible, with certain actions categorically deemed right or wrong, and is commonly applied in situations emphasizing moral rules, duties, or rights, such as human rights issues.

Utilitarianism and Deontology

	Utilitarianism	Kantianism
Philosophers	Jeremy Bentham, John Stuart Mill	Immanuel Kant
Explanation	Teleological theory	Deontological theory
Key word	Utility, consequences	Categorical imperative
Definition	A moral philosophy that emphasizes the morality of an action/decision as determined by its consequences.	A moral that emphasizes that morality of an action/decision is not determined by its consequences but by the motivation of the doer.
Morality	An action is considered moral and good if it results in providing greater happiness for others, regardless of its intention.	Action should be motivated by goodwill and duty; an action's morality is not measured by its consequences.
	Morality is fundamentally about • the consequences of our actions, • specifically, about the amount of happiness (or unhappiness) we cause in the world	Morality is fundamentally about • what goes on inside us, • specifically about the reasons (intentions) we have for acting, not about the results (consequences)
Goodnes	Goodness or badness is determined by the results or outcomes	The action determines goodness or badness
Justification	Can justify the behaviour as ethical if it produces greatest good for the greatest number	The only behaviour that can be considered ethical is the one that has good will behind it

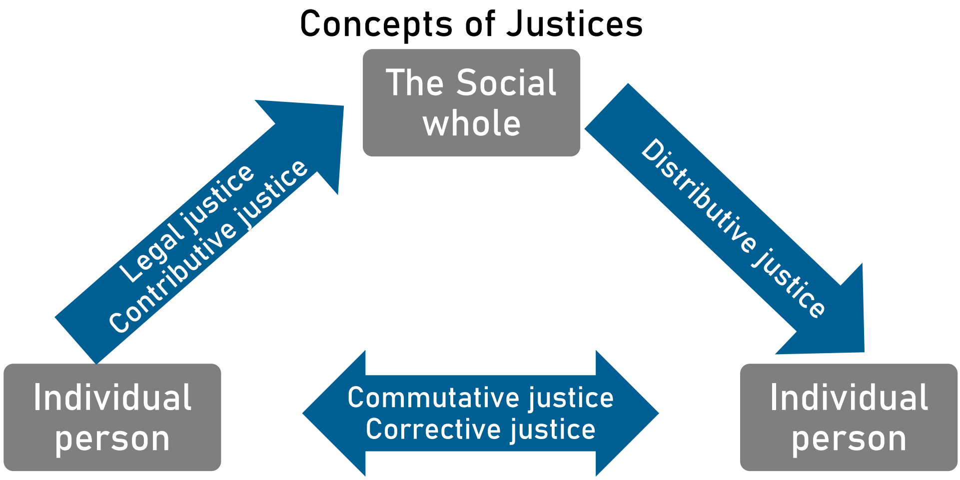
Source: own compilation of the author

12.3. Theory of Justice

Fiat justitia, et pereat mundus!
Let justice be done, though the world perish!
Ferdinand I. Holy Roman Emperor (1556–1564)

Fiat justitia ruat caelum.
Let justice be done, though the heavens may fall.

Justice is rooted in the principle that individuals should receive what they merit, and the determination of "deserving" is influenced by various perspectives, encompassing moral correctness derived from ethics, rationality, law, religion, equity, and fairness.



Source: own compilation of the author

Legal justice (*iustitia legalis*) posits that the state is responsible for establishing equitable laws for the well-being of its citizens. This form of justice pertains to the rights and responsibilities of citizens in adhering to and respecting laws designed to uphold peace and social order. Procedural justice involves mechanisms such as litigation, negotiation, mediation, arbitration, and adjudication within courts and tribunals. **Contributive justice** (*iustitia contributive*) involves individuals' obligations to society for the common good, often manifesting as corporate social responsibility.[341]

[341] Nunes, J. A. (2013). Does Contributive Justice Have a Future?. *Concordia Journal*, *39*, 208-16.

Justices

Justice Type	Focus	Principle	Example
Legal Justice	Legal system	Enforcement of laws	Court proceedings, police investigations
Contributive Justice	Contribution	Fairness in participation	Progressive taxation, public infrastructure
Distributive Justice	Resource Allocation	Equitable distribution	Social welfare programs, education funding
Commutative Justice	Transactions	Fair exchange	Contract enforcement, property rights
Corrective Justice	Rectifying Wrongs	Restoring balance	Compensation for damages, criminal sentences

Source: own compilation of the author

Distributive justice (*iustitia distributive*), concerns what society owes its individual members in terms of the just allocation of resources.[342] It divides a benefit or burden in accordance with some criterion that compares the relative merits of the participants. This form of justice dictates the duty of the state to distribute benefits and burdens equitably among the populace. Examples include corporate and individual tax rates, universal health coverage, state income assistance, subsidized housing, social security eligibility, college tuition aid, and similar programs aimed at establishing a societal safety net for the less fortunate. Within the concept of reistribution it raises the question of equality and equity. **Equality** means each individual or group of people is given the same resources and opportunities, regardless of their circumstances. In social and racial justice movements, equality can actually increase inequities in communities as not every group of people needs the same resources or opportunities allocated to them in order to thrive. While **equity** considers the circumstances and tries to mitigate the considerable differences, it is a perception of fairness in the distribution of resources within social and professional situations.[343]

Hawthorne, L. (2015). Equality and the law of contract: the possible impact of Aristotle's theory of commutative justice. *Studia Universitatis Babes Bolyai-Iurisprudentia*, *60*(3), 5-22.

[342] Dziedziak, W. (2020). An Essay on Natural and Distributive Justice. *Studia Iuridica Lublinensia*, *29*(4), 71-83.

[343] In law equity refers a system of law originating in the English chancery and comprising a settled and formal body of legal and procedural rules and doctrines that supplement, aid, or override common and statute law and are designed to protect rights and enforce duties fixed by substantive law. A trial or remedial justice under or by the rules and doctrines of

Commutative justice (*iustitia commutativa*) pertains to obligations between individuals, particularly in business transactions. It demands fundamental fairness in all agreements and exchanges, holding businesses ethically and financially accountable for any harm resulting from their products.[344] Courts play a role in rectifying harms and restoring unlawfully taken assets to plaintiffs. **Corrective justice** (*iustitia correctiva*) is the idea that liability rectifies the injustice inflicted by one person on another. It deals with voluntary and involuntary transactions (today's contracts and torts), focuses on whether one party has committed and the other has suffered a transactional injustice.[345] In other words, it can be considered compensatory justice. However, distributive justice and corrective justice differ in how they construe equality. Distributive justice, therefore, embodies a proportional equality, in which all participants in the distribution receive their shares according to their respective merits under the criterion in question. Corrective justice, in contrast, features the maintenance and restoration of the notional equality with which the parties enter the transaction.

Theory of Justice

In the realm of **justice theory**, specifically within the framework of the Contractarian theory, John **Rawls** (1921–2002) in his seminal work A Theory of Justice (1971) diverged from the utilitarian goal of wealth maximization.[346] Instead, Rawls posited that the primary objective should be establishing justice, serving as the criterion for the equitable distribution of goods and services among the populace. Drawing inspiration from the social contract theory advocated by influential philosophers such as John Locke (1632–

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equity. A a body of legal doctrines and rules developed to enlarge, supplement, or override a narrow rigid system of law.
"Equity." *Merriam-Webster.com Dictionary*, Merriam-Webster, https://www.merriam-webster.com/dictionary/equity.

[344] Mildenberger, C. D. (2020). *Commutative justice: A liberal theory of just exchange*. Routledge.

[345] Aristotle, Nicomachean Ethics. V, 2-5, 1130al4-1133b28.
Weinrib, E. J. (2002). Corrective justice in a nutshell. *The University of Toronto Law Journal*, *52*(4), 349-356.
Englard, I. (2009). *Corrective and Distributive Justice: from Aristotle to modern times*. Oxford University Press.

[346] Rawls, J. (1971). Atheory of justice. *Cambridge (Mass.)*
Pogge, T. (2007). *John Rawls: His life and theory of justice*. Oxford University Press, USA.
Sharma, A. (2021). Critical Analysis of John Rawls Theory of Justice and Amartya Sen's Idea of Justice. *Jus Corpus LJ*, *2*, 718.
Amartya, S. (2017). What do we want from a theory of justice?. In *Theories of Justice* (pp. 27-50). Routledge.

1704) and Jean-Jacques Rousseau (1712–1778), Rawls developed the concept of justice as fairness as a means to achieve a just social order.

The theory of justice as fairness involves **three foundational principles**, each contributing to the realization of a just society. First, Rawls introduced the original position, conceptualized as a state of nature in a hypothetical situation conducive to rational redistribution. Second, the veil of ignorance is presented as a condition in which individuals envision the original position without knowledge of their identity, encompassing factors such as sex, age, education, and income. Third, unanimity of acceptance of the original position is deemed crucial, prompting Rawls to outline **five procedural steps**, or conjectures, to achieve this acceptance. These steps encompass entering into the contract and reaching a unanimous agreement to the contract, including basic conditions such as freedom of speech, maximizing the welfare of the most disadvantaged persons, and ensuring the stability of the contract.

3 foundational principles and 5 procedural steps

3 principles	5 procedural steps, or conjectures
1. **Original position:** understanding of the state of nature (hypothetical situation for rational redistribution) 2. **Veil of ignorance:** is a condition in which people arrive at the original position imagining they have no identity (sex, age, education, income) 3. **Unanimity of acceptance** of the original position (all agree with it)	1. **Entering** into the contract, 2. **Agreeing unanimously** to the contract, 3. Including **basic conditions** in the contract such as freedom of speech 4. **Maximizing the welfare** of the most disadvantaged persons 5. Ensuring the **stability** of the contract.

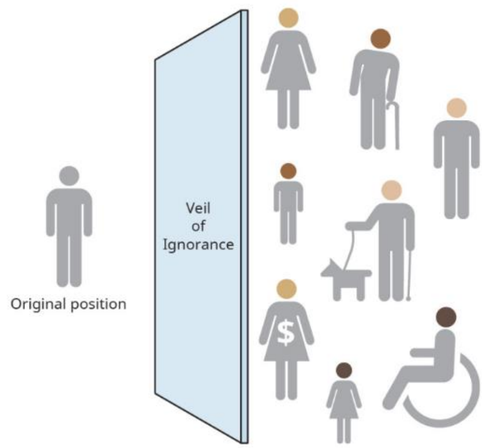
Source: own compilation of the author

The concept of the **original position** refers to a hypothetical situation where individuals come together to establish the principles of justice for a society.[347] In this thought experiment, participants are imagined to be behind a veil of ignorance, unaware of their own characteristics such as their social status, wealth, abilities, or even their conception of the good life. This kind of state of nature represents the starting point before any social or political

[347] Franke, U. (2021). Rawls's original position and algorithmic fairness. *Philosophy & Technology*, *34*(4), 1803-1817.
Said, M. Y., & Nurhayati, Y. (2021). A review on Rawls Theory of Justice. *International Journal of Law, Environment, and Natural Resources*, *1*(1), 29-36.
Chung, H. (2023). Prospect Utilitarianism and the Original Position. *Journal of the American Philosophical Association*, *9*(4), 670-704.

institutions exist. It's a hypothetical situation where individuals exist without any established social order, laws, or government. Within this state of nature, there is a need for rational redistribution to address inequalities that may arise naturally. Rational redistribution implies that individuals, operating from behind the veil of ignorance and seeking to maximize their own interests under fair conditions, would agree upon redistributive policies to ensure a more equitable distribution of resources and opportunities within society. This redistribution is based on the recognition that natural inequalities such as differences in talent, wealth, or opportunities could lead to unfair outcomes without intervention.

Original Position and the Veil of Ignorance



The **veil of ignorance** is characterized by a fundamental lack of knowledge pertaining to one's ethnicity, social status, gender, and, critically, individual conceptions of how to lead a good life.[348] In the original position, participants are tasked with contemplating the principles they would choose to underpin the basic structure of society. The veil of ignorance ensures that no one knows their place in society or what advantages or disadvantages they may possess. This ignorance encourages participants to make decisions impartially, without bias towards their own self-interest. The goal is to arrive at principles of justice that are fair and equitable for all members of society, regardless of their individual circumstances. Crucially, this deliberation is conducted as if the participants possess no prior knowledge of the specific position they would occupy within that society. The metaphorical veil of ignorance functions as a conceptual barrier, obscuring personal details and preventing individuals from prejudging or favoring principles based on their individual circumstances. This deliberative process

[348] Zenkyo, M., & Sakamoto, H. (2021). Making the Veil of Ignorance Work. *Oxford Studies in Experimental Philosophy Volume 4*, *4*, 53.
Abatemarco, A., & Stroffolini, F. (2023). Optimal redistribution behind the veil of ignorance. *Economia Politica*, 1-30.
Szutta, A. (2021). A slightly lifted veil of ignorance. *Przegląd Filozoficzny. Nowa Seria*, (4).
Persson, A. (2022). *Problems With the Veil of Ignorance*, And How We Might Solve Them. Linköping University

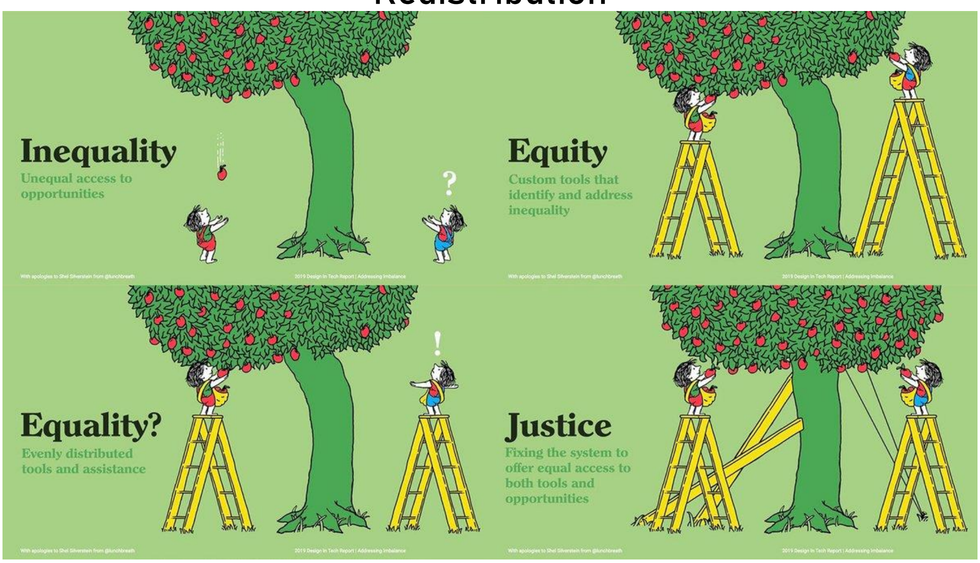
encourages participants to make choices impartially and rationally, devoid of preconceived notions about their own circumstances. By necessitating individuals to consider societal principles from behind the veil of ignorance, the aim is to foster a sense of fairness and objectivity in the selection of principles governing the societal structure. In this ideal scenario, the lack of awareness regarding one's personal characteristics and life preferences compels participants to adopt a more neutral and unbiased perspective, contributing to a more just and equitable foundation for the basic structure of society.

An illustrative metaphor employed by Rawls to elucidate his theory involves the equitable **division of a cake**, emphasizing the significance of fairness. According to Rawls, the most judicious approach is to assign the task of slicing the cake to the person who will take the last piece. This metaphor encapsulates the essence of Rawls's emphasis on fairness and the prioritization of the welfare of the least advantaged in the social contract, ultimately contributing to the stability and just distribution of societal resources.

Problems of Redistribution

The redistribution predicament within the justice theory framework represents a radical and egalitarian manifestation of liberalism.

Redistribution



Source: Erdmann, N. (2021). Defining: Equity, Equality and Justice. Achieve Brown County. (https://achievebrowncounty.org/2021/05/defining-equity-equality-and-justice/)

In this context, the redistribution of material goods and services takes place without consideration for historical context, challenging the presumption that it is inherently wrong to reallocate legally acquired property from one individual to another. This approach, while different from utilitarianism, introduces a form of coercion under the auspices of justice rather than pleasure. At a societal level, the principles of justice theory would ostensibly ensure the provision of housing, education, medical treatment, food, and other fundamental necessities for every individual. However, the contentious issue emerges regarding the financial underpinning of these guaranteed goods and services through taxation, raising complex questions about the distribution of the fiscal burden.

Robert **Nozick** (1938–2002) established the **theory of entitlement**, and offered a counterpoint to the advocacy for unrestricted redistribution.[349] Nozick argued that the ethical application of state power should never involve depriving an individual of property acquired legally or through inheritance to redistribute it to those in need. This perspective underscores the significance of respecting legal entitlements and inherited property rights, contrasting the expansive redistribution advocated by justice theory.

Justice in Business

Justice in business, particularly when viewed through the lens of Rawls's justice theory, presents distinct advantages in the context of the 21st century corporate environment.[350] As businesses evolve into interconnected and global entities, heightened attention to critical aspects such as quality control, human resources management, and leadership within diverse settings becomes imperative. The inherent value of fairness, transcending cultural boundaries, is widely comprehensible, creating a foundation for ethical considerations in a globalized business environment.

As articulated by Rawls's justice theory, the notion of fairness acknowledges the subjectivity inherent in its interpretation, considering various factors such as underlying values and individual characteristics, including personality. This recognition acknowledges that what may be perceived

[349] Nozick, R. (1974). *Anarchy, state, and utopia*. John Wiley & Sons.
Davis, L. (1976). Comments on Nozick's entitlement theory. *The Journal of Philosophy, 73*(21), 836-844. Nozick, R. (2004). 6 The Entitlement Theory of Justice. *Contemporary political theory: A reader,* 61-68.

[350] Berkey, B. (2021). Rawlsian institutionalism and business ethics: does it matter whether corporations are part of the basic structure of society?. *Business Ethics Quarterly, 31*(2), 179-209.

as fair by some can be perceived as egregiously unfair by others, thereby fostering an environment ripe for engaged debate and participation – key elements derived from the contractarian theory – among the business community members.

Rawls's justice theory, as applied to business, not only offers a theoretical framework for achieving fairness but also proves to be a practical and valuable tool at all organizational levels.[351] Its accessibility to contemporary sensibilities distinguishes it from Confucian virtue ethics, and its flexibility surpasses Kant's categorical imperative. Consequently, it emerges as an effective approach to dealing with stakeholders and shaping organizational culture. It also provides a way outwardly (corporate social responsibility) and inwardly (employee development):

Source: own compilation of the author

Moreover, the implementation of fairness as a corporate doctrine can be seamlessly extended to all stakeholders, offering a comprehensive way of integrating business ethics into the organizational fabric, sustainable development, and fairness.[352] It transcends mere compliance, involving CEOs,

[351] Cohen, M. A. (2010). The narrow application of Rawls in business ethics: A political conception of both stakeholder theory and the morality of markets. *Journal of Business Ethics*, *97*, 563-579.
[352] Abramovich, N., & Vasiliu, A. (2023). Sustainability as fairness: A Rawlsian framework linking intergenerational equity and the sustainable development goals (SDGs) with business practices. *Sustainable Development*, *31*(3), 1328-1342.

leaders, managers, and employees, positioning fairness as an integral aspect of the job description. This contributes to cultivating a happier and more productive workforce and positions an organization dedicated to fairness as playing a substantial role in civic life and the broader political process. In essence, Rawls's justice theory provides a robust framework for the multifaceted integration of fairness within the intricate dynamics of contemporary business, fostering ethical considerations and societal contributions.

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III. MONEY

To foster evil actions, to make them commonplace among all men, nothing is as powerful as money. It destroys cities, driving men from home.

Shopokles: Antigone

Happiness does not dwell in flocks of cattle or in gold. Lucky is he who is happy with little money, unlucky is he who is unhappy with a lot of it.

Democritus

Pecunia non olet - Money does not stink.

Vespanian (later also Lenin)

Money is none of the wheels of trade: It is the oil which renders the motion of the wheels more smooth and easy.

David Hume

In a rule of law, money is a weapon. / Warfare is different here today. / The hero does not draw the sword. / The bomb explosion is a banknote / and its shards fly apart like a penny.

Attila József

Those who devote their lives to science cannot consider wealth accumulation to be their vocation. What leads a scientist to the scientific career is primarily the enthusiasm for science, the irresistible passion to devote his whole life and all his strength to the search for truth. Where this enthusiasm, this passion, this idealism is not there, even the highest salary is offered in vain: at best, we are raising couriers with it, not scientists.

Gusztáv Szászy - Schwarz

Money doesn't make you happy. I now have $50 million but I was just as happy when I had $48 million.

Arnold Schwarzenegger

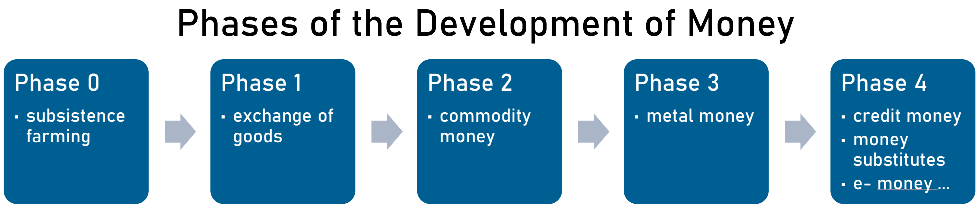
Every morning when I get up, I run through the Forbes list of "Richest Americans". If I'm not on it, I go to work.

Robert Orben

The history of money is the evolution over time of systems for exchanging, storing and measuring wealth.[353] The concept of it, an essential element in human civilization, has evolved significantly over millennia. From its origins in antiquity to its development through the Middle Ages and into the modern era, the understanding and utilization of money have undergone profound transformations. We span centuries, with distinct periods characterized by

[353] Lannoye, V. (2023). *The history of money for understanding economics*. Le Cri édition, Createspace Independent Publishing Platform; Wray, L. R. (2012). Introduction to an alternative history of money. *Levy Economics Institute, working paper*, (717). Davies, G. (2010). *History of money*. University of Wales Press.; Weatherford, J. (1998, 2015). *The history of money*. Crown Currency.; Chown, J. F. (1994). *A History of Money: from AD 800*. Psychology Press.

unique economic systems, social structures, and technological advancements. In parallel, the phenomenon of inflation has emerged as a critical economic concern, influencing monetary policies and shaping finance. Moreover, the evolution of finance, particularly with the advent of FinTech, has revolutionized the way individuals and institutions engage with money and conduct financial transactions.



Source: own compilation of the author

In the evolution of economic systems, various phases have delineated the progression of monetary exchange. Beginning with Phase 0, characterized by **subsistence farm**ing as the primary economic activity, societies relied on self-sufficiency to meet their basic needs. Self-sufficiency posed limitations that hindered growth and specialization within these societies. As communities grew and interactions expanded, Phase 1 emerged, ushering in the **exchange of goods** as a rudimentary form of trade. This phase facilitated the acquisition of desired items through bartering and laid the foundation for more sophisticated exchange mechanisms. Bartering presented challenges like the double coincidence of wants and determining the value of goods. Early trade routes and networks emerged to facilitate bartering transactions. Phase 2 introduced the concept of **commodity money**, where goods with intrinsic value, such as precious metals or agricultural products, were utilized as mediums of exchange. This marked a significant leap forward in economic organization, as standardized units of value facilitated more efficient transactions and increased market integration. Different regions and eras utilized various commodities such as salt, shells, and spices as forms of money. Commodity money's value could fluctuate, limiting its efficacy in large-scale transactions. In Phase 3, the transition to **metal money** occurred, with societies adopting coins made from durable metals like gold and silver. This standardized currency system provided stability and uniformity to economic transactions, enhancing trust and facilitating trade across regions. Metal coins offered advantages such as portability, divisibility, and durability compared to commodity money. Governments and institutions played roles in minting and regulating metal currencies. Finally, Phase 4 witnessed the **proliferation** of credit money, alongside the emergence of various forms of money substitutes and electronic money. The credit money represented claims on real assets or future production; furthermore, it offered benefits but also posed risks, impacting economic stability. This era saw the evolution of financial instruments such as checks, banknotes, and digital currencies, revolutionizing the way transactions were conducted and further expanding the scope of economic exchange.

Money 1.0 to 4.0

Money 1.0	• Intermediary for the exchange of goods and services: vouchers, tickets, cards, shares, bonds, checks
Money 2.0	• The physical money we use every day (banknotes, polymers, precious metals, ...) • The national currency guaranteed and directly issued by each country: USD, yen, euro, HUF ...
Money 3.0	• Electronic number recognized by banks • Exchange them via internet banking , mobile applications, VISA, MasterCard, ATM, etc. across
Money 4.0	• Digital currency (cryptocurrency): such as Bitcoin, Ethereum, XRP, 9token, Paya, NEE, USDex ... • Stored on a blockchain and used entirely on the Internet • Central Bank Digital Currency (CBDC)

Source: own compilation of the author

Money 1.0, serving as an intermediary for transactions, includes a diverse range of instruments like vouchers, tickets, cards, shares, bonds, and checks. This stage reflects the historical development of various tangible and paper-based means of facilitating trade. **Money 2.0** extends beyond physical manifestations, encompassing the conventional banknotes, polymers, and precious metals utilized in day-to-day transactions. Additionally, it involves national currencies issued and guaranteed by sovereign nations, exemplified by prominent currencies such as the USD, yen, euro. This stage represents the establishment of standardized and widely accepted forms of currency within national borders. **Money 3.0** introduces the electronic representation of currency, existing as numerical values recognized by financial institutions. Transactions in this stage are conducted through digital platforms, including internet banking, mobile applications, and widely accepted payment systems like VISA, MasterCard, and ATMs. This transition underscores the increasing reliance on digital infrastructure for financial interactions. **Money 4.0** represents a paradigm shift with the emergence of digital currencies, notably cryptocurrencies like Bitcoin, Ethereum, XRP, Paya, NEE, and USDex. These currencies are stored on blockchain technology, a decentralized ledger ensuring transparency and security. Money 4.0 operates exclusively in the digital realm, enabling borderless and decentralized transactions on the Internet. This stage reflects the transformative impact of blockchain technology on the concept of currency, introducing new possibilities for global, peer-to-peer financial interactions. Cryptocurrencies have the potential to revolutionize financial systems but also pose risks like volatility and regulatory uncertainty, prompting ongoing debates and considerations for future developments.

13. The Concept of Money

Money serves as a universal medium of exchange, functioning as a commodity that possesses immediate purchasing power for acquiring any product or service and settling debts. As the most liquid asset, it is ideally suited for facilitating transactions, acting as a stable means of payment over varying durations in commercial transactions. Its (intrinsic) value is fixed, contributing to its role as a permanent instrument of exchange within the market, where its acceptance is paramount. Functioning as an entity with a stable value, it is utilized in commercial transactions over varying durations as a steadfast medium of payment. Money, one of the fundamental concept in economics and society, plays a pivotal role in facilitating economic transactions and shaping the dynamics of human interaction. On the other hand, it is important that money is what the market accepts as money. As a medium of exchange, unit of account, and store of value, money serves as the cornerstone of modern economies, enabling individuals and businesses to conduct transactions efficiently and effectively. Understanding the concept of money involves delving into its various functions, exploring its different forms and types, and considering the implications of its absence or scarcity. By examining these aspects, we can gain insight into the complexities of monetary systems and their significance in driving economic activity and societal development. From the origins of money to its contemporary manifestations, exploring this topic offers valuable insights into the workings of economies and the broader human experience.

13.1. Functions of Money

Money has four plus one functions: (i) medium of exchange; (ii) unit of account, (iii) means of payment, (iv) store of value, wealth; and (v) if it accepted widely abroad, means international money, world money.[354]

The **functions of money** encompass various roles, including its role as a medium of exchange and a means of circulation. As a **medium of exchange**, money serves as a universally accepted tool that can be readily exchanged at any time, facilitating the complex turnover of goods and services. This acceptability is the proof of the pudding in the case of money, that the

[354] Graham, F. D. (1940). The primary functions of money and their consummation in monetary policy. *The American economic review, 30*(1), 1-16.
Goodhart, C. A. E. (2019). The role, functions and definition of money. In *The Microeconomic Foundations of Macroeconomics* (pp. 205-239). Routledge.

market uses, adopts and employs it. The interaction between goods and money in this context is intricate, as they move in opposite directions concurrently. In addition to its role as a medium of exchange, money functions as a **unit of account** (numérarie) and a measure of value equivalent. In this capacity, every commodity is expressed in terms of value, with money serving as the general equivalent, particularly in the determination of prices.

Functions of money

Medium of exchange, means of circulation	• Accepted by everyone • A tool that can be exchanged at any time • Trade in goods and services is conducted through the medium of money (goods and money move in opposite directions together)
Unit of account, measure of value equivalent	• The value of all goods can be expressed, money is the accounting unit • General equivalent, suitable for expressing prices • Prices are determined in money
Means of payment a standard of postponed / deffered payment; bases of credit	• It is also suitable for mediating economic relationships where there is no exchange (payment of income, debtor-creditor relationship), money embodies the unilateral transfer of value (income) • Suitable for deferred payment, debt repayment, • The movement of goods and money can be separated (debtor/creditor)
Store of value, wealth purchasing power, means of accumulation, treasure builder	• Able to embody value and purchasing power even when taken out of circulation • Suitable for holding wealth, one of the means of holding wealth (savings, wealth-building, demand for the relative stability of the value of money)
+ International money, world money	• Able to perform the previous functions in international trade as well, i.e. It is convertible

Source: own compilation of the author

Money also operates as a **means of payment** and as a standard for postponed or deferred payment, forming the basis for credit. Beyond facilitating exchange, money is instrumental in mediating economic relationships without direct exchange, such as in the payment of income or in debtor-creditor relationships. Money embodies a one-sided value concession in these instances and is well-suited for deferred payment and debt repayment, allowing for the separation of goods and money in debtor-creditor arrangements. Furthermore, money serves as a **store of value**, possessing wealth-purchasing power and functioning as a means of accumulation and treasure building.

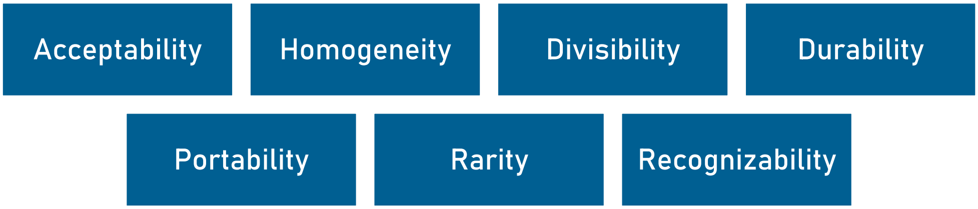
Its capacity to embody value and purchasing power even outside of circulation makes it suitable for wealth management, including savings and building wealth, emphasizing the need for the relative stability of the value of money. In a global context, **international money** or world money can perform these functions in international transactions, demonstrating its convertibility and applicability in the international arena.

Beside this, Dennis Flynn distinguish **six historical functions of monies** (price theory of monies): (i) Unit of accounting (intangble); (ii) medium of exchange (tangible), (iii) store of value (tangible); (iv) stan-dard of value (tangible); (v) link-money (intangible); and (vi) meas-ure of relative values (intangible). From this approach it is obvious that these six functions cannot be fulfilled simultaneously because some functions require tangibility while others require intangibility.[355]

From a functional perspective, it is evident that money, as a **social institution**, undergoes **changes both spatially and temporally**. This statemant implies that when examining money from a functional perspective – focusing on its roles and purposes in a society – it becomes apparent that money is not a static concept. Instead, it is a dynamic social institution that experiences changes both in terms of space (geographical or spatial context) and time (historical or temporal context). It plays a crucial role in facilitating economic transactions and influencing social interactions. Changes may occur in terms of its form, functions, or the way it is utilized within a society over time and across different regions. Money undergoes spatial changes, meaning its characteristics and roles can vary in different geographical locations. For example, the form of money (coins, banknotes, e-money) and the prevalence of digital transactions may differ from one region to another. The use of mobile payment apps might be more prevalent in urban areas compared to rural regions, showcasing spatial differences in how money is accessed and used. Historical, economic, and technological factors contribute to these changes. For instance, the role of gold as a standard currency in the past has evolved with the introduction of fiat currencies and digital forms of money. Over time, the introduction of cryptocurrencies like Bitcoin represents a temporal change in the concept of money, challenging traditional forms and structures.

[355] Flynn, D. O. (2018). Six monetary functions over five millennia: A price theory of monies. In *Money, Currency and Crisis* (pp. 13-36). Routledge.

Physical and Social Attributes of Money



Source: own compilation of the author

The effective fulfillment of the functions of money relies on specific **physical and social attributes**, which collectively contribute to its role as a universal medium of exchange. These characteristics ensure that money is not only widely accepted but also functions seamlessly within the economic framework. Firstly, the principle of **acceptability** underscores the necessity for money to be universally acknowledged within a given society or economic system. Its broad acceptance establishes it as a reliable means of exchange, facilitating transactions across diverse contexts. **Homogeneity** emphasizes the uniformity of money, where each unit possesses identical characteristics and values. This ensures the interchangeability of currency units, fostering consistency and simplifying transactions. The concept **divisibility** underscores the importance of money being divisible into smaller units. This quality enhances flexibility in transactions, accommodating various denominations and making it adaptable to a range of economic exchanges. The **durability** is another crucial characteristic, necessitating that money exhibits resilience to wear and tear. Durability ensures that the currency remains viable over time, contributing to its sustained functionality. The **portability** is fundamental for the practical use of money. An easily transportable form facilitates convenience in carrying and exchanging money for goods and services, essential for the fluidity of economic transactions. Ensuring a degree of **rarity** is crucial to maintaining the value of money. Limited availability or scarcity prevents inflation and preserves the purchasing power of the currency. Lastly, **recognizability** emphasizes the need for money to be easily identifiable. Recognizable currency streamlines transactions, minimizes the risk of counterfeiting, and ensures a smooth exchange process in the economy. Together, these physical and social attributes define the robustness of money in its pivotal role as a medium of exchange in various economic transactions.

13.2. Forms and Types of Money

Money serves as a universal medium of exchange, representing a commodity that can be promptly utilized for the acquisition of any product or service, or for the settlement of debts. It manifests in tangible forms, such as coins and notes, or in non-physical formats like written or electronic bills. Money, as a **medium of exchange**, can adopt various material forms, including those crafted from clay, leather, paper, bamboo, or metal. Furthermore, monetary systems involve **money of account**,[356] encompassing registered transactions and ledger entries related to deposits and loans; a denominator of value or basis of exchange which is used in keeping accounts and for which there may or may not be an equivalent coin or denomination of paper money.

The **value of money** can be categorized into different types. Money possessing **intrinsic value** refers to commodity money, such as gold, where the value is derived from the inherent worth of the material. The **representative money**, on the other hand, is legally interchangeable for items of intrinsic value, establishing a legal basis for its exchangeability. The **fiat money**, distinctively, possesses only nominal value, as its acceptance and utilization are mandated by the state through legal decree.[357]

Currency encompasses the official money of a country, serving as its legal tender in physical form. In a narrower sense, it refers to the legal tender of one country utilized in the payment transactions of another country, constituting actual foreign currency in the form of coins or banknotes. A supplementary or **complementary currency** is a currency that is not a national currency or is not intended to be the primary medium of exchange. Usually the people use, accept a stale foreign currency, e.g. like during and after the World Wars, hyperinflationary environments or other military conflicts after the collapse of the USSR or in the 21st century. These events are good examples the above mentioned proof of the pudding, when the market did not accept the legal tender. They can be also local or community currencies, which are issued by local governments or organizations and are used within a specific region or community. Sometimes these foster the local entrepreneurs, who joined to the system, by attracting for local goods and services provided at a lower prices or more favorable conditions. **Virtual currencies** are digital

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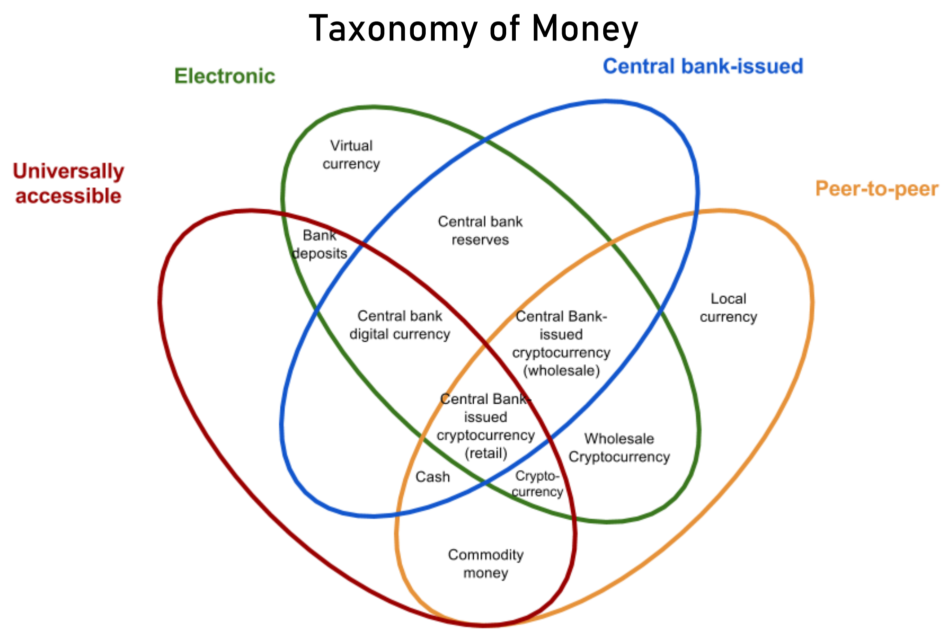
[356] "Money of account." Merriam-Webster.com Dictionary, Merriam-Webster, https://www.merriam-webster.com/dictionary/money%20of%20account.

[357] Andrei, L., & Andrei, D. (2014). Fiat, versus Representative Money Under Debate (II): A Case Study of the US Federal Reserve's Monetary Base Along the Postwar Era. *Available at SSRN 2477977*.

currencies that are not issued by a central authority. **Foreign exchange** (FX) represents a claim or a debt in the currency of a foreign country, acts as a substitute for money. It can manifest as a current account claim, check, bill of exchange, or promissory note.

Cash, in its tangible form of banknotes or coins, functions as an immediate means of payment, available either instantly or within a short timeframe. **Account money**, on the other hand, takes the form of a non-term deposit established for an unspecified or unlimited period, with specific eligibility conditions. Its face value is guaranteed in cash, constituting a claim against a bank, albeit detached from its material form and existing as an electronic signal. **Fiat money**, as a statutory currency, is the legal tender of a country or a group of countries. Issued and declared as legal tender by central banks or other state authorities, it lacks intrinsic value, not being backed by gold or commodities. Practically, any material can be employed by the state as a means of payment, with characteristics such as lightness, practicality, and portability, including materials like paper or plastic. **Electronic money** or e-money, stored in banking computer systems, is backed by fiat money and differs from cryptocurrencies. Various companies facilitate transactions using electronic money, exemplified by platforms like Square and PayPal.



Source: Löber K. and Houben A. (2018). Central bank digital currencies. BIS, Committee on Payments and Market Infrastructures Markets Committee. 5. and Bech, M. L., & Garratt, R. (2017). Central bank cryptocurrencies. *BIS Quarterly Review September*.

The special suitability for facilitating indirect exchanges possessed by absolutely secure and immediately payable claims to money, which may briefly referred to as **money-substitutes**.[358] A money substitute is not money, but is used as such. Claims are not goods; they are means of obtaining disposal over goods. Two elements are involved in the valuation of a claim: first, the value of the goods to whose possession it gives a right; and, second, the greater or less probability that possession of the goods in question will actually be obtained. A claim to money may be transferred over and over again in an indefinite number of indirect exchanges without the person by whom it is payable ever being called upon to settle it.

Types of Money Substitutes

Category	Description	Examples
Deposit-based substitutes	Funds held in these accounts can be easily converted to cash or used for electronic payments.	Checking accounts, savings accounts, money market accounts
Credit-based substitutes	These allow delayed payment for goods and services, extending purchasing power beyond immediate cash holdings.	Credit cards, debit cards, lines of credit
Other substitutes	These can be used for specific transactions or within limited networks, reducing reliance on physical cash.	Barter, coupons, loyalty points

Source: own compilation of the author

Deposit-based substitutes facilitate the conversion of funds into cash or electronic payments with ease. They are generally the most liquid and have the lowest risk, but they may also have lower potential returns compared to other investments. **Credit-based** substitutes offer the advantage of deferred payment for goods and services, thereby extending purchasing capabilities beyond immediate cash reserves. These offer additional purchasing power but come with borrowing costs and potential debt burdens. **Other substitutes** serve specific transactional purposes or operate within restricted networks, thereby diminishing dependence on physical currency.They can be convenient and cost-effective in specific situations but have limitations in terms of universality and usability compared to traditional money or established money substitutes.

[358] von Mises, L. (1912). *The Theory of Money and Credit*. Skyhorse Publishing, Inc. Chapter 3, The Various Kinds of Money - 1 Money and Money Substitutes

Characteristics of Money Substitutes

	Deposit-based Substitutes	Credit-based Substitutes	Other Substitutes
Liquidity	High	Varies (depends on credit card type & payment network)	Low
Universality	High (accepted by most merchants)	Moderate (not universally accepted)	Low (limited to specific networks or transactions)
Cost	Low (may have maintenance fees)	Varies (interest rates and fees can apply)	Varies (may have purchase requirements or limitations)
Risk	Low (insured up to certain limits)	High (borrower responsible for repayment)	Low (may lose value or expire)
Convenience	High (easy access and use)	High (convenient for online and in-store purchases)	Varies (depends on context and specific substitute)
Control	High (user controls deposits and withdrawals)	Varies (depends on spending limits and repayment terms)	Varies (depends on specific substitute)

Source: own compilation of the author

A money substitute can take the form of either a banknote or a demand deposit held with a bank that is accessible through checks (checkbook money or deposit currency), provided the bank is willing to exchange them daily, without charge, for actual money. Token coins also serve as money substitutes, as long as the owner can readily exchange them for money when needed, without any cost or delay. It is not necessary for the government to be legally obligated to redeem them; what matters is that these tokens can be easily and promptly converted into money without any expense. If the total issuance of token coins is kept within reasonable limits, there is no need for special government provisions to maintain their exchange value at par with their face value. The public's demand for small change ensures that these tokens can be easily exchanged for money. Apart from paper notes, the main types of such substitutes are token coins, certificates of deposit, checking accounts, credit cards, and electronic bank accounts on the Internet.[359] If the debtor – the government or a bank – keeps against the whole amount of money-substitutes a 100% reserve of money proper, it is called a money-

[359] Hülsmann, J. G. (2008). *Ethics of money production*. Ludwig von Mises Institute. Chapter 2. Money certificates p.35-41

certificate. If the money reserve kept by the debtor against the money-substitutes issued is less than the total amount of such substitutes, we call that amount of substitutes which exceeds the reserve fiduciary media. Only individuals familiar with the bank's balance sheets can discern this reality. The individual banknote, deposit, or token coin does not reveal its catallactic nature.[360]

Properties of Money Substitutes

Money Substitute	Description	Acceptance	Security	Accessibility
Cash	Physical currency issued by the government, typically in the form of banknotes and coins.	Widely accepted in most transactions.	Vulnerable to theft and loss, but transactions are usually immediate and final.	Accessible through banks, ATMs, and currency exchanges.
Checks	Written, dated, and signed instruments directing a bank to pay a specific sum of money to the bearer.	Accepted by most businesses and individuals, but processing may take time.	Relatively secure if handled properly, but prone to fraud and bounce fees.	Accessible through banks and check-cashing services.
Debit Cards	Plastic cards linked to a bank account, allowing holders to make electronic purchases or withdrawals.	Widely accepted at most merchants with card terminals.	Generally secure with PINs and fraud protection, but vulnerable to card skimming and online fraud.	Accessible through ATMs, banks, and online banking services.
Credit Cards	Cards allowing users to borrow funds up to a limit for purchases, with repayment required later.	Accepted at most businesses worldwide, but subject to merchant fees.	Offers protection against fraud and unauthorized transactions, but carries risk of overspending and high-interest charges.	Accessible through banks, card issuers, and online banking platforms.
Traveler's Checks	Pre-printed checks used as a secure alternative to carrying cash while traveling.	Accepted by hotels, restaurants, and businesses in tourist areas.	Secure with protection against loss or theft, but declining in popularity due to other payment options.	Accessible through banks and currency exchange services.

[360] von Mises, L. (1949). *Human Action*: A Treatise on Economics. London: William Hodge. Chapter XVII. Indirect Exchange - 11. The Money-Substitutes

Prepaid Cards	Cards preloaded with a specific amount of money for purchases, often used for budgeting or gifting.	Widely accepted at retailers and online merchants.	Secure with limited risk of overspending or identity theft, but may have fees and restrictions.	Accessible through retailers, banks, and prepaid card issuers.
Stored Value Cards	Cards storing prepaid value for specific purposes, such as transit passes or gift cards.	Accepted within designated networks or systems, such as public transportation or retail chains.	Secure with a fixed value and limited usability, but may expire or have usage restrictions.	Accessible through retailers, transit agencies, and card issuers.
Electronic Funds Transfer (EFT)	Transfer of money between bank accounts through electronic means, such as wire transfers or online banking.	Widely accepted for large transactions between banks and businesses.	Generally secure with encryption and authentication measures, but may involve fees and processing delays.	Accessible through banks, online banking platforms, and financial institutions.
Mobile Payment Apps	Smartphone applications enabling users to make transactions electronically using QR codes or NFC technology.	Increasingly accepted at businesses, especially among younger consumers.	Secure with biometric authentication and encryption, but may face technical glitches and compatibility issues.	Accessible through app stores, smartphones, and online banking platforms.
Money Orders	Prepaid certificates used for payments, often as a secure alternative to personal checks.	Accepted by some businesses, landlords, and government agencies.	Secure with a fixed value and traceability, but may involve fees and processing delays.	Accessible through banks, post offices, and financial services providers.
Cryptocurrencies	Digital or virtual currencies operating independently of central authorities, using cryptography for security.	Limited acceptance by businesses, primarily in online and tech-savvy communities.	Offers strong security features with blockchain technology, but subject to price volatility and hacking risks.	Accessible through cryptocurrency exchanges and digital wallets.

Source: own compilation of the author

Digital currency, also known as digital money or electronic currency, refers to any form of currency or asset resembling money that is primarily managed, stored, or exchanged through digital computer systems, particularly over the internet.[361] Varieties of digital currencies encompass cryptocurrency, virtual currency, and central bank digital currency. The recording of digital currency can occur on a distributed internet database, a centralized electronic database owned by a company or bank, within digital files, or on a stored-value card. While digital currencies share characteristics with traditional currencies, they typically lack the classical physical form associated with historical fiat currencies, such as banknotes or minted coins that can be held in hand. Instead, they possess an unconventional physical presence arising from computer-to-computer and computer-to-human interactions, leveraging the information and processing power of servers that store and track monetary transactions. This non-traditional physical form facilitates nearly instantaneous internet transactions and significantly reduces the distribution costs associated with physical notes and coins. For instance, in the UK economy, only 3% of money exists in the form of notes and coins, while 79% exists as electronic money, mainly in the form of bank deposits. Not issued by a governmental body, virtual currencies lack legal tender status and facilitate ownership transfers across national borders. Digital money finds application in the purchase of physical goods and services, but its usage may also be restricted to specific communities, such as within an online game. The structure of digital money can be either centralized, where a central entity like a bank controls the money supply, or decentralized, where control over the money supply is predetermined or agreed upon through democratic processes.

According to the European Central Bank, a **virtual currency** can be defined as a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community. Depending on their interaction with traditional, real money and the real economy, virtual currency schemes can be classified into three types:[362]

- Type 1 is used to refer to closed virtual currency schemes, basically used in an online game;

[361] Ali, R., Barrdear, J., Clews, R., & Southgate, J. (2014). The economics of digital currencies. *Bank of England Quarterly Bulletin*, Q3.
[362] Vanini, P. (2012). *Virtual Currency Schemes*. European Central Bank. Frankfurt am Main.

- Type 2 virtual currency schemes have a unidirectional flow (usually an inflow), i.e. there is a conversion rate for purchasing the virtual currency, which can subsequently be used to buy virtual goods and services, but exceptionally also to buy real goods and services; and
- Type 3 virtual currency schemes have bidirectional flows, i.e. the virtual currency in this respect acts like any other convertible currency, with two exchange rates (buy and sell), which can subsequently be used to buy virtual goods and services, but also to purchase real goods and services.

Electronic vs. Virtual Currency Schemes

	Electronic money schemes	Virtual currency schemes
Money format	Digital	Digital
Unit of account	Traditional currency (euro, US dollars, pounds, etc.) with legal tender status	Invented currency (Linden Dollars, Bitcoins) without legal tender status
Acceptance	By undertakings other than the issuer	Usually within a specific virtual community
Legal status	Regulated	Unregulated
Issuer	Legally established electronic money institution	Non-financial private company
Supply of money	Fixed	Not fixed (depends on issuer's decisions)
Possibility of redeeming funds	Guaranteed (and at par value)	Not guaranteed
Supervision	Yes	No
Type(s) of risk	Mainly operational	Legal, credit, liquidity and operational

Source: Vanini, P. (2012). *Virtual Currency Schemes*. European Central Bank. Frankfurt am Main. 16.

In 2015 they wrote that, although the term virtual currency is commonly used – indeed, it often appears in this report – the ECB does not regard virtual currencies, such as Bitcoin, as full forms of money as defined in economic literature. Virtual currency is also not money or currency from a legal perspective. For the purpose of this report, it is defined as a digital representation of value, not issued by a central bank, credit institution or e-money institution, which in some circumstances can be used as an alternative to money. The term virtual currency scheme(s) describes both the aspect of value and that of the inherent or in-built mechanisms ensuring that value can be transferred.[363]

The US Department of Treasury stated in 2013, that virtual currency is a medium of exchange that operates like a currency in some environments, but does not have all the attributes of real currency; it does not have legal-tender status in any jurisdiction.[364] In 2015 the BIS stated that although **digital currencies** typically do have some, but not all the characteristics of a currency, they may also have characteristics of a commodity or other asset, and formulated three key aspects:[365]

- The first is the assets (such as bitcoins) featured in many digital currency schemes. These assets typically have some monetary characteristics (such as being used as a means of payment), but are not typically issued in or connected to a sovereign currency, are not a liability of any entity and are not backed by any authority. Furthermore, they have zero intrinsic value and, as a result, they derive value only from the belief that they might be exchanged for other goods or services, or a certain amount of sovereign currency, at a later point in time.
- The second key aspect is the way in which these digital currencies are transferred, typically via a built-in distributed ledger. This aspect can be viewed as the genuinely innovative element within digital currency schemes.
- The third aspect is the variety of third-party institutions, almost exclusively non-banks, which have been active in developing and operating digital currency and distributed ledger mechanisms.

Cryptocurrency, categorized as a digital asset, depends on cryptographic techniques to connect digital signatures of asset transfers, peer-to-peer networking, and decentralization. Some instances involve the utilization of a proof-of-work or proof-of-stake scheme to establish and oversee the currency. The decentralized nature of cryptocurrencies enables electronic money systems to operate without central control. When integrated with a blockchain, a digital ledger or record-keeping system utilizes cryptography

[363] European Central Bank. (2015). *Virtual Currency Schemes*. European Central Bank. Frankfurt am Main. and Alghamdi, S., & Beloff, N. (2015, July). Virtual currency concept: Its implementation, impacts and legislation. In *2015 Science and Information Conference (SAI)* (pp. 175-183). IEEE.
[364] US Department of Treasury. (2013 and 2015). *Audit Report*. Treasury.gov.
[365] BIS. (2015). Digital currencies. Committee on Payments and Market Infrastructures. 1.

to modify distinct shards of database entries distributed across multiple servers. The pioneering and widely recognized cryptocurrency system function as a cryptography-based peer-to-peer electronic monetary system.

Money vs. Cryptocurrency

Money (fiat money)	Cryptocurrency
Physical appearance or **currency** • banknotes and coins, e-money	**A digital medium of exchange** • it appears as 1 private and 1 public code
Unlimited supply • the government can produce as much as needed • its quantity can be adjusted flexibly	**Limited supply** • every cryptocurrency has a specific maximum amount • it is not able to flexibly supply the economy with an adequate amount of money
Centralized • issued by the central bank (state) • controlled and created by the law and banks • a central settlement is required	**Decentralized** • produced by computers (mining) • not controlled by any government or organization • a central settlement is not required
Value determined by market and regulation • trust in the issuing government • moderate volatility (exchange rate)	**Value determined by supply and demand** • confidence ???, foundation ??? • high volatility (price change)
It corresponds to the function of money medium of exchange; unit of account (measure of value); means of payment; store of value, wealth; world money	**It partially corresponds to the function of money** ≈ measure of value (their exchange rate fluctuates strongly) ≈ means of payment (buying transactions cannot be carried out easily, cheaply and quickly with it, it has little acceptance) ≈ store of value, wealth (not suitable, its value is too volatile , another similar digital tool can be created at any time; not gold - it has no other market) ≈ world money (not accepted everywhere)
euro, dollar, pound	Bitcoin, Ethereum, Ripple, Barion

Source: own compilation of the author

Cryptocurrency only **partially fulfills the functions of money**.[366] It serves as a measure of value, but its exchange rate fluctuates strongly. While it can act as a means of payment, buying transactions are not easily, cheaply,

[366] Ammous, S. (2018). Can cryptocurrencies fulfil the functions of money?. *The Quarterly Review of Economics and Finance*, *70*, 38-51.

or quickly carried out with it due to limited acceptance. Additionally, it is not a stable store of value or wealth, as its value is too volatile and another similar digital tool can be created at any time. Cryptocurrency also does not qualify as world money since it is not universally accepted everywhere. Therefore the term is often perceived as **misleading** due to several factors that contribute to misconceptions and misunderstandings about this digital asset. The terminology itself, combining 'crypto' and 'currency,' may lead individuals to assume a similarity with traditional forms of currency, which can be misleading. The terminology associated with cryptocurrencies, including terms like blockchain, mining, and decentralization, can be intricate and confusing for those unfamiliar with the technology. This complexity contributes to misconceptions about how cryptocurrencies function. The highly volatile nature of cryptocurrency prices can be misleading for individuals who expect stability similar to traditional currencies. The frequent and substantial fluctuations in value contribute to a perception of unpredictability and risk.

The absence of comprehensive regulatory frameworks for cryptocurrencies in many jurisdictions can create an impression of a lack of legitimacy or oversight, like fiat money.[367] This perceived lack of regulation may discourage some individuals from considering cryptocurrencies as a reliable financial instrument. While the underlying blockchain technology is designed to be secure, incidents of hacking, fraud, and scams within the cryptocurrency space have led to skepticism and mistrust. Such security concerns contribute to the perception that cryptocurrencies may not be as secure as traditional financial instruments. Cryptocurrencies have often been associated with illicit activities, such as money laundering and fraud, in media coverage. This negative publicity can overshadow the potential benefits of blockchain technology and legitimate use cases for cryptocurrencies. The proliferation of initial coin offerings (ICOs) and various cryptocurrency projects, some of which turn out to be fraudulent or fail to deliver on promises, can mislead investors and tarnish the overall reputation of the cryptocurrency space.

[367] Levulytė, L., & Šapkauskienė, A. (2021). Cryptocurrency in context of fiat money functions. *The Quarterly Review of Economics and Finance, 82,* 44-54.

Properties of Money

Primary Function	Property	Commodity Money (Gold)	Physical coins (USA coins)	Physical bills (USA bills)	Central Bank Reserves (Bank reserves at the Federal Reserve)	Bank deposits (USA bank savings account)	CBDC (No mature realizations)	In-game currency (PokéCoin)	Cryptocurrency (Bitcoin)	Cryptocurrency with DApps (Ethereum)	Privacy oriented Cryptocurrency (Zcash)	Stable Coin (Tether ERC-20 USD)	Private-Key Quantum Money (Wiesner's scheme [no realization])	Public-Key Quantum Money (Farhi et al. scheme [no realization])
Medium of Exchange†	Acceptability†	✗	✓	✓	✗	✓	✓	✗	–	–	–	–	✓	✓
	Accessibility	✓	✓	✓	✗	–	✓	–	✓	✓	✓	–	✓	✓
	Cognizability†	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
	Digital	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Divisibility† and mergeability	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	–	–
	Ease-of-use	✗	✓	✓	✓	✓	✓	✓	–	✗	–	–	✓	✓
	Latency	✓	✓	✓	✓	✗	✓	✓	–	✓	–	✓	✓	✓
	Local verifiability	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓
	Low computational tx cost	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓
	Low pecuniary tx cost	✓	✓	✓	✓	–	✓	✗	📈	📈	✓	📈	✓	✓
	P2P transfer mechanism	✓	✓	✓	✗	✗	✗	✗	✓	✓	✓	✓	✗	✓
	Portability†	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Proof of payment	✗	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	?	✗
	Reputation	✓	✓	✓	✓	✓	✓	✗	–	✗	✗	✗	✓	✓
	Reversibility	✗	✗	✗	✓	✓	?	✗	✗	✗	✗	✓	✗	✗
	Smart contracts	✗	✗	✗	✗	✗	✓	✗	–	✓	✗	✓	✗	✗
	Throughput	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓
	Transferability	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓
	Transparency	✗	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓
	Untraceability	✓	✓	✓	✗	–	?	–	✗	✗	✓	✗	–	✓
Standard of Deferred Payment†	Legal tender	✗	✓	✓	✗	✗	✓	✗	✗	✗	✗	✗	✓	✓
Store of Value†	Backup	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
	Durability†	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–
	Interest-bearing	✗	✗	✗	✓	✓	✓	✗	✗	✓	✗	✗	✗	✗
	Outside	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✗	✓	✓
	Proof of reserves	✗	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✗
	Scarcity†	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Supply measurability	✗	✓	✓	✓	✓	✓	✗	✓	✓	–	✓	✓	✓
	Tax evadability	✓	✓	✓	✗	✗	✗	✗	✓	✓	✓	?	✗	✓
Unit of Account†	Cost of currency exchange	✗	✗	✗	✓	✓	✓	✗	✓	✓	–	✓	✓	✓
	Fungibility†	✓	✓	✓	✓	✓	✓	✓	–	–	✓	–	✓	✓
	Stability†	–	✓	✓	✓	✓	✓	–	✗	✗	✗	✓	✓	✓
Societal or Regulatory	AML Compliant	✗	✗	✗	✓	✓	✓	✓	✗	✗	✗	–	✓	✗
	Censorship resistant	✓	✓	✓	✗	✗	✗	✗	✓	✓	✓	✗	✗	✓
	Identity-based	✗	✗	✗	✓	✓	✓	–	✗	✗	✗	✗	✓	✗
	Public	✗	✓	✓	✓	✗	✓	✗	✗	✗	✗	✗	✓	✓
	Resource efficiency	✗	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓
	Unforgeability	✓	✓	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Source: Hull, I., & Sattath, O. (2021). Revisiting the properties of money. arXiv preprint arXiv:2111.04483.

The term **token** encompasses a multifaceted range of meanings, serving as a pledge, memory, souvenir, emblem, or symbol. It functions as a sign, indication, or marking, and can manifest in various forms such as chips, tantus, coins, tickets, or purchase vouchers. In the contemporary digital environment, tokens have evolved to encapsulate anything that can be individually recorded within the digital space, including both physical and intangible assets. In the context of tokenization, a process wherein assets are represented as digital coins (tokens) on the blockchain, these assets become tradable commodities, facilitating their sale, purchase, and exchange. Tokens essentially act as digital certificates of ownership, capable of representing a broad spectrum of valuable items. The concept of **fungible** is characterized by its attributes of replaceability and exchangeability. Fungible entities are mutually interchangeable, suggesting their capacity to be substituted or replaced with one another within a given context. This characteristic is particularly pertinent in financial contexts, where fungible assets like currency or commodities can be exchanged on a one-to-one basis, demonstrating a high degree of interchangeability.

Types of Assets

	Fungible	Non-fungible
Tangible	real money, cash (Fiorino, Euro, Dollar)	real unique subject (commodity, art piece)
Non-tangible	cryptocurrency, blockchain (Bitcoin, Ethereum, Litecoin)	digital unique subject (art piece, picture files)

Source: own compilation of the author

The **non-fungible tokens** (NFTs) represent unique cryptographic tokens on a blockchain, created through metadata and encryption functions, with the connection between the token and the asset making them distinct.[368] These tokens are stored on a blockchain, while the actual assets reside elsewhere. NFTs can be traded for money, cryptocurrencies, or other NFTs, based on market and owner valuation. Unlike interchangeable cryptocurrencies, NFTs from the same blockchain may look similar but are not interchangeable. NFTs can represent both digital and real-world items, such as artwork and real estate, streamlining transactions and minimizing fraud risks. The trading of NFTs has heavily influenced the growth of the decentralized application (dApp) marketplace, as exponential returns (thousand folds from their original value) on its ever-expanding market are being observed, leading to worldwide attention. However, the NFT ecosystem is in its nascence, and the associated technologies are still in their infancy.[369] While initially popular among collectors and investors, the widespread interest in NFTs has diminished over time.

[368] Valeonti, F., Bikakis, A., Terras, M., Speed, C., Hudson-Smith, A., & Chalkias, K. (2021). Crypto collectibles, museum funding and OpenGLAM: challenges, opportunities and the potential of Non-Fungible Tokens (NFTs). *Applied Sciences*, *11*(21), 9931.

[369] Ali, O., Momin, M., Shrestha, A., Das, R., Alhajj, F., & Dwivedi, Y. K. (2023). A review of the key challenges of non-fungible tokens. *Technological Forecasting and Social Change*, *187*, 122248.

13.3. Without or Lack of Money

A **moneyless economy**, characterized by the absence of traditional currency, operates on a unique set of principles where individuals exchange goods and services based on communal needs, available supply, and external factors like weather conditions. This economic model, often prevalent in smaller communities or areas with limited access to monetary resources, relies on simplicity and minimal regulation, eliminating the need for conventional financial institutions.[370] Key elements of a moneyless economy include subsistence farming, manual labor, and the application of traditional technologies. These practices not only sustain the community economically but also contribute to the development of stronger social bonds as individuals gain a deeper understanding of one another. The flexibility and adaptability of participants are evident in their production of goods and services tailored to the specific needs of the community. Despite the absence of traditional currency, exchanges persist within this economy, driven by a shared commitment to fulfilling communal needs.

The moneyless economy involves the **barter trade**, which refers to an economic system where individuals exchange goods and services without using traditional currency. Legally, barter signifies exchange and should not be confused with gifting. The direct exchange of goods or services occurs between two parties without the use of a unit of value. Barter trade involves direct exchange of goods and services among individuals without using traditional currency, encompassing items such as crops, animals, raw materials, and tools. People utilize this method to meet their daily needs like food, shelter, and clothing through direct exchange. The list of possible services includes babysitting, car repair, lawn care, computer repair, small home improvement projects (collaborative efforts), plumbing services, assistance with moving, tax preparation, financial planning, orthodontics, healthcare, and accommodation. This form of economic interaction represents a challenging and primitive stage where the alignment of needs and mutual intent for exchange is crucial. Determining exchange ratios proves to be difficult, with numerous potential value pairs, and the exchange of fractional units faces challenges due to volume disparities. Additionally, barter incurs costs and consumes time. This practice is prevalent when economic entities lack sufficient liquid capital or credit.[371] It was popular among socialist countries

[370] Das, S. (2012). Moneyless economy. (https://mpra.ub.uni-muenchen.de/39763/)

[371] Huang, Y., Pi, Z., & Fang, W. (2021). Trade credit with barter in a capital-constrained supply chain. *Sustainability*, *13*(20), 11361.

for decades; today, it amounts to approximately 12-14 billion dollars annually on the international level in the USA. During the financial crisis (2007-08), barter economies in the USA reached an estimated value of nearly 3 billion dollars. The Internal Revenue Service (IRS) considers barter trade as a form of income subject to taxation.

Anthropologists have raised inquiries into whether barter transactions commonly involve interactions between entirely unfamiliar individuals, a practice termed **silent trade**. Silent trade, silent barter, dumb barter (dumb here used in its old meaning of mute), or depot trade, is a technique enabling traders who lack a common language to engage in trade without verbal communication. Nonetheless, Benjamin Orlove has demonstrated that although barter transactions take place through silent trade, involving strangers, they also manifest within commercial markets.[372]

Among the other examples, it can be the **subsistence farming**, which is an agricultural practice where individuals or communities aim to meet their own needs through production and consumption, striving for maximum independence. This model often involves food production, craftsmanship, and other self-sustaining activities. The **bureaucratic economic coordination** refers to economic systems based on central planning and control. In this model, economic decisions are made by the government or a central organization. Strong central regulation guides and coordinates economic processes, and without sufficient supply people start bartering. The gradual replacement of monetary functions in **hyperinflationary** economies. In hyperinflationary scenarios, where the value of money diminishes, people seek alternative methods for preserving value and conducting transactions. In such environments, non-monetary economic coordination methods, like barter trade or subsistence farming, may gradually take precedence over monetary functions. The **gift economy** involves the regular and reciprocal gifting of valuable goods and services without formal compensation. Based on the principle of **reciprocal altruism**, individuals mutually assist each other through gifting without expecting a direct exchange or monetary compensation.

While a moneyless economy may seem unconventional, it serves as a testament to the adaptability of communities in meeting their needs through alternative economic models, emphasizing shared values, cooperation, and sustainable practices. However, at higher levels of production, a broad divi-

[372] Orlove, B. S., Acheson, J. M., Clammer, J., Crump, T., Gudeman, S., Guillet, D., ... & Rutz, H. J. (1986). Barter and cash sale on Lake Titicaca: A test of competing approaches [and Comments and Replies]. *Current Anthropology*, *27*(2), 85-106.

sion of labor exists, resulting in a complex pricing system within the economy. An intricate price system develops, with the number of potential price pairs between various products determined by the square of the number of products: n×(n-1)/2. A mediator, such as money, becomes necessary to facilitate trade; otherwise, economic difficulties would arise, as illustrated by the example of the naked baker and hungry tailor.

13.4. Theories on the Origin of Money

Theories of money formation explore the processes and factors influencing the creation and evolution of money within an economic system. Several theories have been proposed by economists to understand the origins and development of money. According to the **commodity theory**, money originates as a commodity with intrinsic value that is widely accepted for its utility. Common examples include precious metals like gold and silver. The value of the commodity itself gives rise to its use as a medium of exchange. The **chartalist theory** (state theory of money) emphasizes the role of the state in creating and regulating money.[373] According to chartalism, money derives its value from the government's declaration (fiat) and its acceptance as a means of payment for taxes and debts. Georg Friedrich Knapp stated, that money is a creature of law.[374] Modern fiat currencies, not backed by a physical commodity, align with the chartalist perspective. Similar to this the **regulatory theories** focus on the role of government regulations and institutions in shaping the form and function of money. Legal frameworks, banking regulations, and monetary policies play a crucial role in the creation and stabilization of money within an economy. The **credit or debt theory** posits that money originates from credit relationships and debt. In this view, money is created when individuals or institutions issue promises to pay, such as banknotes or electronic money. Credit and debt relationships form the basis of the monetary system.[375] The **evolutionary theories** suggest that money evolves over time to address the needs of a growing and complex economy. Money emerges organically as a solution to the challenges of barter systems, facilitating more efficient exchanges and acting as a unit of account and store

[373] The term chartalism comes from the Latin word charta, meaning ticket or token – items that may be accepted as payment, but which do not have intrinsic value.
[374] Knapp, G. F. (1905). *Staatliche Theorie des Geldes*. Leipzig: Duncker & Humblot.
[375] Naito, A. (2020). Nominality of Money: Theory of Credit Money and Chartalism. *The Review of Keynesian Studies*, *2*, 122-147.

of value.[376] The **transaction cost theories** highlight the role of money in reducing the costs associated with conducting transactions. Money, as a medium of exchange, simplifies trade by eliminating the need for double coincidence of wants, making exchanges more efficient. The **network theories** propose that the acceptance and use of money depend on the network effects, where the value of money increases as more individuals and businesses adopt it. The interconnectedness of economic agents contributes to the emergence and stability of a particular form of money.

Theories on the Origin of Money

<table>
<tr><th colspan="3">Organic, endogenous theories</th><th>Inorganic, exogenous theory</th><th>Anthropology</th></tr>
<tr><td colspan="2">Classical (Smith, Ricardo), neoclassical economics and Marx</td><td>Graeber</td><td>Weber
Knapp</td><td>Polányi</td></tr>
<tr><td colspan="3">The formation of money from the operational needs of the market economy and the needs of commodity production (spontaneous development)</td><td>The creation and operation of money derive from the state, government</td><td>Exchange of activities between people is based on reciprocity</td></tr>
<tr><td>• labor value theory, explains the formation of market prices by the amount of labor embodied in goods
• with the development of production, the division of labor became more and more extensive in archaic societies
• money is exchange of activities
• societies use special products, goods, as money</td><td>• money is indirect exchange, as the technique that triggers barter (the direct exchange of goods)
• the function of monetary instrument (medium of exchange) is primary
• money is a "neutral" technical aid</td><td>credit money</td><td>• the state is created by people to meet their collective security and economic needs
• the state must be financed
• the state collects taxes
• the main means of tax payment will be money (initially some goods)
• the function of money as a means of payment (tax payment) is primary</td><td>• money is formed from the habit of fulfilling various obligations (including penalties).
• these payments were made by the members of archaic societies in order to reduce their own economy and power, they were received by the gods and their earthly representatives, the priests</td></tr>
</table>

Source: own compilation of the author

[376] Anagnostopoulos, A., Licandro, O., & Schlag, K. (2005). *An evolutionary theory of money as a medium of exchange*. mimeo, European University Institute.
O'Driscoll, G. P. (1986). Money: Menger's evolutionary theory. *History of Political Economy*, *18*(4), 601-616.

Organic, endogenous theories

The **organic, endogenous theories**, as expounded by classical economists such as Adam Smith and David Ricardo, neoclassical economic thinkers, and Karl Marx, offer perspectives on the formation of money rooted in the operational dynamics of the market economy and the requisites of commodity production.[377] These theories posit that money undergoes a spontaneous development process, intricately tied to the evolving needs of economic systems. The **labor value theory**, a fundamental aspect of these theories, provides an explanation for the determination of market prices based on the amount of labor invested in the production of goods. In the context of societal development, the theories highlight the increasing complexity of the division of labor within archaic societies as production techniques advance. As societies progress, the **exchange** of money activities becomes more sophisticated. Specific products or goods assume the role of money, enabling indirect exchange and serving as a catalyst for the evolution of barter, the direct exchange of goods. The primary function attributed to money in these theories is that of a monetary instrument, particularly as a medium of exchange facilitating transactions within the market economy. Furthermore, money is considered a neutral technical aid in these theories, emphasizing its role as a tool devoid of inherent value but essential for the smooth functioning of economic processes. The theories collectively offer insights into the historical development of money within the context of evolving economic structures, shedding light on the intricate relationship between money, market dynamics, and societal progress.

Another organic theory is the **credit or debt theory of money**, as expounded by scholars such as Plato, H. D. Macleod, A. Mitchell-Innes,[378] and D. Graeber,[379] constitutes a monetary economic theory focused on the relationship between credit and money. The conception that money and credit/debt are interchangeable, albeit viewed from different perspectives, underlies a significant portion of human history where money was interpreted as debt. The fundamental nature of money is identified as credit (debt),

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[377] Deleidi, M., & Fontana, G. (2019). Money Creation in the Eurozone: An Empirical Assessment of the Endogenous and the Exogenous Money Theories. *Review of Political Economy*, *31*(4), 559-581.
Desai, M. (1989). Endogenous and exogenous money. In *Money* (pp. 146-150). London: Palgrave Macmillan UK.
[378] Innes, A. M. (2004). The credit theory of money. *Credit and State Theories of Money: The Contributions of A. Mitchell Innes, 50.*
[379] Graeber, D. (2011). Debt: The first five thousand years. Melville House

especially when there is no underlying commodity like gold backing the currency. This interpretation is notably applicable in the context of commodity money usage, where money is often construed as debt. Money emerges as the unit for the settlement of debts, and the creation of money involves the simultaneous generation of debt. The value of money is not contingent on the value of a specific metal but rather on the rights acquired by the creditor for payment, i.e., the fulfillment of the credit agreement. The concept of "owing one or more units of something to someone" underscores the relationship between money and debt.

Credit money, identified as the initial form of money, predated the existence of coins or paper currency, as evidenced by historical records from ancient times. During the Crusades, the modern system of credit accounts and credit institutions evolved, leading to the creation of credit money with its monetary value established through future claims, obligations, or debts. These claims or liabilities are transferable to other parties in exchange for the embodied value in the claims. The fractional reserve banking system, with a reserve requirement typically ranging from 8% to 14.5%, represents the prevalent method of introducing credit money in contemporary economies, as outlined in regulatory frameworks like CRD IV and CRR.

Inorganic, exogenous theory

In the **inorganic, exogenous theory** proposed by Max Weber, the conceptualization of money's creation and operation is intrinsically linked to the activities of the state. According to Weber's perspective, individuals come together to establish a state, driven by the collective need for security and economic well-being. However, the state, being an organized entity, requires financial resources to fulfill its functions. To meet its financial needs, the state employs the mechanism of taxation. Taxes become a crucial source of revenue for the state, and individuals within the society are obligated to contribute to the state's coffers. In the early stages, various forms of goods may have served as a medium of tax payment, but over time, money emerges as the predominant and standardized means of settling tax obligations. Weber's theory underscores the pivotal role of money as a facilitator of state functions, particularly in the context of tax payments.[380] The state's reliance on money for tax collection contributes to the evolution and consolidation of money's significance within the broader economic framework. This perspective provides insights into the symbiotic relationship between the state and

[380] Smithin, J. (2012). Weber's ‘last theory of capitalism'and heterodox approaches to money and finance. In *New Approaches to Monetary Theory* (pp. 67-82). Routledge.

the monetary system, shedding light on the historical development of money in tandem with the organizational structures of governance.

Anthropological theory

Károly Polányi's **anthropological theory** of money delves into the foundational principles of human exchange, highlighting the centrality of reciprocity in interpersonal transactions.[381] Money is conceptualized as a product of ingrained habits associated with meeting various obligations, which encompass positive actions, and penalties, corrective measures.[382] In archaic societies, individuals engaged in monetary transactions as a means to mitigate their economic challenges and augment their societal influence. These payments were characterized by a symbolic dimension, representing a form of reciprocity not only among humans but also involving divine entities. The recipients of these transactions were perceived as gods, and their earthly conduits were the priesthood, who acted as intermediaries in the exchange. The anthropological lens underscores the multifaceted nature of money, intertwining economic, social, and religious dimensions. It provides insights into the intricate dynamics of early monetary systems, where transactions were imbued with cultural significance, reflecting the interplay between individuals, society, and the spiritual realm. The origin of money, according to this perspective, is dissociated from the exchange of goods. Contrary to the conventional understanding of money as an economic intermediary, this viewpoint posits that the fundamental functions of money, such as payment facilitation and asset protection, are not inherently tied to economic phenomena. In essence, money is considered to have evolved independently of its role in mediating the exchange of activities.[383]

Modern Monetary Theory

The **Modern Monetary Theory** (MMT) challenges traditional macroeconomic thinking by asserting that monetarily sovereign countries, like the U.S., U.K., Japan, and Canada, are not financially constrained by revenues when it comes to government spending. MMT suggests that these governments, which control their fiat currencies, can freely spend without relying

[381] Polanyi, K. (1944). *The great transformation*. Beacon Press.; Polanyi, K. (1957). The Economy as Instituted Process [w:] Trade and Market in Early Empires. Economies in History and Theory, red. K. Polanyi, CM Arensberg, HW Pearson.

[382] Humphreys, S. C. (1969). History, economics, and anthropology: the work of Karl Polanyi. *History and theory*, *8*(2), 165-212.

[383] Frerichs, S. (2013). From credit to crisis: Max Weber, Karl Polanyi, and the other side of the coin. *Journal of Law and Society*, *40*(1), 7-26.

on taxes or borrowing since they have the ability to print money. This perspective contrasts with mainstream monetary theory and questions conventional beliefs about government interactions with the economy, the nature of money, and the role of taxes. MMT is often used in policy debates to advocate for progressive legislation, such as universal healthcare, by arguing that governments have the capacity to fund such programs without worrying about deficits.[384]

Reforming money

	Money as liability of an issuer	Money as an object
Centralized	Modern Money Theory (MMT)	Sovereign Money aka „Vollgeld“
Decentralized	Regional Currency	Bitcoin

Source: Weber, B. (2019). What is „Modern Money Theory“ (MMT)? SUERF Policy Note | No. 67 (https://www.suerf.org/publications/suerf-policy-notes-and-briefs/what-is-modern-money-theory-mmt/#f8)

[384] Chohan, U. W. (2020). Modern Monetary Theory (MMT): a general introduction.
Ehnts, D. H. (2016). *Modern monetary theory and European macroeconomics*. Taylor & Francis.
Baker, A., & Murphy, R. (2020). Modern monetary theory and the changing role of tax in society. *Social Policy and Society*, *19*(3), 454-469.

13.5. Etymology and Currency Names

The etymology of the term **money** remains a subject of debate, but in the mid-13th century, the term monie denoted funds or means, referring to anything that could be converted into money. Around 1300, it evolved to encompass the concept of coinage, coin, or metal currency. This transition in meaning can be traced to the Old French word monoie, which translates to money, and finds its modern counterpart in the French term monnaie (cash). The Old French term itself has Latin roots, originating from *moneta*, signifying a place for coining money, a mint, or the coined money itself. The Latin term moneta is connected to Juno Moneta, an epithet of Juno, was the protectress of funds. The coining of money occurred near Juno's temple on the Capitoline Hill, possibly where precious metals were stored. The Latin root, monere, meaning advise, warn, or admonish, is incorporated into the term, following the pattern of stative verbs in -ere (similar to monitor as a noun). Traditionally, this association suggests the concept of an admonishing goddess, adding a sensible dimension to the term's meaning. In the case of **fiat money**, the term "fiat" originates from the Latin expression (i) to be, shall (imperative form of facio, facere, to make) or (ii) fieri, signifying an arbitrary act or decree.

The penny, pence, pfennig, pénz, peníze, pieniądz can be traced back to the 8th century and also became known as the Penning, Panni(n)g, Pfenni(n)c, Pfending. The similarity in names can be attributed to the round, plate-like shape of coins, which tends to bend during minting. This resemblance is further linked to the German Pfanne and English **pan**.[385] Smilarlty to this, the yen, yuan literally translates to **round**. In the Qing Dynasty and early Republic periods, the yuan represented a substantial, thick, circular coin crafted from silver, inspired by the design of the Mexican dollar. In other meaning the yen, yuan refers to the piece of eight, and is one of the five branches of the government of the Republic of China.

The origin of the thaler and the dollar dates back to 1520 in the Kingdom of Bohemia. During this time, silver was mined in **Joachimsthal**, and coins were minted from this silver. The coins were named Joachimsthaler after the town, which later evolved in common language to thaler or taler. The town derived its name from Saint Joachim, and it is associated with the German word Thal (spelled as Tal in modern orthography), meaning valley.

[385] Davidko, N. V. (2017). The figurative history of money: Cognitive foundations of money names in Anglo-Saxon. *Studies About Languages*, (30), 56-72.

The word money also finds its Greek equivalent in νώμος (nomos, nomism), derived from the Greek words nomizo (to **think**) and nomos (**law**). This etymological connection implies a concept of legally accepted or fiat money, where the value is recognized by individuals despite lacking intrinsic worth. In Roman culture, the denarius, equivalent to **ten** as (1 denar = 10 as), played a significant role. The Italian denaro and Spanish dinero trace their origins to this Roman denomination. The cent reflects to **hundred** (centum) used in the meaning of a hundredth. The forint came from the from Italian word Fiorino, Florin from the city of Florence (**Firenze**).[386] The gulden associated to **gold**. The krone, kroon means **crown**, similarly the real (reales) reflects to **royal**. The leu, lev, leva is **lion**.

The **Carolingian monetary system** (based on **weights**) divided the libra into 20 solidi (solidus) or 240 denarii (denarius). These units translate in Italian to lira, soldo and denaro; in French to livre, sou and denier; and in English to pound, shilling and penny, in German pfennigs. The name lira comes from the Latin word **libra**, which was the name of a measure of weight; and even means balance, scales. It used in Italy, and now Turkey. In France, the franc referred to a coin worth one livre tournois, and the term originates form the **franks**, the medieval Frank Empire. The name schilling was originally given to the minted gold solidus, it was used in England (till 1990) and Austria, and now in Kenya. From the Italian Grossino (denarius grossus) and the Latin grossus (**big**, thick) came the Groschen; which was the minor coin of the Austrian schilling. The peso also means **wight**, which was introduced in 1497 given to the 8-real silver coin (real de a ocho), which also known as the Spanish dollar or simply dólar.[387]

The official adoption of the name **euro** took place in Madrid on December 16, 1995. Germain Pirlot, a Belgian esperantist and former teacher of French and history, is recognized for proposing the name euro.[388] He sent a letter to the then-President of the European Commission, Jacques Santer, suggesting the name on August 4, 1995. The symbol € is based on the Greek

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[386] The name Firenze is derived from Florentiae, the locative form of Florentia, which itself conveys good luck. The term originates from the Latin word florēre, literally meaning to blossom.

[387] Irigoin, A. (2020). Rise and demise of the global silver standard. *Handbook of the History of Money and Currency*, 383-410.

[388] Martin, V. (2019). Twenty years since the introduction of the euro - Dvadeset godina od uvođenja evra. *Bankarstvo*, *48*(3), 46-65.

letter epsilon (€), with the first letter in the word Europe and with 2 parallel lines signifying stability.[389]

Origins of World Currency Names

Name of Currency	Country	Meaning
Afghani	Afghanistan	derived from country name: "that belongs to or that is from Afghanistan"
Agora / Agorot	Israel (coins)	Old Hebrew: אגורה - Agora. The name was suggested by the Academy of the Hebrew Language and was borrowed from Torah "agorat kessef" meaning "a piece of silver". >אגורות - Agorot is the plural form.
Akşa	Tuva (old)	In Tuvanian and in other Turkic languages: Akşa (pronounced as Aksha) means "Money". It was the currency of the People's Republic of Tuva from 1921 till 1944 when Tuva joined the USSR.
Angolar	Angola (old)	Portuguese: Angolar means "of Angola"
Anna	India, Burma, Pakistan (old coins)	Word is borrowed from Hindi word ānā which has the Sanskrit root aṇu - "small"
Ariary	Madagacar	17th century currency unit consisting of 720 Variraiventy, a piece of silver equal to the weight of a rice grain. Ariary system is a nondecimal one which is divided into 5 Iraimbilaja
At	Laos (coins)	derived from Thai At, a former coin worth one-eighth of a Füang
Auksinas	Lithuania (old)	derived from Auksas: "gold" in Lithuanian (with special thanks to Audrius from Lithuania)
Aurar	Iceland (coins)	Plural of Eyrir from Old Norse "money", probably from Latin Aurum "gold"
Austral	Argentina	Latin: "Australis" - coming from the South, Southern, "Auster" - the South wind
Avo	Macao (coins)	Portuguese shortened from Oitavo "eighth" from Latin Octvus "eighth"
Baht	Thailand	Thai: บาท - Baht is a weight unit of 15 grams - Upto 1940's the currency of Thailand was Tical which was 15 grams of silver
Baiza	Oman (coins)	derived from the Hindi Paisa "a quarter"
Balboa	Panama	Vasco Nunez de Balboa - Spanish explorer who discovered the Pacific Ocean (1475-1519)
Ban / Bani	Romania (coins)	Ban means "money" in Romanian. Bani is the plural form
Birr	Ethiopia	In Amharic (language of Ethiopia) Birr means "to be white"

[389] European Commission (2022). The Euro. https://european-union.europa.eu/institutions-law-budget/euro/design_en

Name of Currency	Country	Meaning
Bolivar	Venezuela	Simon Bolivar - Venezuelan statesman who revolted against Spanish rule, founded Bolivia in 1825 (1783-1830)
Boliviano	Bolivia	Meaning Bolivian in Spanish. The country Bolivia itself was named after Simon Bolivar. (With special thanks to Don Cleveland)
Cash	China (old)	Please see Wen
Cedi	Ghana	In Akan (a native language of Ghana) Cedi is a "small shell"
Cent, Centavo, Centime	Many countries	Latin: "centum" - a hundred, used in the meaning of "a hundredth"
Chon	Korea	Korean: 전 - Chon (also spelled as Jeon) means 1/10. 1 Won is divided into 10 Chon.
Colon	El Salvador, Costa Rica	Cristobal Colon is the Spanish name of Christopher Columbus, explorer who discovered America (1451-1506)
Cordoba	Nicaragua	Francisco Fernandez Cordoba - Spanish explorer who discovered Yucatan (1475-1526)
Cruzado	Brazil	from the Portuguese verb "Cruzar: to bear a cross" - early Portuguese gold or silver coins that beared a cross on reverse
Cruzeiro	Brazil	from Portuguese word: Cruz - "Cross"
Dalasi	Gambia	A Gambian native name
Denar	Macedonia	derived from Latin: "Denarius" - Silver Money
Dinar	Many countries	Dinar is derived from Latin: "Denarius" - Silver Money
Dinara Srebru	Serbia	Serbian: "Silver Dinar"
Dinara Zlatu	Serbia	Serbian: "Gold Dinar"
Dirham	Morocco, UAE	Arabic: درهم - Dirham is derived from the Old Greek word "Drakhme" which came to Latin as "Drachma" meaning "a handful"
Dobra	St.Thomas and Principe	Portuguese: Fold, folding
Dollar	USA and many other countries	from 16th century German: "Thaler" a short form of Joahimsthaler, coin made from metal mined in Joahimsthal, a town now in Czech Republic
Dong	Vietnam	Vietnamese: đồng - literally "copper" or "bronze", in modern Vietnamese Dong means "currency". 1 Dong is divided into 10 Hào.
Drachma	Greece	Old Greek: δραχμή - Drakhme meaning "a handful" derived from the verb δράττω - dratto "to grasp". It is also an ancient unit of weight equal to 60 grains.

Name of Currency	Country	Meaning
Dram	Armenia	Armenian: Դրամ - Dram means "money" which was derived from the Greek word "Drachma".
Ducat	Austria, Germany, Holland and many other countries	Derived from Ducatus - the Latin word for Duchy, which is ultimately derived from Latin Ducis: Duke.
Emalangeni	Swaziland	In Swati language Langeni means money; Emalangeni is used as plural and Lilangeni is singular
Euro	European Union	derived from Europe. This name was the winning choice in a contest in 1996, and was invented by a group of scholars in Spain. (with special thanks to Roberto Cacciamani)
Escudo	Portugal, Cape Verde	Portuguese: Shield displaying coat of arms; from Latin: Scutum
Fen	China	Chinese: 分 - Fen means 1/100. 1 Yuan is divided into 100 Fen. (with special thanks to Kevin Au from Canada)
Fenniga	Bosnia and Herzegovina	derived from the German "Pfennig"
Filira	Croatia	Croatian cognate of the Hungarian Filler.
Filler	Hungary	In Hungarian Filler means "a very small amount of money"
Fils	Bahrain, Kuwait, Iraq, UAE, Yemen (coins)	In Arabic the word Fals or Fils is derived from Latin word Follis meaning "piece of money"
Forint	Hungary	from Italian word "Fiorino" - Florin
Franc	France and other French speaking countries	14th century French word derived from Latin phrase: Rex Francorum - King of the Franks, inscribed on 14th century francs.
Fun	Korea (old coins)	Korean: 푼 - Fun is the cognate of Chinese Fen. 1 Whan, a silver Dollar, was divided into 500 Fun. (with special thanks to Kevin Au from Canada)
Gourde	Haiti	A tropical American evergreen that produces large round gourds
Gros	Czech Rep. (Former Bohemia)	Pronounced as grosh. Name of the coin equal to the one-thirtieth of a Thaler. The word is adopted from Latin (Denarius) Grossus: lit. "A thick coin" where grossus being "thick"
Groschen	Germany and Austria (coins)	Derived from the Czech Gros, ultimately from Latin Grossus
Grosz	Poland (coins)	Grosz was a 3.2 gr. silver coin equivalent of 12 Denarius in the 14th century in Poland. Derived from Latin Grossus
Guarani	Paraguay	Indigenous people living in Paraguay and Bolivia

Name of Currency	Country	Meaning
Gulden	Holland, Surinam, Netherlands Antilles	Dutch: Golden
Haler	Czech Republic (coins)	derived from the German "Haller"
Halier	Slovakia (coins)	derived from the German "Haller"
Hào	Vietnam	Originally Hào is a unit of weight in Vietnam equal to 3.77 miligrams. In currency terms it is used as one tenth of a Dong.
Heller / Haller	Germany (coins)	from SchwäbischHall, town near Stuttgart where the coins were minted
Hryvnia	Ukraine	Hryvnia was the currency unit of the Kievian Rus in the 11th century. Originally the word meant "neck" and used for the valuable things worn around the neck.
Hwan	Korea (old)	Korean: 환 - Hwan derived from Chinese 元 Yuan, was the currency unit in South Korea from 1953 till 1962.
Inti	Peru	a regional word from Quechua, Peru meaning "Sun" the principal god of Inca culture (with special thanks to Massimo Accordi)
Iraimbilanja	Madagacar (coins)	Iriambilanja means "one iron weight" in Madagascar language which is one fifth of an Ariary
Jeon	Korea	Korean: 전 - Jeon (also spelled as Chon) means 1/10. 1 Won is divided into 10 Jeon.
Jiao	China	Chinese: 角 - Jiao means 1/10. 1 Yuan is divided into 10 Jiao. (with special thanks to Kevin Au from Canada)
Karbovanetz	Ukraine, Belarus	The name given to Ruble in Ukraine and Belarus derived from German word Kerbe: To carve, to cut; same as the meaning of the Ruble (with special thanks to Philippe Simon from France)
Khoums	Mauritania (coins)	from Arabic word Khoums "fifth", 1 Ouguiya is divided into 5 Khoums
Kina	Papua New Guinea	Kina means "pearl shell" in Pidgin and Kuanua languages
Kip	Laos	In Lao language Kip means "ingot", a mold in which metal is cast
Kobo	Nigeria (coins)	derived from the English "copper" penny
Kopeck / Kopek	Russia, Belarus, Ukraine (coins)	Kopeika is derived from "kopyo" meaning "spear", from the image of a rider with a spear on the coins minted by Moscow after the capture of Novgorod in 1478
Koruna	Czech Rep., Slovakia	Czech: Crown, head from Latin "Corona"
Kran / Qiran	Iran (old)	Persian قران - Kran was 1000 Dinar or one tenth of a Toman. The Rial replaced Kran in 1932.

Name of Currency	Country	Meaning
Krone	Scandinavian currencies	Latin: Corona - "Crown"
Kroon	Estonia	Latin: Corona - "Crown"
Kuan / Guàn	China (old)	Chinese 贯 - Guàn literally means "string the cash coins together (old Chinese coins had a whole in center)". Guàn is an old unit equal to 1000 coins. (with special thanks to Fung Nai Chuen - moneyissuer from Hong Kong)
Kuan Wen Sheng / Guàn Wen Sheng	China (old)	Chinese 贯文省 / 贯聞省 – Guàn Wen Sheng in Chinese literally means "string the cash coins together". It is an old unit equal to 770 / 800 cash coins used between 1168 - 1279 AD. (with special thanks to Alex Fung - moneyissuer from Hong Kong)
Kuna	Croatia	Croatian : "Marten" - a small furred animal, as its fur was unit of exchange in medieval trading
Kurus	Turkey (coins)	Pronounced as Kurush, derived from the Austrian Groschen, ultimately from Latin Grossus
Kwacha	Malawi, Zambia	In Bemba (Zambian language): "Dawn" symbolizes the Zambian nationalist slogan "New dawn of freedom"
Kwanza	Angola	In Swahili the word literally means "the first fruits", but the currency takes its name from Kwanza River in Angola
Kyat	Myanmar (formerly Burma)	Burmese: Kyat (pronounced as chat) literally means "round" and "flat". Kyat has been used in the 19th century as unit of mass, approximately 16.33 grams.
Lari	Georgia	In old Georgian langauge ლარი - Lari means "hoard" or "property"
Lats	Latvia	Derives from "Latvija": Latvia in Latvian language, Lati and Latu are plural forms (with special thanks to Audrius from Lithuania)
Lek	Albania	Named after 15th century Albanian feudal lord Lek Dukagjini
Lempira	Honduras	Lempira is an Indian Chief who opposed the Spanish
Leone	Sierre Leone	derived from country name
Lepton	Greece (coins)	Lepton (plural Lepta) means "small" or "thin" in Greek
Leu	Romania, Moldova	Romanian: "Lion"
Lev	Bulgaria	Bulgarian: "Lion", the plural form is Leva
Leva Srebrni / Srebro	Bulgaria	Bulgarian: "Silver Leva"
Leva Zlatni / Zlato	Bulgaria	Bulgarian: "Gold Leva"
Lilangeni	Swaziland	In Swati language Langeni means money; li- is the singular prefix and ema- is the plural prefix

Name of Currency	Country	Meaning
Lira	Italy, Turkey, Vatican, Malta, San Marino	Latin: "Libra" - "scales" or "pound"
Lirot	Israel	Hebrew לירות - Lirot is simply plural of לירה "Lira"
Lisente	Lesotho	Plural of Sente which is derived from "Cent"
Litas	Lithuania	Derives from "Lietuva": Lithuania in Lithuanian language, Litai and Litu are plural forms (with special thanks to Audrius from Lithuania)
Loti	Lesotho	In Sesotho (language of Lesotho) Loti is the singular form of Maloti
Lumma	Armenia (coins)	derived from Armenian Lumay "small coin" which comes from Greek Noummos "current coin"
Maloti	Lesotho	Maloti is the name of a mountain chain where there is the highest peak in South Africa
Manat	Azerbaijan, Turkmenistan	derived from the Russian word for coins "manyeta" (spells as "moneta") which comes from Latin Moneta, "mint, money"
Mark	Germany	Old English: "Marc" is a unit of weight of precious metals perhaps from the marks on metal bars.
Marka	Bosnia and Herzegovina	Konvertibilna Marka is derived from German "Mark", established by Dayton Agreement in 1995
Markkaa	Finland	Its etymology is the same as "Mark"
Mecidiye / Medjidie	Turkey (old coins)	Coins minted during the reign of Ottoman Sultan Abdulmecid or Sultan Mecid as more commonly called, which is pronounced as Medjid in Turkish
Metical	Mozambique	Derived from Arabic Mitqal: a weight measuring unit used for gold and other precious metals. Plural in Portuguese is Meticais. (with special thanks to H.E. Marc van den Reeck from Belgium)
Millimes	Tunusia (coins)	from French Millième "thousandth" which comes from Latin Millesimus "thousandth"
Mohru / Mohar	Nepal (old)	Originally the Nepalese word is मोहर् - Mohar derived from Persian Muhr "seal". 1 Mohar (Mohru) was an 8 anna silver piece. Mohru was replaced by Rupee in 1932 at a rate of 2 Mohru equal to 1 Rupee.
Mongo	Mongolia (coins)	Mongolian: мөнгө pronounced as Möngö means "silver". 1 Tugrik is divided into 100 Mongo.
Mun	Korea (old)	Korean: 文 - Mun was a cognate of the Chinese 文 - Wen meaning "cash"
Naira	Nigeria	Altered from the word "Nigeria"
Nakfa	Eritrea	Nak'fa is a town in Eritrea that became the symbol of Eritrean resistance

Name of Currency	Country	Meaning
Ngultrum	Bhutan	Dzongkha: དངུལ་ཀྲམ - Pronounced as "Engultrum". "Ngul" means "silver" and "trum" means "money" in Dzongkha, a Tibetan language.
Notgeld	Germany	German: Notgeld is "emergency money" issued in Germany and Austria during economic crises. Although it is neither a currency unit nor legal tender, notgeld is still a specialised category in bank note collecting.
øre / Öre	Sweden, Denmark, Norway (coins)	from Old Norse Eyrir "gold coin" which comes from Latin Aureus "gold coin" from Aurum "gold"
Ostmark	German controlled Eastern Europe	German: Ostmark is literally "East Mark". The German Dahrlenskassen issued this currency in 1918 to be used in the German controlled Eastern Europe at that time. Later GDR Mark was colloqually called Ostmark.
Ouguiya	Mauritania	a native word in Mauritania, Ouguiya system is nondecimal which is divided into 5 Khoums
Pa'anga	Tonga	Tongan: "Bean shaped pieces"
Pahlavi	Iran	Belonging or related to the Pahlavi Dynasty in Iran
Paisa	India, Pakistan, Nepal and Bangladesh (coins)	derived from Sanskrit word Padamsah which means a "quarter"
Pang	China (antique)	Chinese 朋 - Pang is an antique unit equal to about 10 cypraea shells. Cypraea shells formed the base of the Chinese Moneraty System. (with special thanks to Fung Nai Chuen - moneyissuer from Hong Kong)
Papiermark	Germany	Literally "paper mark" in German. As a result of hyperinflation after WWI Mark became worthless and was called Papiermark. In 1923 Rentenmark was introduced at the exchange rate of 1,000,000,000,000 (1 trillion) Marks.
Para	Turkey (old), Yugoslavia (old)	From Persian word Pare which means "a piece". In Ottoman currency system 1 Kurus was composed of 40 Paras. In today's Turkish Para means "Money".
Pataca	Macao	Portuguese: "Paw"
Pence / Pennies	England	Plural of Penny
Pengő	Hungary (old)	Hungarian: Pengő - meaning "twang". Probably derived from the sound of a coin when thrown.
Pennia	Finland (coins)	derived from the German "Pfennig"
Penny	England	In Old English it was Penig which was derived from Pfenning which means "coin" in Old High German
Perper	Montenegro	Derives from a 21 carat gold coin minted by the Byzantine Emperor Alexis I in 1092. The coin was called in Greek Hyperpyron meaning "Highly refined" whereas in

Name of Currency	Country	Meaning
		Latin Perperum (with special thanks to Philippe Simon from France)
Peseta	Spain	diminutive of Peso
Pesewa	Ghana (coins)	In Akan (a native language of Ghana) Pésewabo is a seed of a plant, formerly used as the smallest gold weight
Peso	Many Spanish speaking countries	Spanish: "Weight"
Peso Oro	Dominican Republic, Paraguay	Spanish: "Gold Peso"
Pfennig / Pfennigs	Germany	derived from Pfenning which means "coin" in Old High German
Pfeniga	Bosnia and Herzegovina	derived from the German "Pfennig"
Piaster / Piastre	Egypt, Lebanon, Sudan, Syria	derived from Italian Piastra "thin metal plate"
Poisha	Bangladesh (coins)	In Bengali Poisha is a "quarter" which is derived from the Hindi "Paisa"
Pound Sterling	England and many other countries	Old English: "Pund" from Latin word: "Pondus" - Weight; Sterling is drived from old English word "Steorra" - Star, referring to a small star on early Norman pennies
Pruta / Prutah	Israel (coins)	Hebrew פרוטה - Pruta means a "coin of small value".
Pul	Afghanistan (coins)	from Persian word Pul which means "money"
Pula	Botswana	In Setswana (the language of Botswana) Pula means "Rain"
Punt	Ireland	Irish Gaelic: Pound
Qepiq	Azerbaijan (coins)	Derived from Russian "Kopeika"
Qindarka	Albania (coins)	In Albanian Qint / Qind (pronounced as chint) is a hundred and Qindarka is "one hundredth"
Quetzal	Guatemala	Spanish: a kind of bird; zool: Pharomachrus mocinno
Rand	South Africa	Named after Witwatersrand a region of northeast South Africa where the richest gold-mining areas in the world are located
Real	Brazil	Portuguese: 1) Royal, 2)Actual, 3)Real
Reichsmark	Germany	German: Reich is literally "realm" or "empire". Reichsmark was the official currrency of Germany from 1924 until 1948.
Renminbi Yuan	P.R. of China	Chinese: 人民幣 - "Renminbi" is the "People's currency"; 元 or 圆 "Yuan" is literally "round object"

Name of Currency	Country	Meaning
Rentenmark	Germany	Bank notes issued by the Rentenbank (Annuity Bank) were called Rentenmark. It was an interim currency introduced to stop the hyperinflation in 1923. In 1924 Reichsmark succeeded Rentenmark.
Rial	Iran, Oman	Persian ریال - Rial is a cognate of the Arabic "Riyal" which is derived from the Spanish word "Real"
Riel	Cambodia	In Khmer language Riel means "the one that shines, shinny"
Riffan	Riff Republic (present Morocco)	Derived from the name of the self-proclaimed state Riff Republic in 1921. The word originates from Arabic الريف - er-Rif meaning "countryside".
Rigsdaler	Denmark (old)	Danish: Rigsdaler - "Thaler of the realm" The currrency of Denmark until 1873 which was divided into 96 Skilling.
Riksdaler	Sweden, Norway (old)	Norwegian/Swedish: Riksdaler - "Thaler of the realm". The currrency of Sweden until 1873 which was divided into 48 Skillingar. Riksdaler courant in Norway was used until 1813 and was divided into 96 Skilling.
Ringgit	Malaysia, Brunei	In Malay Ringgit means "jagged" and was origianally used to refer to the serrated edges of the Spanish silver coins widely used in the area.
Riyal	Many Arabic speaking countries	derived from the from Spanish word "real" meaning "royal"
Rubel	Belarus	derived from the Russian "Ruble"
Ruble	Russia	Russian: Рубль - Rubl "silver bar" from the Russian verb "Rubit"- "to cut up"
Rufiyaa	Maldives	derived from "Rupee"
Rupee	India, Pakistan, Nepal and others	from Sanskrit word "Rupya" - Silver
Rupiah	Indonesia	derived from "Rupee"
Satang	Thailand (coins)	Thai สตางค์ - Satang is one hundredth of a Baht.
Scudo	Papal States, Malta (old)	Italian: Scudo, like Escudo, is also derived from Latin Scutum - "shield". So called because the coins had a shield bearing a coat of arms. Scudo was the currency of the Papal States until 1866 and was divided into 100 Baiocchi.
Sen	Indonesia, Malaysia, Brunei, Japan, Cambodia	derived from "Cent"
Sene	Western Samoa	derived from "Cent"
Seniti	Tonga (coins)	derived from "Cent"
Senti	Estonia (coins)	derived from "Cent"

Name of Currency	Country	Meaning
Shahi	Iran, Afghanistan, India (old)	In Persian, Shahi means that belongs to or related to the "Shah" - King. So the word may be interpreted as "Royal". Also in ancient India and Afghanistan there were rulers called Shahi.
Shahiv	Ukraine	Ukrainian шагів - Shahiv is the plural form of Shah which was originally a silver coin egual to 3 grosz in the Polish-Lithuanian Union in 17th-18th centuries. Shahiv money stamps were used in the Ukrainian People's Republic.
Shekel / Sheqel	Israel	Hebrew: שקל - Shekel literally means "weight" and was used as a unit of weight of around 12 grams. Plural form is Sheqalim.
Shilling	UK (old), Kenya, Uganda, Tanzania etc	from the Old English and Old High German verb "Scilling" - "to divide"
Skilling	Sweden, Norway (old)	Swedish and Norwegian cognate of the Shilling
Sol	Peru	Sol stays for Sun, meaning the "God of Sun" the principal god for Inca culture (with special thanks to Massimo Accordi)
Soldo	Italy (old coins)	Derived from Latin Solidus. Plural form is Soldi.
Solidus	Ancient Rome	In Latin "nummus solidus" means "solid coin". The coin was originally gold therefore it was "solid". The English word "soldier" derives from this word as they were paid with such coins.
Som	Kyrghyzstan	Kyrghyz: "Pure" (gold)
Somoni	Tajikistan	named in the honour of Ismoil Somoni (849-907) - the founder of the first Samanid (Tajik) State
Sou / Sol until 1715	France	Sou is a derivation of Sol which is derived from the Latin Solidus. Sou is a slang word for "money" in French today.
Speciedaler	Norway (old)	Speciedaler was the currency of Norway from 1816 till 1875. It was divided into 120 Skilling. Krona replaced Speciedaler when Norway joined the Scandinavian Monetary Union in 1875.
Srang	Tibet	Srang, pronounced as sung in Tibet language, is a unit of weight equal to Chinese Liang about 37.50 grams (with special thanks to Phub from Bhutan)
Stotinki	Bulgaria (coins)	derived from the Slavic word Sto a "hundred" meaning "hundredth"
Stotin	Slovenia (coins)	derived from the Slavic word Sto a "hundred" meaning "hundredth"
Sucre	Equador	Antonio Jose de Sucre - South American liberator who revolted against Spain, first president of Bolivia (1795-1830)

Name of Currency	Country	Meaning
Sueldo	Spain (old coins)	Derived from Latin Solidus. Also means "salary" in today's Spanish.
Sum / Som	Uzbekistan	pronounced as Som - Uzbek: "Pure" (gold)
Tael	China (old)	Chinese: 兩 - Liyang - a unit of weight equal to 40 grams (of silver). Today the unit is still used for weight measuring. In China it means 50 grams, whereas im Hong Kong 37.429 grams. The English word Tael originates from Malay tahil meaning "grain" which has its root in Arabic dahl - "grain".
Taka	Bangladesh	Bengali word Taka comes from Sanskrit word Tankah.
Tala	Western Samoa	derived from English "Dollar"
Tallero	Eritrea (old)	Derived from German Thaler. It was the currency unit in Eritrea from 1890 till 1921.
Tam / Trum	Tibet	In Tibet language Tam / Trum means "money". (with special thanks to Phub from Bhutan)
Tambala	Malawi (coins)	In Chewa (a Bantu language spoken in Malawi) Tambala is a "cockerel"
Tamlung	Thailand	in Thailand, Tamlung is a unit weight equal to 60 grams.
Tanga	Tajikistan (coins)	derived from the Uzbek Tenga
Tangka	Tibet	Derived from Sanskrit word Tankah.
Tankah	India (old coins)	Sanskrit word Tankah means a "stamped coin" which may be related to Mongolian Tamga "stamp, seal" or Turkic Tenge "balance"
Tenga	Uzbekistan (Buhara - old)	Uzbek (and also other Turkic languages): "balance, scales", from Mongolian Tenkhe, from Chinese Tengse: "balance"
Tenge	Kazakhstan	Kazakh (and also other Turkic languages): "balance, scales", from Mongolian Tenkhe, from Chinese Tengse: "balance"
Tenne	Turkmenistan (coins)	Turkmen (and also other Turkic languages): "balance, scales", from Mongolian Tenkhe, from Chinese Tengse: "balance"
Tetri	Georgia (coins)	Georgian: "white", due to the silver coins minted in ancient Georgia
Thaler	Germany (old), Ethiopia (old)	As the Dollar, from 16th century German: "Thaler" a short for of Joahimsthaler, coin made from metal mined in Joahimsthal, a town now in Czech Republic
Thebe	Botswana (coins)	In Setswana (the language of Botswana) Thebe means "shield"
Tical	Thailand, Burma (old)	Burmese: Tical is a small unit of weight roughly equal to 5 grams.
Toea	Papua New Guinea (coins)	Toea is a very valuable shell used for trading found in the depths of the ocean
Tolar	Slovenia	Derived from the German word "Thaler" as the "Dollar".

Name of Currency	Country	Meaning
Toman	Iran (old)	Persian: تومان - Toman: A gold coin formerly used in Persia worth 10,000 Dinars, the word comes from Turkish Tümen which ultimately comes from Mongolian Tümen meaning "a unit of ten thousand"
Tugrik	Mongolia	Mongolian: төгрөг pronounced as Tögrög - meaning "round"
Wen	China (old)	Chinese: 文 - Wen means "cash". This unit is shown in the catalogs as Cash. The Wen notes are the first officially circulating banknotes in the world dating as back 960 A.D. In 1889 Yuan was introduced at the rate of 1000 Wen.
Whan	Korea (old)	Korean: 圜 - Whan was equal to 5 Yang later became Won.
Won	Korea	Korean: 원 or 전 - Won (pronounced like on) derived from Chinese 元 Yuan
Xu	Vietnam	Xu is derived from the French Sou
Yang	Korea (old)	Korean: 兩 - Yang is the cognate of Chinese 兩 - Liyang. Yang was the currency unit of Korea between 1892-1902.
Yen	Japan	Japanese: 円 - Yen - from Chinese 元 Yuan
Yuan	China	Chinese: 元 or 圓 - Yuan: literally "a round object"
Zaire	Congo Democratic Republic, Zaire	The word Zaire is derived from the Kikongo (an ethnic language in Congo) word nzere meaning "river". It refers to Congo River where the country takes its name. Congo originally means a "hunter".
Zloty	Poland	Polish: Golden

Source: Yalcinkaya, O. (2010). Origins of World Currency Names. (https://www.theibns.org/joomla/index.php?option=com_content&view=article&id=5&Itemid=28)

14. Antiquity

Around 9000 BC, during the **barter system**, people exchanged goods directly to meet their needs. This rudimentary exchange system highlighted the absence of a standardized medium of exchange, with transactions relying on the mutual agreement of parties involved.

The study of **monetary systems and currencies** traces back to antiquity, where early civilizations developed innovative forms of exchange to facilitate trade and commerce. In the ancient world, commodity money emerged as a foundational concept, with various materials and objects serving as mediums of exchange. From ring money and metallic currencies to stone money and cowrie shells, societies utilized a diverse array of materials to represent value and facilitate transactions. In addition to physical forms of currency, antiquity also witnessed the development of records and tokens as means of accounting and record-keeping. Notable among these were tallies, particularly split tallies, which were used to track debts and transactions. The evolution of currencies during antiquity also encompassed the introduction of official currencies, coined metal, and various forms of metal coinage. The adoption of bimetallism and monometallism further contributed to the diversification of monetary systems, while innovations such as leather money added to the variety of currency types in circulation. By delving into these historical perspectives, we gain insight into the foundations of modern monetary systems and the enduring importance of currencies in shaping human societies.

According to ancient **Greek philosophy**, particularly Aristotle, money – with in **oikonomia** – was created for the purpose of trade, intended to be used in exchange; but not to increase at interest.[390] It encompasses the prudent and rational management of resources within the household, including finances, property. Money and resources are managed in a way that promotes the welfare of family members, ensures their security, and fosters harmony within the household. And this term interest, which means the birth of money from money, is applied to the breeding of money because the offspring resembles the parent. Wherefore of all modes of getting wealth this is the most unnatural. By usury it multiplies itself. So – in the **chremtistike** – when money is lent out at usury, it is not being used according to its original purpose, therefore lending money at interest is among the most unnatural forms of management. It refers to the acquire wealth purely for its own sake, often

[390] Aristotle Politics trans. Benjamin Jowett. (2007). I, 9, 1256b, 40-42; I, 9, 1257b, 31-1258a, 5; I, 11, 1258b, 33-34; II, 5, 1263a, 40-1263b, 4; IX, 1, 1256b, 40-41;

without regard for its broader social or ethical implications. In chrematistics, wealth is often pursued as an end in itself, divorced from its original purpose of facilitating human flourishing. Money is seen as an end in itself, and the pursuit of profit is prioritized over considerations of ethical or social responsibility.[391]

In ancient **China**, **Confucianism** emphasized social harmony and moral integrity over material wealth. Money was seen as a necessary tool for sustaining life and fulfilling social obligations, but excessive pursuit of wealth was discouraged if it led to moral degradation or social disruption. **Taoism** promoted a simpler and more natural way of life, often advocating for detachment from worldly desires, including the pursuit of material wealth. Money was viewed as a means of exchange rather than an end in itself. Taoist philosophy emphasized contentment with one's lot in life and avoiding excessive accumulation of wealth. Traditional Chinese culture valued frugality, thriftiness, and humility. Accumulation of wealth was not discouraged per se but was often tempered by social expectations and moral considerations.[392]

14.1. Commodity Money

By 2500 BC, the introduction of **commodity money** represented a pivotal shift. In this system, the value of the currency was intrinsically tied to the material from which it was crafted.[393] This marked a departure from the barter system, providing a more standardized and widely accepted form of currency. This category encompassing various distinctive goods selected from common commodities, includes items such as gold, silver, copper, salt, pepper, tea, gemstones, shells, pearls, alcohol, silk, candy, cocoa beans, cowrie shells, barley, and even cigarettes, notably used as currency in prison environments. These items exhibit several key characteristics. Each item within the realm of commodity money is recognized for its unique and pivotal role in economic exchanges. Despite their compact size, even small quantities of these items carry considerable economic value, facilitating ease of trade. Many of these goods are relatively scarce, contributing to their perceived

[391] Dierksmeier, C., & Pirson, M. (2009). Oikonomia versus chrematistike: Learning from Aristotle about the future orientation of business management. *Journal of Business Ethics*, *88*, 417-430.
[392] Lin, C., Peach, T., & Fang, W. (Eds.). (2014). *The History of Ancient Chinese Economic Thought*. Routledge.
[393] Lannoye, V. (2023). *The history of money for understanding economics*. Le Cri édition, Createspace Independent Publishing Platform

value and desirability. These commodities offer divisibility, allowing them to be broken down into smaller units to accommodate various transactional needs. Items falling under the category of commodity money typically exhibit uniformity, possessing standardized qualities that enhance their acceptance and usability. Another noteworthy characteristic is the durability of these commodities, ensuring that their value endures over time and across various transactions. The transportability of these items is a crucial aspect, facilitating their movement and exchange across different regions.

Within the broader classification of commodity money, one encounters subcategories that denote specific physical forms and historical roles. **Ring money**, or ring-shaped currencies, evoke distinctive cultural practices, while **metallic currencies**, represent a transition towards standardized metal coins. Additionally, **stone money**, stone currencies, encapsulate a unique historical form where large stones serve as symbols of value.

Around 1200 BC, **cowrie shells**, initially used for ornamental purposes, transitioned into a recognized form of currency during the Shang Dynasty in China.[394] This shift underscored the cultural and geographical nuances influencing the development of various forms of money. By 1000 BC, the advent of **metallic currency** became apparent, as China produced bronze and copper cowrie imitations. This marked an early instance of metal being recognized as a valuable medium of exchange, laying the groundwork for the future development of metallic coinage. Around 800 BCE, the use of **uncoined** metal as a form of currency represented a notable departure from shaped or minted coins. This practice involved the direct use of metals in trade transactions, emphasizing their intrinsic value without the need for standardized coinage.

14.2. Money Substitutes, Payments, Records

In the ancient empires of Egypt, Babylon, India, and China, the establishment of **warehouses** within **temples** and palaces was a common practice. These storage facilities played a crucial role in safeguarding various goods. Notably, **clay tokens and other materials** were employed within these warehouses to serve as tangible evidence for claims pertaining to the stored

[394] Boomgaard, P. (2008). Early globalization: Cowries as currency, 600 BCE-1900. In *Linking Destinies* (pp. 13-27). Brill.

commodities.[395] The use of such tokens can be seen as an early form of representative money, indicating ownership or entitlement to specific goods. While these tokens were integral to the administrative and accounting systems of the time, there is a lack of definitive evidence supporting their active involvement in commercial trade. The surviving historical records suggest that their primary purpose was centered around internal administration, record-keeping, and ensuring accountability within the complex economic structures of these ancient civilizations. The utilization of these tokens within the confines of temples and palaces underscores the close connection between economic practices and religious or administrative institutions. The tokens not only represented material wealth but also held symbolic significance within the cultural and social contexts of these civilizations. This intricate interplay between commerce, governance, and cultural practices provides valuable insights into the early forms of monetary systems and the multifaceted roles that symbolic representations played in ancient economies.

A clay **financial record**, detailing a transaction involving the sale of a male slave and a building in Shuruppak, is preserved on a Sumerian tablet dating back to approximately 2600 BC. This ancient document provides insights into economic activities and societal practices during that era, shedding light on the significance of such transactions in the historical context of Shuruppak.

14.3. Tallies

The **split tally**, or tally stick, represents an ancient tool utilized for recording and memorizing information, particularly numbers and messages, playing a multifaceted role in various aspects of human societies. In its earliest forms during the Upper Paleolithic period, these tallying devices took shape as incised animal bones. Examples include the Lebombo bone, dating between 44,200 and 43,000 BC, a wolf bone from Czechoslovakia dating back to 30,000 BCE, and the Ishango bone from Congo, estimated to be between 18,000 and 20,000 BC.[396] These artifacts serve as tangible evidence of early human attempts to document and organize numerical information. References from historical figures like Pliny the Elder (23–79 CE) indicate the

[395] Bennison-Chapman, L. E. (2021). 8. A ‘token’story? The small geometric clay objects at Neolithic Çatalhöyük. *The Matter of Çatalhöyük: Reports from the 2009-2017 Seasons*, 193. Palka, J. W. (2021). Not just counters: clay tokens and ritual materiality in the ancient Near East. *Journal of Archaeological Method and Theory*, *28*(2), 414-445.

[396] Langmia, K. (2021). *Black Lives and Digi-Culturalism: An Afrocentric Perspective*. Rowman & Littlefield.

importance of selecting specific types of wood for crafting tally sticks. This recognition underscores the significance attached to the material qualities of these devices.

The concept of a **single tally**, such as messenger sticks or knotted cords, introduces additional dimensions to the use of these mnemonic tools. Inuit tribes employed messenger sticks, while the Incas utilized the intricate knotting system known as khipus or quipus. Herodotus (485–425 BC) documented the use of a knotted cord by Persian King Darius I (521–486 BC), exemplifying the diverse adaptations of tallying methods across different civilizations. Overall, the historical trajectory of split tallies reflects their evolution as essential instruments for communication, record-keeping, and the facilitation of transactions, showcasing their enduring significance in human history.[397]

14.4. Currencies

Around 700 BC, a pivotal moment in the history of currency unfolded with the introduction of the **first official currency** in Lydia, where King Alyattes played a significant role in issuing these coins. This marked a crucial departure from earlier forms of exchange and laid the groundwork for more sophisticated monetary systems.

In response to challenges associated with unmarked metal coin exchange, around 700 BC, standardized stamped, **coined metal** was introduced. These coins, crafted with specific weights and values, were designed to facilitate smoother transactions in commodity purchases, addressing issues of uncertainty in unmarked exchanges. By 600 BC, another milestone was reached with the transition to **full-bodied metallic coins**. Crafted from precious metals, these coins held an intrinsic value that aligned with the engraved metal itself, establishing a more direct relationship between the material and monetary value. King Croesus of Lydia (now Turkey) was one of the first to strike and circulate gold coins around 564 BCE – hence the expression: rich as Croesus.[398] Around 500 BCE, a new phase emerged with

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[397] Heidari, A., Jafari Navimipour, N., & Unal, M. (2022). The history of computing in Iran (Persia)—since the achaemenid empire. *Technologies, 10*(4), 94.

[398] Payne, A. (2023). The Kingdom of Lydia. *The Oxford History of the Ancient Near East: Volume V: the Age of Persia, 3*, 174.

Britannica. A Brief (and Fascinating) History of Money. (https://www.britannica.com/story/a-brief-and-fascinating-history-of-money) the introduction of **token metallic coins**. The face value of these coins surpassed their intrinsic worth, introducing a symbolic or representative value that played a role in shaping perceptions of currency.

Metal coinage, spanning from the 8th century BC to the 13th century CE, encompassed a variety of metals such as copper, bronze, silver, gold, and electrum. For instance, Sparta minted iron coins in an attempt to discourage its citizens from engaging in foreign trade. In ancient Rome, bronze coins were initially prevalent, categorized as æs rude and æs signatum. The æs rude represented a large, unshaped bronze of considerable weight, while æs signatum denoted marked bars with a predetermined weight of 5 kilograms.

Over time, there was a transition towards the widespread use of gold and silver coins as they best satisfied the functions and requirements of currency. The adoption of the touchstone for assessing fineness and purity contributed to the establishment of standardized coinage. The era witnessed the coexistence of **bimetallism**, where both precious metals functioned as currency, and **monometallism**, where only one precious metal served as money.[399] Gresham's Law, stating that bad money drives out good money, was applicable in these contexts. Metal coins were characterized by homogeneity and adhered to weight standards, emphasizing the principles of standardized coinage. Coin minting became a **sovereign or state monopoly**, but challenges such as wear and tear, clipping, and transportation complexities arose. Alloying metals led to the introduction of distinct coin denominations, addressing specific challenges associated with the production and circulation of metal currency.

Around 200 BC, the currency system evolved further with the prominence of **private coinage**. Entities beyond the state began issuing currency units, reflecting a decentralized approach to currency issuance and expanding the sources of currency in circulation. In 118 BC, an intriguing development occurred in China with the introduction of **leather money** known as jiaozi. This marked the first documented type of banknote, laying the foundation for the eventual evolution of paper currency and demonstrating the innovative strides in monetary practices.[400]

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[399] Officer, L. H. (2022). Metallic Standards. In *Essays in Economic History: Purchasing Power Parity, Standard of Living, and Monetary Standards* (pp. 219-248). Cham: Springer International Publishing.

[400] Gruen, S. (2004). The Chinese Monetary System: From Ancient Times to the Early Modern Period. *Econ 401 Money and Banking Dr. Herbener*.

Amelung, I. and Schefold B. (2021). European and Chinese Histories of Economic Thought: Theories and Images of Good Governance. Routledge Studies in the History of Economics.

15. Middle Ages

The Middle Ages was a period marked by significant developments in economic and monetary systems. During this time, currencies played a crucial role in shaping trade, commerce, and political power across Europe and beyond. The emergence of various currencies, including coinage issued by rulers such as the Holy Roman Emperor, Venice, and Florence, exemplified the diverse monetary system of the era. Beyond Europe, innovations in currency systems were also evident, with notable examples including the use of paper money in China and the widespread circulation of the Spanish dollar in international trade networks. These currencies facilitated economic exchanges and contributed to the flourishing of commerce and cultural exchange during this period. In addition to physical currencies, the Middle Ages saw the evolution of records, cash substitutes, and payment mechanisms to facilitate transactions. From flying money and representative money to wampum and double-entry accounting, these innovations enabled efficient and secure exchanges of goods and services. Other financial instruments such as letters of credit, bills of debt, cambium, bills of exchange, and split tallies further enhanced the sophistication of medieval financial systems.

15.1. Currencies

Around 1100, the notion of fiat money gained prominence, referring to currency whose value is maintained solely by the authority of the government or through an agreement among parties engaged in exchange.

Coinage

In the year 800, **Charlemagne**, known as Charles the Great or Carolus Magnus, implemented significant reforms as the **Holy Roman Emperor**, ushering in a new era of standardized coinage. One notable initiative was the introduction of the silver penny, or pfanne, marking a pivotal moment in currency development. The Carolingian monetary system divided the libra (lira, livre, pound) into 20 solidi (solidus, soldo, sou, shilling) or 240 denarii (denarius, denaro, denier, penny). From 794 to 1200, the penny stood as the singular coin denomination in Western Europe.[401] However, coins minted

[401] Ubl, K. (2021). The Limits of Government: Wergild and Legal Reforms under Charlemagne. In *Wergild, Compensation and Penance* (pp. 240-260). Brill.

without the oversight of bishops, cities, feudal lords, and fiefdoms experienced a decline in value. By 1160, **Venetian** coins, lacking proper regulation, contained a mere 0.05 grams of silver, highlighting the challenges associated with unregulated coinage.[402]

The mid-13th century witnessed the introduction of larger-sized coins, altering the physical attributes of currency and influencing the dynamics of economic transactions. In the year 1252, the **Florentine Florin** (Latin: florentinus, of Florence) was introduced and remained in circulation until 1533.[403] This coin (valued at approximately 140 modern-day American dollars) played a pivotal role in shaping the monetary concepts of its time. This influence is reflected in the Hungarian term forint, formerly known as florint, particularly during the reign of **Charles I** of Hungary. The **Venetian sequin**, the largest gold coin weighing 192.5 grams, was minted from 1284 to 1797.[404] Notable periods of significant debasement occurred during 1340–1360 and 1417–29, marked by the cessation of minting smaller denominations. **Frederick II** is credited with the reintroduction of gold coins during the 13th century, a period coinciding with the Crusades. The 14th century saw Europe transitioning to a gold-based coinage system, exemplified by Vienna's adoption of gold coins in 1328. Notably, the 1424 St. Gallen silver Plappart holds historical significance as the first European coin to denote the year of issue using Arabic numerals, marking a noteworthy development in numismatic practices.[405]

Paper Money

In the historical context of **China**, the Tang Dynasty (618–907) witnessed a transformative phase with the advent of paper currency. During this era, the issuance of banknotes and deposit/credit notes, commonly known as jiaozi, became prevalent. Moving forward to 806, a significant milestone in the history of currency unfolded with the first recorded use of **paper money** in China, marking a transformative development in the evolution of currency

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[402] Rovelli, A. (2023). Patrimonium Beati Petri. Coin Issue and Circulation in Northern Lazio (Eleventh-Fourteenth Centuries). In *Coinage and Coin Use in Medieval Italy* (pp. IX_1-IX_22). Routledge.
[403] Maxson, B. J. (2023). A Short History of Florence and the Florentine Republic. *A Short History of Florence and the Florentine Republic*, 1-288.
Strathern, P. (2021). *The Florentines: From Dante to Galileo*. Atlantic Books.
[404] Hasluck, F. W. (1912). On Imitation of the Venetian Sequin struck for the Levant. *Annual of the British School at Athens, 18,* 261-264.
[405] Levinson, R. A. (2007). *The Early Dated Coins of Europe, 1234-1500*. Coin & Currency Institute.

as a medium of exchange. The impetus for these paper instruments emerged from the pragmatic need of traders and wholesalers to alleviate the logistical challenges posed by the sheer bulk of copper coins during extensive commercial transactions. Credit notes, a key component of this monetary evolution, often came with a limited duration and entailed a discounted value in comparison to the initially promised amount. This characteristic provided a nuanced flexibility in the dynamics of trade transactions.

The subsequent **Song Dynasty** (960-1279) marked a pivotal moment with the introduction of printed paper currency, representing a departure from traditional metallic forms. By the early 12th century, an astonishing 26 million banknotes were issued in a single year. The Mongol **Yuan Dynasty** (1271–1368) presented a complex monetary scenario, as the need to finance costly wars led to extensive money printing, contributing to inflation. This period also introduced the yuan or jüan as a currency, a legacy that endures in contemporary China as the Chinese yuan or renminbi. Contrastingly, during the **Ming Dynasty** (1368–1644), there was a discernible hesitation towards embracing paper currency. The initial rejection of these financial instruments prompted a return to the use of copper coins, underscoring a cautious and deliberate approach to monetary innovations introduced in preceding dynasties.[406]

In 1296, **Ser Marco Polo**, the Venetian, describing his travels in China, made a fleeting reference to paper used as money in the Chinese Empire: how the great Kaan causeth the bark of trees, made into something like paper, to pass for money over all his country. Europeans found the idea so preposterous and unbelievable, the very credibility of his accounts of having travelled and lived in China were questioned.[407]

He makes his money after this fashion. He makes them take of the bark of a certain tree, in fact of the mulberry tree, the leaves of which are the food of the silkworms, these trees being so numerous that whole districts are full of them. What they take is a certain fine white bast or skin which lies between the wood of the tree and the thick outer bark, and this they make into something resembling sheets of paper, but black. When these sheets have been prepared they are cut up into pieces of different sizes. All these pieces of paper are issued with as much solemnity and authority as if they were of pure gold or silver; and on every piece a

[406] Amelung, I. and Schefold B. (2021). European and Chinese Histories of Economic Thought: Theories and Images of Good Governance. Routledge Studies in the History of Economics.

[407] Marco Polo and Rustichello of Pisa, Book Second, Part I, Chapter XXIV: How the Great Kaan Causeth the Bark of Trees, Made into Something Like Paper, to Pass for Money over All His Country, in *The Book of Ser Marco Polo: The Venetian Concerning Kingdoms and Marvels of the East*, translated and edited by Colonel Sir Henry Yule, Volume 1 (Murray, J. 1903.)

variety of officials, whose duty it is, have to write their names, and to put their seals. And when all is prepared duly, the chief officer deputed by the Khan smears the seal entrusted to him with vermilion, and impresses it on the paper, so that the form of the seal remains imprinted upon it in red; the money is then authentic. Anyone forging it would be punished with death.

With these pieces of paper, made as I have described, he [Khubilai Khan] causes all payments on his own account to be made; and he makes them to pass current universally over all his kingdoms and provinces and territories, and whithersoever his power and sovereignty extends. And nobody, however important he may think himself, dares to refuse them on pain of death. And indeed, everybody takes them readily, for wheresoever a person may go throughout the Great Kaan's dominions he shall find these pieces of paper current, and shall be able to transact all sales and purchases of goods by means of them just as well as if they were coins of pure gold. And all the while they are so light that ten bezants' worth does not weigh one golden bezant.

When any of those pieces of paper are spoilt – not that they are so very flimsy neither – the owner carries them to the Mint, and by paying three percent on the value he gets new pieces in exchange. And if any Baron, or anyone else soever, hath need of gold or silver or gems or pearls, in order to make plate, or girdles, or the like, he goes to the Mint and buys as much as he list, paying in this paper-money.

The Book of Ser Marco Polo
Book Second, Part I, Chapter XXIV

Around 1320, around 35 domestic and foreign currencies circulated in Hungary, including unmarked silver. In 1325, a gold currency system modeled after the Florentine pattern was introduced by minting gold florins. The **Nagyszombat Agreement** of 1327 stipulated a **currency union** in both Hungary and Czechia and adopted a common mixed gold-silver currency system. Later, in 1335 the Congress of Visegrád convened the monarchs of the Central European kingdoms, including Charles Robert I of Hungary, John of Luxembourg, King of Bohemia, and Casimir III, King of Poland.[408] It addressed issues of mutual military assistance, throne-related matters and established agreements, fostering economic and political collaboration.

Pieces of eight, pieces of eight!
screamed Captain Flint's parrot
Robert Louis Stevenson:
The Sea Cook: A Story for Boys
Treasure Island (1883)

Soon, after the great discoveries, in 1497, the **Spanish dollar** emerged as a pivotal development in the realm of currency, under Ferdinand and Isabella as the Spanish monetary unit. This silver coin, boasting a diameter of

[408] Rácz, G. (2013). The Congress of Visegrád in 1335: Diplomacy and Representation. *The Hungarian historical review: new series of Acta Historica Academiae Scientiarum Hungaricae*, *2*(2), 261-287.

approximately 38 mm, in a fineness of 134/144, and held a value equivalent to eight Spanish reals. Widely recognized as the first international currency, it was commonly referred to as real de a ocho or simply dólar.[409]

15.2. Money Substitutes, Payments, Records

In the year 785, the innovative concept of **flying money** surfaced, describing the use of cash transfers for long-distance transactions without the need for physical transportation. Concurrently, **representative money** emerged, denoting a form of currency representing value but possessing minimal or no intrinsic worth of its own. Examples of such currency include checks and promissory notes. Moving forward to 1535, the indigenous peoples of North America introduced another distinctive form of currency known as wampum. Comprising bead strings crafted from shells, **wampum** served dual roles as both a form of ornamentation and a medium of exchange, reflecting cultural and economic importance.[410]

Bill of Exchange

While the term bill of exchange is typically associated with later periods, financial instruments with similar functions did exist in the medieval era. These weren't standardized like their later counterparts, but they played a crucial role in facilitating trade and credit across vast distances. Merchants would use **letters of credit** issued by trusted intermediaries, authorizing payment to another merchant in a different location. **Bills of debt** documented loans or credit extended between merchants, specifying repayment terms and often mentioning other forms of security. The **cambium** encompassed various financial instruments including exchange orders, allowing merchants to settle debts in different currencies without physically transporting large sums of money.[411] The lack of standardization and reliance on personal trust limited the widespread adoption and security of these instruments. The rise of

[409] Irigoin, A. (2020). Rise and demise of the global silver standard. *Handbook of the History of Money and Currency*, 383-410.
Pond, S. (1941). The Spanish Dollar: The World's Most Famous Silver Coin. *Business History Review*, *15*(1), 12-16.
[410] Herman, M. W. (1956). Wampum as a money in Northeastern North America. *Ethnohistory*, *3*(1), 21-33. and Gentle, P. F. (2022). Some Early Forms of Money.
[411] Bell, A. R., Brooks, C., & Moore, T. K. (2017). Cambium non est mutuum: exchange and interest rates in medieval Europe. *The Economic History Review*, *70*(2), 373-396.

banking institutions and merchant guilds in later centuries paved the way for more formalized and transferable bills of exchange, which gained prominence around the 12th and 13th centuries.[412]

Commercial **bills of exchange** gained prominence towards the end of the medieval era, notably influenced by the Crusades and the expanding European trade networks.[413] This financial instrument became a vital component in the flourishing trade of commodities such as textiles, woolen garments, wine, lead, and more. Particularly in the dynamic trade hubs of Italy and Flanders, as well as in the Levant, the inherent challenges of transporting substantial sums of money over vast distances prompted merchants to embrace bills of exchange.[414]

Originally, these bills were meticulously recorded in person. However, they swiftly transitioned into written orders, transforming into a formalized mechanism for compelling debtors to settle specified amounts with the current possessor. This evolution facilitated a more streamlined and secure approach to financial transactions in the increasingly complex and interconnected European trade. Goods were exchanged against these bills, essentially signifying a commitment from the buyer to make the payment at a predetermined future date. This practice, in essence, introduced a form of credit into commercial dealings, contributing to the evolution of financial instruments and systems.

Pros and Cons of Bill of Exchange

Advantages	Disadvantages
• Provides a formal agreement for credit • Offers flexibility in payment terms • Can serve as a negotiable instrument • Enhances liquidity by allowing for trade finance • Helps to establish credibility for businesses	• Requires trust between parties involved • Risk of default or non-payment by the drawee • Requires acceptance and endorsement by parties • May incur additional fees or charges in processing

Source: own compilation of the author

De Roover, R. (1969). The Cambium maritimum contract according to the genoese notarial records of the twelfth and thirteenth centuries. *Explorations in Economic History*, *7*(1-2), 15-33.

[412] Read, F. (1926). The Origin, Early History, and Later Development of Bills of Exchange and Certain Other Negotiable Instruments. *Can. B. Rev.*, *4*, 440.

[413] Rubin, J. (2010). Bills of exchange, interest bans, and impersonal exchange in Islam and Christianity. *Explorations in Economic History*, *47*(2), 213-227.

[414] Bolton, J., & Guidi-Bruscoli, F. (2021). 'Your flexible friend': the bill of exchange in theory and practice in the fifteenth century. *The Economic History Review*, *74*(4), 873-891.

The preference for bills of exchange over the physical transportation of cash was driven by the considerable risks associated with carrying substantial amounts of currency during the medieval period. Notably, bills of exchange could be redeemed in a different city, providing a level of flexibility and safety not afforded by physical currency. Beyond their immediate utility in facilitating trade, bills of exchange became a pivotal source of commercial credit. This mechanism played a significant role in the broader sense of new money creation, contributing to the liquidity and dynamism of medieval economies.

Split Tally

In addition to its prevalence in the medieval period due to a shortage of coins and widespread illiteracy, the **split tally** served as a crucial tool for financial transactions. Crafted from hazelwood sticks with an incision system, this technique ensured a practical solution to the challenges of record-keeping and evidence in economic exchanges. Notches were carved into the stick to represent the quantity or value involved in the transaction. Different sizes or placements of notches could signify different units (e.g., large notches for pounds, small notches for shillings). The stick was then split lengthwise down the middle, creating two identical pieces, each with matching notches. The split tally system, with its unique division into stock and foil, provided a tangible and secure means of documenting financial transactions. The stock, representing the longer portion, was given to the party providing the funds, while the foil, the shorter segment, was handed to the recipient. This physical division not only served as a proof of the transaction but also reduced the risk of manipulation or disputes, contributing to its acceptance as legal evidence in medieval courts. Merchants, farmers and bankers recorded trade agreements, loans and credits,[415] landowners paying rent to their lords, and taxes collected by authorities.[416] The expression "keeping good tally" comes from this practice, signifying accurate record-keeping. Accounts from Marco Polo (1254–1324) provide insights into the widespread use of tally sticks in China during the medieval period, highlighting their global adoption in diverse cultures for various purposes.

[415] Mayumi, K. T., & Renner, A. (2023). The First Unnatural Power Given to Commercial Banks: Creation of Money Out of Nothing. In *Reconsidering the Privileged Powers of Banks: Foundations of Sovereign Money, Wealth and Real Capital for Sustainability* (pp. 17-41). Singapore: Springer Nature Singapore.

[416] Wray, L. R. (2016). Taxes are for redemption, not spending. *World Economic Review*, *7*, 3-11.

Pros and Cons of Split Tally

Advantages	Disadvantages
• Simple and easy to implement • Requires minimal resources • Provides a basic record of transactions • Suitable for small-scale businesses • Can be used without specialized training	• Prone to errors and inaccuracies • Limited scalability • Lacks detailed financial information • Difficult to track complex transactions • May not meet regulatory or reporting standards

Source: own compilation of the author

Accounting

In the past seven centuries bookkeeping has done more to shape the perceptions of more bright minds than any single innovation in philosophy or science.

Alfred W. Crosby
The Measure of Reality (1996) 221.

Fra Luca Bartolomeo de **Pacioli** (Paciolo) (1445-1517) was an Italian mathematician and Franciscan friar. His book, the Summa de arithmetica, geometria, proportioni et proportionalita from 1494, contains the first description of the Venetian method of bookkeeping, which later became known as **double-entry accounting**.[417] For this reason, he is known as the father of accounting. He documented the rules and principles of double-entry bookkeeping in a clear and accessible way, making it understandable to a wider audience.

On this day, we have (or I have) bought from Filippo de Ruffoni of Brescia, twenty pieces of white Bresciani cloth. They are stored in Stefano Tagliapietra's vault and are of so many arm lengths apiece, as agreed upon. They cost twelve ducats each and are marked with a certain number. Mention if the cloth is made of triple warpcord, four to five arm lengths square, wide or narrow, fine or medium, whether Bergamene, Vicenzan, Veronese, Paduan, Florentine, or Mantuan. State whether the transaction was made entirely for cash, or part only for cash and part on time. State when the balance is due or whether payment was partly for cash and the remainder in goods.

Luca Pacioli, Summa de arithmetica, 40.

This system records every financial transaction twice, with equal debits and credits in different accounts. This creates a **balanced equation** where

[417] Pacioli, L. (1494) Summa de arithmetica geometria, proportioni et proportionalita
Ulivi, E. (2021). Benedetto da Firenze" Trattato d'abacho", Giovanni del Sodo" Libro d'abaco", Luca Pacioli" Summa de arithmetica geometria proportioni et proportionalita". In *La biblioteca di Leonardo* (pp. 7-549). Giunti.
Cordeiro, F. F. (2020). Accounting & Finance, a close relationship. *Revista Contabilidade & Finanças*, *31*, 385-391.

every debit has a corresponding credit, ensuring the accuracy and completeness of financial records. This method ensures that the **accounting equation** (Assets = Liabilities + Equity) remains balanced at all times, providing a comprehensive and accurate view of a company's financial position. The system ensures that every transaction is recorded twice, minimizing errors and omissions. By categorizing transactions into different accounts, it allows for better understanding of a company's financial health and performance. Financial statements generated through double-entry bookkeeping provide valuable information for management to make informed decisions. Nowadays countries require businesses to maintain financial records using double-entry accounting for legal and regulatory purposes. On the other hand, it was originally a time-consuming and labor-intensive process, relying on manual calculations and paper records. Initially focused on recording financial transactions for merchants and traders, it needed adaptation for more complex business models.

While the core principles remain the same, the system has evolved significantly over time. Technology has automated many calculations and streamlined record-keeping with spreadsheets and accounting softwares. In the **accrual accounting** system, the income and expenses are recorded when they are earned or incurred, regardless of cash flow. The International Financial Reporting Standards (IFRS) are a set of globally recognized accounting standards promoting comparability across different countries.

16. 17-19th Centuries

The 17th to the 19th centuries marked a period of profound transformation in monetary systems and financial institutions across Europe and the United States. Central to this era were the developments surrounding currencies and the establishment of the gold standard, which shaped the foundations of modern monetary policy and international finance. In Europe, the issuance of the first European banknotes, particularly in Sweden and the United Kingdom, played a pivotal role in the evolution of monetary systems. The New England theory and currency theory informed debates surrounding currency issuance, culminating in legislative actions such as the Coinage Act and Peel's Bank Charter Act. Similarly, in the United States, the Coinage Acts and the Specie Payment Resumption were significant milestones that influenced the nation's monetary policies and practices. The adoption and spread of the gold standard further standardized currency values and facilitated international trade and financial stability. In tandem with these currency developments, innovations in cash substitutes and payment mechanisms revolutionized financial transactions during this period. From traditional methods such as split tallies to modern advancements like the telegraph system and transatlantic telegraph cable, the means of conducting business underwent significant changes. Electronic fund transfers and the establishment of institutions such as the Institute of Chartered Accountants further streamlined financial operations and contributed to the professionalization of accounting practices.

16.1. Currencies and Gold Standard

A prototype of **paper money** can be found in Naples, where public banks issued fedi di deposito and fedi di credito. Fedi di deposito served as receipts, or to certify that money was kept in escrow for settling transactions between customers, such as property purchases. The first fede di deposito we know of was issued by the Annunziata in 1564. [418] If depositors needed to make a payment, they asked the bank for a fede di credito. In this case, the bank’s governors issued a note acknowledging their debt, stating the amount owed and confirming the bank’s obligation to honour the payment by giving back cash at any time, either to the original depositor or to any person she

[418] Costabile, L. (2021). After China, before Sweden and England: The circulation of paper money in Naples. In *European and Chinese Histories of Economic Thought* (pp. 158-169). Routledge.

may be willing to indicate. The fede then circulated by endorsement (girata), with signatures by both the payer (the bank's depositor) and the payee.

The **first European banknotes** were issued by Stockholms Banco, the predecessor of the Swedish central bank, Sveriges Riksbank, in 1661.[419] These banknotes replaced the previously used copper coins as currency. However, in 1664, the bank faced a shortage of funds for redeeming banknotes, leading to the cessation of its operations later that year. The evolution of currency continued in 1694 with the emergence of commercial bank money. This term delineates the segment of currency composed of bank-issued book money, reflecting the representation of monetary value within the accounting records of commercial banks. In 1750, the concept of base money (M1) took shape.[420] Encompassing circulating banknotes and coins, as well as demand deposits held at central banks, base money provides a foundational understanding of the monetary supply in circulation.

After the establishment of the **Bank of England** (BoE), in 1694, it swiftly acquired the privilege to issue banknotes and, from its inception, abstained from engaging in commercial banking transactions. Later its rise advocated the theory for each constituent state of the United Kingdom to have its own central bank. This led to the establishment of the Bank of Scotland in 1695 and the Bank of Ireland in 1783, aligning with the principles of regional financial autonomy.[421] In the early 19th century, Britain experienced several financial crises due to unregulated banknote issuance. Banks could create their own notes, backed by various assets, leading to concerns about overinflation and currency instability.

England operated a bimetallic system, where both gold and silver served as legal tender and their values fluctuated relative to each other. This system wasn't without its problems, leading to instability and difficulties in international trade. The crisis of 1813-23 prompted the development of the

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[419] Högberg, S. (1961). Sweden's first bank-notes. *Scandinavian Economic History Review*, *9*(2), 206-208..

[420] M1 is the money supply that is composed of currency, demand deposits, other liquid deposits - which includes savings deposits. M1 includes the most liquid portions of the money supply because it contains currency and assets that either are or can be quickly converted to cash. The amount of currency in circulation or held in deposits at the Federal Reserve is called M0, or the monetary base.

[421] Paul, H. (2023). 8.1 Banking History In Scotland. *The Bubble Act: New Perspectives from Passage to Repeal and Beyond*, 163.

Cullen, L. M. (1983). Landlords, bankers and merchants: the early Irish banking world, 1700-1820. *Hermathena*, (135), 25-44.

currency theory by Samuel Jones Loyd,[422] asserting that a robust economy relies exclusively on the circulation of metallic currency. The **Coinage Act of 1816** (also known as the Coin Act or Liverpool's Act) officially established a monometallic gold standard in England. It defined the value of the pound sterling in terms of a fixed amount of gold (7.32238 grams per pound). Only gold coins were legal tender for large transactions (above 40 shillings).[423] Silver coins became token coins with a fixed exchange rate to gold. Bank of England banknotes were redeemable for gold on demand. The 1816 gold standard wasn't the first attempt at such a system, but it was a significant step that shaped England's economy for over a century.

Pros and Cons of the Gold Standard

Advantages	Disadvantages
• **Confidence and Stability:** Provides a stable and trusted medium of exchange, enhancing confidence in the economy. • **Transparency:** The value of the currency is clearly linked to a tangible asset, fostering trust and confidence. • **International Stability:** Facilitates international trade and investments by providing a common standard of value, reducing exchange rate uncertainties.	• **Constraints on Economic Growth:** Limits the ability of economies to expand credit and stimulate growth, potentially hindering development. • **Economic Inflexibility:** Limits the ability of central banks to respond to economic downturns or financial crises by adjusting monetary policy. It cannot easily adjust the money supply to respond to economic crises, potentially hindering economic recovery. • **Economic Disruptions:** Shifts in gold supplies or demand can disrupt economic stability, leading to financial crises.
• **Limits Government Intervention:** Restricts government intervention in monetary affairs, promoting free-market principles. • **Discipline in Fiscal Policies:** Forces governments to maintain fiscal discipline to prevent over-borrowing and excessive spending.	• **Vulnerability to Supply Shocks:** Ties the money supply to the availability of gold, leaving the economy vulnerable to fluctuations in gold production. • **Unfair distribution of wealth:** Countries with larger gold reserves gain an advantage, potentially creating uneven global economic power. • **Gold Supply Constraints:** Limited gold reserves may restrict the expansion of the money supply, constraining economic activity.

[422] Schwartz, A. J. (1989). Banking school, currency school, free banking school. In *Money* (pp. 41-49). London: Palgrave Macmillan UK.
[423] The Statutes of the United Kingdom (https://archive.org/details/statutesunitedk32brit-goog/page/n436/mode/2up?view=theater)

Advantages	Disadvantages
• **Price Stability:** Maintained stable prices over long periods, reducing inflationary pressures. Reduces inflation risk and hyperinflation as the money supply is tied to a limited gold reserve.	• **Deflationary Pressures:** Can lead to deflationary spirals during economic downturns, exacerbating recessions. If the gold supply doesn't grow as fast as the economy, it can lead to deflation, harming economic growth and investment.
• **Fixed exchange rates:** Promotes stability in international trade and investment by tying currencies to a common reference point (gold). • **Reduces Currency Manipulation:** Prevents governments from manipulating currency values for competitive advantage, promoting fair trade practices.	• **Limited control over exchange rates:** Governments cannot intervene to manage exchange rates in response to external factors.
• **Historically proven:** Used successfully in the past to maintain economic stability.	• **Outdated for modern economies:** The structure may not be suitable for the complex and dynamic nature of modern economies.

Source: own compilation of the author

By 1833, the pound issued by the BoE became the official legal tender. Sir Robert Peel, then Prime Minister, sought to reform the banking system and promote stability. The pivotal year 1844 witnessed the enactment of the **Peel's Bank Charter Act**, conferring exclusive authorization to the issuance of banknotes upon the Bank of England.[424] The Act created two separate departments within the Bank of England: the Issue Department was authorized to issue £14 million in banknotes backed by gold bullion, ensuring a fixed ratio between gold reserves and note issuance; and the Banking Department operated similarly to other commercial banks, accepting deposits and making loans, but its note issuance capabilities were limited. Other banks were prohibited from issuing new banknotes and had to maintain their existing note issue at authorized levels. The Act aimed to prevent overinflation by connecting note issuance directly to gold reserves, thereby maintaining the value of the pound sterling. Within positives it (i) increased stability and confidence in the monetary system; (ii) helped prevent speculative bubbles and financial crises; (iii) established a clear framework for issuing banknotes. From the negative side, it (i) limited flexibility in responding to economic shocks, potentially hindering growth; (ii) concentrated power in the hands of the Bank of England; (iii) did not completely eliminate financial crises, as

[424] Cairnes, J. E. (2021). An examination into the principles of currency involved in the Bank Charter Act of 1844. In *Irish Political Economy Vol 3* (pp. 132-169). Routledge.

seen in the late 19th and early 20th centuries. The Bank Charter Act played a significant role in shaping the monetary system in Britain and beyond. Its core principles of linking currency issuance to gold reserves influenced central banking practices globally. Though amended later, it remained a cornerstone of the British monetary system until the abolition of the gold standard in 1931.

The **Coinage Act of 1792** established the dollar as the official currency of the **United States**, replacing the previously used British pounds and various state currencies.[425] This act defined the weight, fineness, and design of the first U.S. dollar coins, including the Flowing Hair Dollar. Adopting a unique currency represented a crucial step towards solidifying the United States as a sovereign nation, independent from British economic influence. Implementing a new national currency came with challenges. Counterfeiting was rampant, and establishing a stable and trusted monetary system required various economic and political complexities. The ongoing Civil War put immense pressure on the U.S. economy and monetary system. The government resorted to issuing paper money (greenbacks) not backed by gold or silver, leading to inflation and concerns about the dollar's value. Amidst the war, the **Coinage Act of 1862** authorized the minting of the Liberty Seated Dollar, replacing the Flowing Hair Dollar. This new design featured a seated Liberty figure, symbolizing strength and resilience during challenging times. Greenbacks were fiat money, meaning they were not backed by a physical commodity like gold or silver but rather derived their value from the trust and confidence in the government issuing them. With the National Banking Acts of the 1860s and 1870s, efforts were made to create a more uniform system of currency and banking. Following a period of experimentation with different monetary systems, including inconvertible paper money during the Civil War, the **Specie Payment Resumption Act** of 1875 officially pegged the dollar to gold at a fixed rate ($20.67 per ounce).[426] It required the Secretary of the Treasury to redeem greenbacks in specie on demand from 1879.

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[425] Martin, D. A. (1964). *The evolution of a national composite legal tender coinage in the United States, 1792-1860*. Syracuse University.

[426] Valeonti, S. (2022). Henry C. Carey's Monetary Thought and American Industrialization in the Greenback Debate. *History of Political Economy*, *54*(2), 189-216.

Bernstein, M. (2023). Bank Loans and the Real Economy: Evidence from the 19th century.

Several countries, influenced by Britain's lead, adopted the **gold standard** during the 19th century, like Germany in 1871 which was one of the contributing factor to the Panic of 1873, the Long Depression.[427] (France maintained a bimetallic system until 1928.) This system linked the value of a country's currency to a specific amount of gold, providing stability and facilitating international trade. Many countries established their national currencies during this period, reflecting growing economic nationalism and the desire for centralized control over monetary policy. The use of paper money expanded during the 19th century, with governments issuing banknotes as a more flexible form of currency. This was particularly evident during times of war or economic instability. Many Latin American countries experienced monetary instability due to economic dependence on primary exports and fluctuations in global commodity prices.

16.2. Cash Substitutes, Payments, Records

The historical evolution of the **split tally** extended beyond medieval Europe and found relevance in the establishment of the Bank of England. The issuance of shares in 1697, with a portion in tallies and another in banknotes, exemplifies its role in the creation of money and the financial operations of institutions.[428] In legal frameworks, the Code Civil and Code Napoléon (1804) explicitly recognized the split tally's role in financial transactions through Article 1333.

> Tallies correlative to their patterns afford proof between parties who are in the habit of thus verifying commissions which they make and receive in retail.
>
> Code Civil, Art. 1333

Split tallies were used for centuries across Europe, particularly in England where they continued to be used for tax collection until the 19th century. Thousands of these sticks were stored in the Houses of Parliament in London until 1834, when they were finally burned due to space constraints.[429] The

[427] Irigoin, A. (2020). Rise and demise of the global silver standard. *Handbook of the History of Money and Currency*, 383-410.
[428] Apostolou, N., & Crumbley, D. L. (2008). The tally stick: the first internal control. *The Forensic Examiner*, *70*(1), 60-62.
Tye, R. (2023). Credit and the Exchequer since the Restoration. *Modern Monetary Theory: Key Insights, Leading Thinkers*, 41.
[429] Huzzey, R., & Miller, H. (2020). Petitions, parliament and political culture: petitioning the House of Commons, 1780–1918. *Past & Present*, *248*(1), 123-164.

inclusion of this provision in legal codes reflects the societal acknowledgment of its efficacy in ensuring the integrity and reliability of financial dealings. Furthermore, the enduring use of the split tally persisted well into the 20th century along the Danube and in Switzerland, particularly in rural economies. This continued application underscores the adaptability and resilience of this ancient method in diverse socio-economic contexts.

In 1837, inventors William Fothergill Cooke and Charles Wheatstone secured a patent for the **telegraph system**, marking a crucial advancement in communication technology. Charles Babbage's invention of a computer with similarities to modern machines took place between 1833 and 1871, laying the groundwork for future technological developments. The establishment of the **transatlantic telegraph cable** in 1866 significantly enhanced global communication capabilities.[430] In 1871, the Western Union, known then as the Western Union Telegraph Company, introduced **electronic fund transfers** (EFT) as a payment method, connecting major cities like Boston, New York, and Chicago.[431] EFTs, commonly referred to as wire transfers, gained popularity for their quick and straightforward ability to transfer funds without the necessity of physical cash exchange between the sender and recipient. Following the turn of the century, the Federal Reserve's initiation of electronic fund transfers and Western Union's primary focus shifted towards facilitating money transfers.

The spread of **double-entry bookkeeping** in **accounting** can be illustrated by the following quote from Johann Wolfgang von Goethe (1749-1832).

Away with it, to the fire with it! - cried Werner. - The invention does not deserve the smallest praise: that affair has plagued me enough already, and drawn upon yourself your father's wrath. The verses may be altogether beautiful; but the meaning of them is fundamentally false. I still recollect your Commerce personified; a shrivelled, wretched-looking sibyl she was. I suppose you picked up the image of her from some miserable huckster's shop. At that time, you had no true idea at all of trade; whilst I could not think of any man whose spirit was, or needed to be, more enlarged than the spirit of a genuine merchant.
What a thing it is to see the order which prevails throughout his business! By means of this he can at any time survey the general whole, without needing to perplex himself in the details. What advantages does he derive from the system of book-keeping by double entry! It

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430 Bolz, L. (2023). History of the Atlantic Cable & Undersea Communications: https://atlantic-cable. com. *American Journalism*, *40*(4), 542-544.

431 Wells, D. A. (2023). *The Relation of the Government to the Telegraph*. BoD–Books on Demand.

Müller, S. M., & Tworek, H. J. (2015). 'The telegraph and the bank': on the interdependence of global communications and capitalism, 1866–1914. *Journal of Global History*, *10*(2), 259-283.

is among the finest inventions of the human mind; every prudent master of a house should introduce it into his economy.

Johann Wolfgang von Goethe
Wilhelm Meisters Lehrjahre (1795-96)
Wilhelm Meister's Apprenticeship

Following lobbying efforts, Queen Victoria granted a royal charter, officially establishing the **Institute of Chartered Accountants in England and Wales** (ICAEW) in 1880.[432] This pivotal moment granted the institute the authority to award the prestigious chartered accountant qualification. The ICAEW played a central role in establishing accounting standards and regulations, promoting trust and transparency in financial reporting. The first accounting standard was published in 1887. The institute developed its qualifications framework, attracting talent and raising the bar for professional competence. By the early 20th century, the ICAEW's influence extended beyond England and Wales, attracting members from across the globe. Recognizing the interconnectedness of global markets, the ICAEW partnered with other professional bodies, contributing to international accounting standards. (In 1974 it merged with Institute of Chartered Accountants of Scotland, and in 1990 it was re-established separately.)

[432] Howitt, H. (1966). The history of the Institute of Chartered Accountants in England and Wales, 1870-1965.

17. 20-21st Centuries

The 20th and 21st centuries have witnessed unprecedented advancements in monetary systems and financial technologies, reshaping the ways in which individuals and institutions engage in economic transactions. From the dissolution of the gold standard to the emergence of digital currencies and cryptocurrencies, this period has been characterized by dynamic changes in monetary policy, financial infrastructure, and payment mechanisms. The Bretton Woods Agreement of 1944 established the framework for international monetary cooperation, ushering in the era of the **gold-dollar standard** and laying the groundwork for the International Monetary Fund (IMF) and the World Bank. However, the Nixon Shock of 1971 marked the end of the gold-dollar standard, leading to the adoption of fiat money and the modern monetary system. Concepts such as Gresham's Law became increasingly relevant as currencies devoid of intrinsic value, known as fiat money, gained prominence alongside complementary currencies. The introduction of the **Euro** in 1999 marked a significant milestone in the integration of European economies, with the Economic and Monetary Union (EMU) and the establishment of the European Central Bank (ECB) facilitating the transition to a single currency. The Euro's development from conception to implementation, as outlined in the Maastricht Treaty and the Delors Report, reflects the complexities of achieving monetary convergence among diverse member states. In tandem with these currency developments, innovations in cash substitutes and payment systems have revolutionized financial transactions. From traditional methods such as charge accounts and credit cards to modern online **payment** systems like PayPal, the evolution of payment technologies has enabled greater convenience and accessibility in conducting transactions. Additionally, the rise of digital and electronic money, including central bank digital currencies, has paved the way for a cashless world. The advent of **cryptocurrencies**, including Bitcoin and Ethereum, has introduced disruptive technologies such as blockchain, smart contracts, and decentralized applications. These digital assets offer new possibilities for financial innovation and decentralized governance, challenging traditional notions of money and reshaping the future of finance.

17.1. Currencies and Gold standard

The concept of the gold standard between 1900 and the Bretton Woods Agreement in 1944 remained quite consistent in its core principle: tying the value of a currency to a fixed amount of gold. However, the implementation and its impact shifted during this period. The gold standard aimed to bring stability and confidence to international trade and investment by tying currency values to a tangible asset like gold. It provided a predictable exchange rate and prevented excessive inflation or devaluation. However, a major critique was the limited flexibility to respond to economic shocks. Central banks couldn't adjust interest rates freely as they risked affecting the gold peg, potentially hindering economic recovery during downturns.

The gold standard faced its first major challenge during World War I. Countries suspended its operation to finance the war effort, leading to inflation and exchange rate fluctuations. In the aftermath of the war, attempts were made to restore the gold standard, but its pre-war stability wasn't fully regained. Global imbalances, speculative activities, and economic downturns posed significant challenges. The gold standard finally crumbled during the Great Depression in the early 1930s. Countries abandoned it one by one as trying to maintain the gold peg exacerbated deflation and hindered economic recovery efforts.

The experience of the Great Depression highlighted the limitations of a strict gold standard. International cooperation became crucial to establish a more flexible and stable system. In 1944, the **Bretton Woods Agreement** laid the foundation for a new international monetary system. While still based on gold, it allowed for exchange rate adjustments within a fixed margin and empowered the newly created **International Monetary Fund** (IMF) to oversee the system.[433]

The Bretton Woods system, which operated from 1944 to 1971, wasn't exactly a pure gold standard, but rather a hybrid system often referred to as a **gold-dollar standard**. The US dollar became the central reserve currency, backed by gold at $35 per ounce. Other countries pegged their currencies to the dollar at agreed-upon exchange rates. The dollar itself was convertible to gold, so other currencies, through their peg to the dollar, had an indirect link

[433] Andrews, D. M. (2020). The Breton Woods Agreement as an Invitation to Struggle. In *The Economy as a Polity: The Political Constitution of Contemporary Capitalism* (pp. 77-97). Routledge.

to gold. Central banks retained some control over monetary policy, but adjustments could still impact the fixed exchange rates.[434]

When Bretton Woods was negotiated, economist John Maynard **Keynes** worried that with fixed exchange rates there would be countries with chronic balance-of-payments problems and others with constantly rising dollar reserves. To sustain stable exchanges the latter countries had to commit to expand domestically and liberalize imports. To achieve such commitment, Keynes suggested penalizing countries with prolonged trade surpluses (though he expected the United States to be that country, not Japan, China, or Germany). By the end of the 1950s, the United States had experienced sizable deficits, with foreign central banks accumulating large amounts of dollar reserves. With investor skepticism rising, the price of gold jumped to $40 in October 1960 (though Bretton Woods fixed it at $35). The stability of the dollar and the fixed gold price became an uncontested feature of the Kennedy administration. Economists assumed that if domestic inflation was controlled and within similar ranges across countries, exchange rates would stabilize. Facts have proven all these claims false. The essential issue is enforcing the two clauses of the original Bretton Woods agreement that were not enforced: (i) allowing for occasional devaluation and (ii) penalizing countries accumulating excess reserves.[435]

The **Nixon Shock**, also known as the Closing of the Gold Window, was a significant event in 1971 that marked the end of the Bretton Woods system and had lasting impacts on the global finance.[436] During Richard Nixon's presidency (1969-1974) the primary objective was to prioritize the economic growth of the United States, focusing on job creation and exchange rate stability. This involved tax cuts, a 90-day freeze on prices and wages, and the introduction of import surcharges as the optimal strategy to stimulate the labor market and reduce living costs. The years 1971, 1973, and 1976 marked the end of the Bretton Woods Agreement and the convertibility of the U.S. dollar to gold. In 1968, the Gold Pool, consisting of the United States and several European nations, ceased gold sales on the London market, allowing the market to freely determine the price of gold. Between 1968 and

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[434] Guttmann, R., & Guttmann, R. (2022). A Short History of the Dollar Standard. *Multi-Polar Capitalism: The End of the Dollar Standard*, 73-116.
[435] Brenner, R. (2021). The Real Reason Bretton Woods Failed. *The International Economy*, *35*(4), 70-73.
[436] Butkiewicz, J. L., & Ohlmacher, S. (2021). Ending Bretton Woods: evidence from the Nixon tapes. *The Economic History Review*, *74*(4), 922-945.
Irwin, D. A. (2013). The Nixon shock after forty years: the import surcharge revisited. *World Trade Review*, *12*(1), 29-56.

1971, only central banks could trade with the United States at a fixed rate of $35 per ounce. Reluctance among member countries to fully cooperate in maintaining the market price at the U.S. gold rate emerged. Belgium and the Netherlands subsequently redeemed dollars for gold, expressing similar intentions by Germany and France. Charles de Gaulle, the French president, sought to purchase significant amounts of gold with dollars. In August 1971, prompted by the UK's request to settle in gold, Nixon officially closed the gold window, completely replacing the gold standard with fiat currency. This shift allowed central banks greater control over their currencies, facilitating the management of variables such as interest rates, total money supply, and velocity. The Nixon Shock acted as a catalyst for the stagflation of the 1970s, contributing to the depreciation of the U.S. dollar.

Because fiat currencies can be created boundlessly, over time their value declines, and thus the price of gold denominated in fiat money goes up. In August 1971 - when the last remnants of the gold standard were abandoned - the gold price was $41 U.S. dollars per troy ounce. At the end of May 2020, the gold price had reached $1,729 dollars per ounce, an increase of more than 4,100%. Governments aim for stable prices of consumer goods. But with the seductive ability to "print" money, they always create too much. The printed currency loses value, and prices of consumer goods go up. Because the gold price keeps up with prices of consumer goods, gold preserves its purchasing power. Since 1800, gold's purchasing power in the U.S. has been remarkably stable. It became more volatile after 1971, but has kept trending slightly upwards. Since the euro was created in 1999, the gold price in euros has gone up by 550%. When corrected for (consumer price) inflation, gold in the eurozone has increased in purchasing power by 350% in 20 years. Since its inception, the euro has lost 85% of its value against gold. This is the power of gold: it preserves personal as well as generational wealth.

Since the 1930s, the United States has lost 99% of the value of the dollar against gold. Other reserve currencies, such as the British pound and the Japanese yen, have performed even worse. Central banks worldwide have continued to adhere to their gold reserves, following the Gresham's Law: "Bad money drives out good."[437] In other words, transactional functions are

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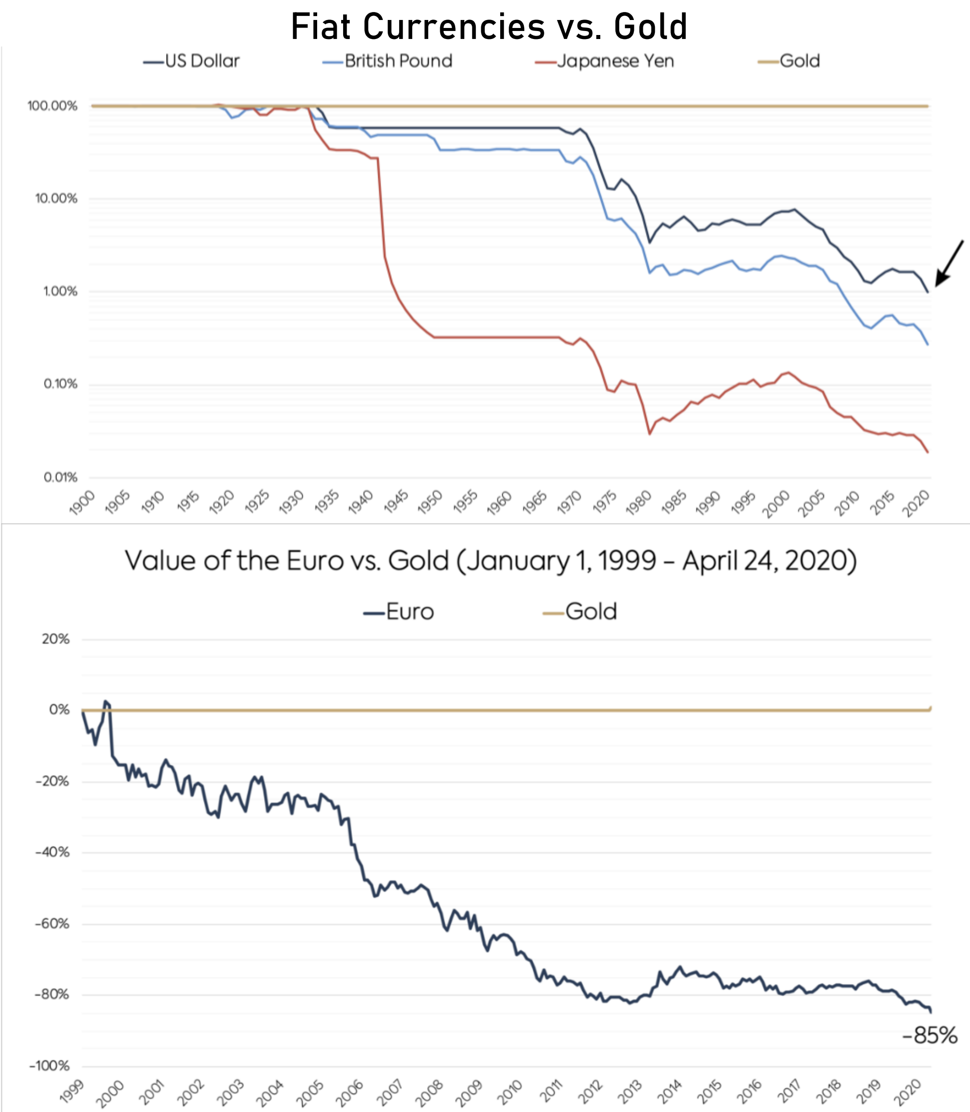
[437] In fact, Copernicus, the astronomer, had already recognized this regularity. While Sir Thomas Gresham (1519-1579) was involved in coinage during his time, he urged Queen Elizabeth to restore the debased currency of England; the principle now known as Gresham's Law wasn't explicitly formulated by him. It later emerged in 1857, attributed to economist Henry Dunning Macleod.
de Roover, R. (1949). *Gresham on Foreign Exchange*. Cambridge: Cambridge University Press. 92.

fulfilled by the bad money, while the good money, serving as a store of value, gradually disappears from circulation. When the price of gold rises, central banks are more inclined to accumulate gold (good money) and spend currency (bad money) due to its depreciation.



Source: Nieuwenhuijs J. (2020): Why Gold, and Why Now. The Gold Observer. (https://thegoldobserver.substack.com/p/why-gold-and-why-now)

The **modern monetary system**, fully abandoning the gold standard in 1976, witnessed a growing disconnect between the quantity of money substitutes and the amount of gold. Money substitutes transitioned into becoming the actual money, **devoid of intrinsic value** and representing claims on commodities. The value, or exchange rate, is determined by international supply and demand dynamics. Contemporary forms of **fiat money**, created by trust and regulation, include physical cash in the form of banknotes and coins. Additionally, bank deposit money represents claims against banks, while electronic money (e-money) exists in digital form. The shift from commodity-backed money to fiat money reflects the evolution of the modern finances, with the value of money now dictated by broader economic factors and global market forces.

The 20-21st centuries experienced the use of **complementary currencies**, for example during and after the World Wars or hyperinflations.[438] Following the breakup of Yugoslavia in the early 1990s, several newly independent states unofficially adopted the German Mark (DM) as a parallel currency due to its stability and familiarity in the region.[439] This wasn't technically a complementary currency as it was a national currency of another country, but it did serve a similar purpose of providing a more stable alternative to the rapidly depreciating local currencies. During periods of hyperinflation, when the national currency rapidly loses value, people often turn to alternative mediums of exchange to preserve their purchasing power. In response to the higher inflationary and currency devaluation periods, in Turkey, in 2018, people and shops unofficially prefer payments in complementary currencies (euro, dollar), instead of the lira.

17.2. Currency Areas: Euro, CFA Franc

The term **currency area**, currency zone, currency region, or currency union refers to a geographical area where countries either (i) use a common currency or, in a broader way, (ii) permanently fix the exchange rates of their respective currencies to one another. The exchange rate(s) of the shared currency or the participating respective currencies can fluctuate flexibly against

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[438] Amato, M., & Fantacci, L. (2020). Complementary currencies. *Handbook of the History of Money and Currency*, 501-522.
North, P. (2014). Complementary currencies. In *The Routledge companion to alternative organization* (pp. 182-194). Routledge.

[439] Lyon, J. (1996). Yugoslavia's hyperinflation, 1993-1994: A social history. *East European Politics and Societies*, *10*(02), 293-327.

the external world. These are typically established by countries that are geographically proximate to each other and historically maintain close economic (trade) ties. The anticipated benefits from such unions are expected to outweigh the costs for participating countries.

Pros and Cons of Currency Areas

Advantages	Disadvantages
• Helps its members strengthen their competitiveness on a global level • Helps its members eliminate exchange rate risk • Financial transactions between member states can be processed faster, and their costs are reduced as banks' fees are lower • Prices are more transparent and thus easier to compare, which enables fair competition • Uniform monetary decision-making → protects the other countries against the unjustly generated surplus income of a country with a higher inflation rate than the others (the so-called free rider, stowaway phenomenon) • The probability of a monetary crisis is lower; the more countries there are in the currency union, the more resistant they are to the crisis	• Member states lose their sovereignty during monetary policy decisions → there is usually an institution (central bank) that takes care of the common monetary policy • The risk of asymmetric shocks may arise → the criteria set by the currency union are never perfect, so a group of countries may be in a much worse position while others are growing • The introduction of a new currency causes high financial costs → companies and private individuals must also adapt to the new currency, and costs for companies to prepare management, employees, and inform customers • Due to the unrestricted movement of capital, most resources can go to more productive regions at the expense of less productive regions

Source: own compilation of the author

The concept of optimum or **optimal currency area** (OCA) reflects a geopolitical area where adopting a single, unified currency is deemed most advantageous, striking a harmonious equilibrium between economies of scale and the efficacy of macroeconomic policies in fostering growth and stability. The concept arose in the 1960s, pioneered by economists Robert Mundell, Ronald McKinnon, and Peter Kenen.[440] According to Mundell,

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[440] Mundell, R. A. (1961). A theory of optimum currency areas. *The American economic review*, *51*(4), 657-665.
McKinnon, R. I. (1963). Optimum currency areas. *The American economic review*, *53*(4), 717-725.
Kenen, P., Mundell, R., & Swoboda, A. (1969). The theory of optimum currency areas: an eclectic view. *International economic integration: Monetary, fiscal and factor mobility issues*, 59-77.

there are four main **criteria** for an OCA: (i) high labor mobility throughout the area; (ii) capital mobility and price and wage flexibility; (iii) a currency risk-sharing or fiscal mechanism to share risk across the countries; and (iv) similar business cycles. Other criteria have been suggested by later economic research.[441] A high volume of trade between countries implies that there will be correspondingly high gains; and a more diversified production within economies and limited specialization and division of labor across countries reduce the likelihood of asymmetric economic shocks. Homogeneous policy preferences across countries are essential because monetary policy, and to some extent fiscal policy in the form of transfers, will be the countries' collective decision and responsibility. Fixed exchange rate systems offer greater stability and credibility, but internal adjustment is complex, and the exit strategy is extremely expensive.

OCA criteria

Flexibility of prices and wages	Friedman, 1953
Mobility of production factors	Mundell, 1961
The integrity of financial markets	Ingram, 1962
Degree of economic openness (foreign trade)	McKinnon, 1963
Diversification of production (output) and consumption	Kenen, 1969
Integration in the field of budgetary policy, supranational fiscal transfers	Kenen, 1969
The depth of political integration	Mintz, 1970; Goodhart, 2005
Similarity of inflation rates (preferences).	Fleming, 1971
Reactions to various economic shocks and cyclical coherence	Cohen & Wyplosz, 1989; Weber, 1990; European Committee, 1990; Krugman, 1995, 2013

Source: own compilation of the author

For **critique**, the OCA theory constitutes a highly diversified, complex, and occasionally inconsistent theoretical framework with an independent

[441] Broz, T. (2005). The theory of optimum currency areas: A literature review. *Privredna kretanja i ekonomska politika*, *15*(104), 52-78.
Kunroo, M. H. (2015). Theory of optimum currency areas: A literature survey. *Review of Market Integration*, *7*(2), 87-116.
Krugman, P. (1995). *Currencies and crises*. MIT press.; Krugman, P. (Ed.). (2007). *Currency crises*. University of Chicago Press. Krugman, P. (2013). Revenge of the optimum currency area. *NBER macroeconomics annual*, *27*(1), 439-448.

evolutionary trajectory spanning over five decades. The traditional OCA theory is characterized by a comprehensive set of criteria that explains how the loss of nominal exchange rate adjustment could be substituted with equilibrium-generating mechanisms in the face of shocks. Conversely, the new OCA theory incorporates segments of less effective monetary policy and their impact mechanisms into its investigations. The effectiveness of a common monetary and exchange rate policy will eventually be achieved regardless of whether entering economies initially meet the criteria or not. However, the application of OCA theory is complicated by the fact that different phases reflect different research questions: initially static, later dynamic approaches are employed, influenced by varying economic backgrounds (Keynesian, monetarist, trade theories). Moreover, the expanding criteria system almost precludes operationalization, as neither macroeconomic nor econometric models can adequately address the extensive array of indicators. In essence, it serves as a framework capable of offering valuable insights into the functioning of monetary integrations; however, the failure to meet its criteria does not necessarily entail failure of the currency zone.

Currently existing **currency unions, federations:** USA dollar (1904), Swiss franc (1920), Israeli new sheqel (1927/1986), Pound sterling (1939) CFA franc, Eco (1945), CFP franc (1945), Jordanian dinar (1950), Eastern Caribbean dollar (1965), New Zealand dollar (1967), Indian rupee (1974), South African rand (1974), Hong Kong dollar (1977), Australian dollar (1966), Singapore dollar, Brunei dollar (1967), Turkish lira (1983), Euro (1999/2002), Russian ruble (2008).

Euro, Euro-zone

The **Economic and Monetary Union** (EMU) is a result of gradual economic integration, and as such, it remains an ongoing process without a final state today. The ECU and the Euro represent two significant milestones in the history of European monetary integration.[442]

In 1948, the Organization for European Economic Co-operation (OEEC), later becoming the OECD, was established to oversee the distribution of Marshall Aid. From 1950 to 1958, the European Payment Union (EPU) focused on settling accounts between European countries, as well as liberalizing trade barriers and ensuring currency convertibility. The period from 1958 to 1972 witnessed the European Monetary Agreement, succeeding

[442] Maes, I. (2023). Economic Thought and Europe's EMU Project. *Pensiero economico italiano: XXXI, 1, 2023*, 81-90.

the EPU, with its objectives eventually taken over by the International Monetary Fund.

In 1970, the **Werner Plan** marked the first blueprint for the EMU, aiming for the convertibility of EEC currencies, free capital movement, and the gradual elimination of exchange rate fluctuations.[443] The introduction of the **snake in the tunnel** mechanism in 1972 allowed bilateral exchange rate fluctuations within a range of ±2.25%. From 1973 to 1993, the European Monetary Cooperation Fund (EMCF) operated to progressively narrow the fluctuation bands (snake in the tunnel) between Community currencies.

In 1979, the **European Monetary System** (EMS) was established, preceding the eurozone. Its objectives included fostering greater monetary stability within the Community. Components of the EMS included the European **Exchange Rate Mechanism** (ERM) and the **European Currency Unit** (ECU). The **ECU** (₠, the initials of European Community) launched in 1979 as a basket currency, comprising a weighted average of the national currencies of member states participating in the EMS, maintaining a fluctuation band of ±2.25% (or possibly 6%).[444] It aimed to promote exchange rate stability within the EMS and facilitate intra-community trade. Though used for official transactions and some private activities, it wasn't a legal tender for individuals. It had a fluctuating value, adjusted daily based on the exchange rates of its constituent currencies. There were no physical coins or banknotes, primarily existed as an accounting unit. It represented a step towards closer economic and financial cooperation in Europe.

In 1988, the **Delors Report** proposed the implementation of the Economic and Monetary Union (EMU) in three phases.[445] Within Phase I (1990-1993), all restrictions on capital movements between member states were abolished. In 1992, the **Maastricht Treaty** established the convergence criteria. In the same year, the **Black Wednesday** of 1992 saw the United Kingdom exit the Exchange Rate Mechanism (ERM) with notable influence from George Soros with the Quantum Fund.

[443] Danescu, E. (2020). Epistemic communities in building EMU: Pierre Werner, Robert Triffin and Jean Monnet in European monetary cooperation.
[444] Usher, J. A. (1988). The legal regulation of the European currency unit. *International & Comparative Law Quarterly*, *37*(2), 249-267.
[445] Vianelli, M. (2023). Achieving a Shared Consensus: the Delors Committee and the Relaunch of the EMU Process. *JEIH Journal of European Integration History*, *28*(2), 313-334.

Convergence Criteria

Price stability	• Inflation rate cannot exceed the average of the inflation rates of the three Member States with the lowest indicators by more than 1.5% in a one-year reference period
Budget discipline	• Annual budget deficit cannot exceed 3% of GDP
	• Gross public debt cannot exceed 60% of GDP (or in the case of a debt ratio above 60%, a continuous and significant reduction in the debt ratio must be shown)
Exchange rate stability	• Exchange rate of the national currency of the member state cannot exceed the ±15% fluctuation band for 2 years. In practice, this also means that the given country must enter the European Exchange Rate Mechanism (ERM)
Interest rate convergence	• Interest rate of long-term loans in the one-year reference period can be no more than 2% more than the average interest rate of the state loans of the three member states with the lowest inflation indicators. (This value is currently 6%.)

Source: own compilation of the author

The **Maastricht convergence criteria**: conditions that EU member states must fulfill in order to enter the third stage of the EMU and to introduce the euro.[446] The Treaty outlines five conditions within four topics for assessing economic convergence among Member States. This involves achieving a high degree of (i) **price stability**, with the inflation rate not exceeding 1.5 percentage points more than that of the three best-performing Member States in the year preceding the assessment.[447] Member States are required to maintain a sustainable **government financial position**, indicated by a government budgetary position without an excessive deficit. The annual government (ii) **deficit** to GDP ratio must not exceed 3%, and (iii) the **gross government debt** to GDP ratio must not surpass 60%. Member States must adhere to the normal fluctuation margins within the (iv) **exchange-rate mechanism** of the EMS for at least two years without devaluing against any other Member State's currency. This criterion was applicable before the transition to stage three of the EMU when the EMS was replaced by ERM II. The durability of convergence is assessed by examining (v) **long-term interest-rate levels**. The nominal long-term interest rate should not exceed by more than

[446] Consolidated version of the Treaty on the Functioning of the European Union. Protocol (No 13) on the Convergence Criteria

[447] Milojević, I., Krstić, D., & Brajković, B. (2023). Analysis of inflation as one of the Maastricht convergence criteria. *Ekonomski izazovi*, *12*(23), 22-31.

2 percentage points that of the three best-performing Member States in terms of price stability during the year preceding the assessment.[448]

During Phase II (1994-1998), the **European Monetary Institute** performed the central bank function, with the Hungarian-born Sándor **Lámfalussy** as its president, who is often referred as the "father of the euro".[449] In 1998, the **European Central Bank** (ECB) was created as the successor to the European Monetary Institute. Phase III (1999 onwards), the exchange rates of the national currencies of member states entering the third stage were fixed against the euro.[450] In 1999, the ECU was replaced by the euro (€), and became the official currency of 11 participating countries, initially existing as an electronic currency for financial transactions in. The ERM was succeeded by ERM II. In 2002, the euro as an exclusive physical currency for coins and banknotes was introduced in twelve countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain. Additionally, four microstates (Andorra, Monaco, San Marino, and Vatican City) adopted the euro. Subsequent years saw the euro's adoption in Slovenia (2007), Malta and Cyprus (2008), Slovakia (2009), Estonia (2011), Latvia (2014), Lithuania (2015), and Croatia (2023). The Euro gained rapid acceptance among citizens, becoming a unifying symbol and facilitating cross-border transactions. It promoted trade, price transparency, and investment within the Eurozone. Adjustments to a single currency exposed economic disparities among member states, requiring further integration and fiscal policies.[451] Within the euro zone only the European Central Bank formulates the monetary policy with an exclusive competence.[452]

The European sovereign debt crisis of 2009-2015 is considered evidence of the failure of the European Economic and Monetary Union to satisfy

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[448] Gaspar, V. (2020). Future of fiscal rules in the euro area. In *Workshop on Fiscal rules in Europe: Design and enforcement. Brussels: DG Ecfin, January* (Vol. 28).

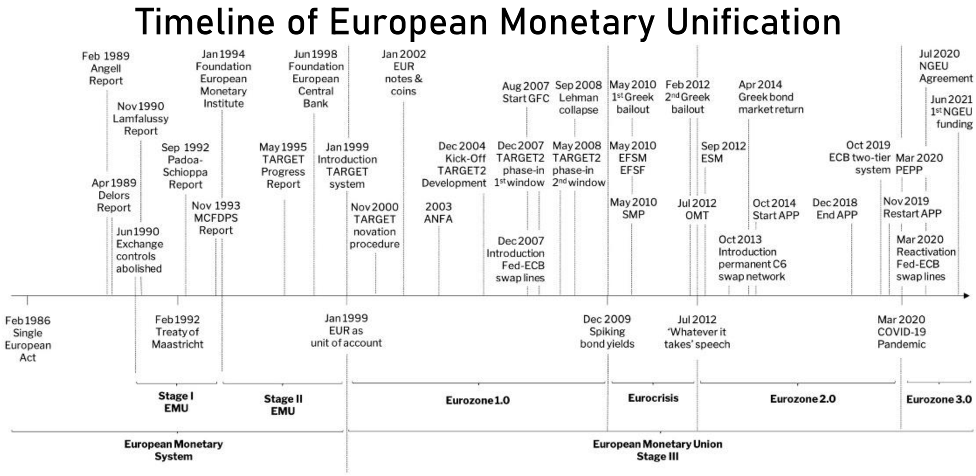
[449] Lamfalussy, A. (1994). *Central banking in transition* (Vol. 1994). Per Jacobsson Foundation. and Lamfalussy, A. (2006). Central banks, governments and the European monetary unification process.

[450] Kenen, P. B. (1998). Monetary policy in stage three: a review of the framework proposed by the European Monetary Institute. *International Journal of Finance & Economics*, *3*(1), 3-12.

[451] Mourlon-Druol, E. (2020). History of an incomplete EMU. In: Amtenbrink, F. and Herrmann, C. (eds.) *EU Law of Economic and Monetary Union.* Oxford University Press: Oxford. 13-36.

[452] Hartmann, P., & Smets, F. (2018). The first twenty years of the European Central Bank: monetary policy.

these criteria as original EMU policy instituted a no-bailout clause, which soon became evident as unsustainable.



Source: Murau, S., & Giordano, M. (2023). Forging monetary unification through novation: the TARGET system and the politics of central banking in Europe. *Socio-Economic Review*. Vol. 00, No. 0, 1–30.

Figure presents a timeline of the key events regarding TARGET and EMU. The TARGET system was planned and developed by the European Monetary Institute (EMI), the predecessor of the ECB which existed from 1994 to 1998, during Stage II of the Economic and Monetary Union process. Fighting against a tough schedule, TARGET was established as a minimum viable product just in time for Stage III of EMU to start in January 1999 (EMI 1995). In the subsequent phase, which we call Eurozone 1.0 (1999–2009), the more technically advanced TARGET2 system was developed. It gradually replaced TARGET in 2007 and 2008. Shortly after, the Eurocrisis (2009–12) shook the original design and brought the EMU to the brink of collapse. The Eurozone 2.0 (2012–20) was a phase of restauration before the coronavirus disease pandemic triggered a new dynamic of institutional transformation, which we term Eurozone 3.0.[453] (Guter-Sandu and Murau 2022)

[453] Murau, S., & Giordano, M. (2023). Forging monetary unification through novation: the TARGET system and the politics of central banking in Europe. *Socio-Economic Review*. Vol. 00, No. 0, 1–30.
Guter-Sandu, A., & Murau, S. (2022). The Transformation of Eurozone Fiscal Governance. Mitigating Fiscal Discipline through a Proliferation of Off-Balance-Sheet Fiscal Agencies. *New Political Economy*, *27*(1), 62-80.

Francs in Africa

The **CFA franc** was created in 1945, when France ratified the Bretton Woods Agreements and made its first declaration of parity to the International Monetary Fund (IMF). At the time, the name meant franc of the French Colonies of Africa. It was later known as the franc of the African Financial Community to the member States of the West African Monetary Union (WAMU) and as the franc of Financial Cooperation in Central Africa to the member countries of the Central African Monetary Union (CAMU). The CFA franc is the common currency of the 14 African countries, in two currency zones. Despite being distinct, the two CFA franc currencies have always been pegged at parity and are essentially interchangeable.[454]

XOF vs. XAF

XOF	XAF
1 euro = 655.957	
West African CFA franc	Central African CFA franc
8 countries	6 countries
Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo.	Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, and Gabon.

Source: own compilation of the author

The **West African Economic and Monetary Union** (WAEMU, UEMOA) has eight member countries with a common currency. These countries, including Benin, Burkina Faso, Guinea-Bissau, and others, use the West African CFA franc (XOF),[455] whose central bank is the BCEAO (Central Bank of West African States). The **Economic and Monetary Community of Central Africa** (CEMAC), formed to promote closer monetary cooperation among ECCAS members, consists of Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, and Gabon, whose central bank is the BEAC(Bank of Central African States). These countries use a common

[454] Central Bank of West African States (2023). History of the CFA franc. (https://www.bceao.int/en/content/history-cfa-franc)
The ISO currency codes are XAF for the Central African CFA franc and XOF for the West African CFA franc.

[455] In 2019, it was announced that the West African currency would undergo reform and be replaced by an independent currency named Eco.

currency, the Central African CFA franc (XAF).[456] Both of them are pegged to the euro at an exchange rate of 1 euro = 655.957 XOF, XAF.

17.3. Money Substitutes, Payments, Records

In 1914, the payment system experienced another transformative moment with the Federal Reserve introducing **charge accounts** usable across various stores. In 1918, the **Fedwire** was the first electronic fund transfer system, which relied on now-archaic technologies such as the telegraph and Morse code.[457] These charge accounts, linked to cards that customers could acquire on credit, played a pivotal role in shaping the early 20th-century electronic payment system known as the **charge card**.[458] Despite the popularity of bank cards and accounts, their limitations in the 1950s led to further innovations, particularly credit cards. The Diners Club introduced the first **general-purpose bank card** in 1950, followed soon by similar cards from Carte Blanche and American Express. The primary difference between charge cards and the credit cards that charge cards required the full payment of the balance at regular intervals, while **credit cards** allowed for credit extension, typically with additional interest, enabling the transfer of balances from the previous billing period. This payment method is known as revolving credit, and the Bank of America utilized it in 1958 to create the first modern credit card. The purpose of **plastic money** was to eliminate the need for cash handling and counting (e.g., debit cards and credit cards).

Prior to 1930, different countries had their own national laws concerning **bills of exchange** and promissory notes, leading to complexities and uncertainties for international trade and finance. The **Geneva Convention** on Providing a Uniform Law for Bills of Exchange and Promissory Notes, signed in 1930, was a significant international agreement aimed at unifying

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[456] Kangami, D. N., & Akinkugbe, O. F. (2021). Common currency and intra-regional trade in the Central African Monetary Community (CEMAC). *Journal of African Trade*, *8*(1), 13-22.

[457] Bech, M. L., Preisig, C., & Soramaki, K. (2008). Global trends in large-value payments. *Economic Policy Review*, *14*(2).

Gilbert, A. M., Hunt, D., & Winch, K. C. (1997). Creating an integrated payment system: The evolution of Fedwire. *Federal Reserve Bank of New York Economic Policy Review*, *3*(2), 1-7.

[458] Vanatta, S. H. (2018). Charge account banking: A study of financial innovation in the 1950s. *Enterprise & Society*, *19*(2), 352-390.

the rules governing these important financial instruments.[459] The League of Nations, a predecessor to the United Nations, convened a conference in Geneva, Switzerland, in 1930 to establish a uniform set of rules for these instruments.

Bills of Exchange vs. Promissory Notes

<table>
<tr><th>Bills of Exchange</th><th>Promissory Notes</th></tr>
<tr><td>• The term "bill of exchange" inserted in the body of the instrument and expressed in the language employed in drawing up the instrument
• An unconditional order to pay a determinate sum of money
• The name of the person who is to pay (drawee)</td><td>• The term "promissory note" inserted in the body of the instrument and expressed in the language employed in drawing up the instrument
• An unconditional promise to pay a determinate sum of money</td></tr>
<tr><td colspan="2">• A statement of the time of payment
• A statement of the place where payment is to be made
• The name of the. Person to whom or to whose order payment is to be made</td></tr>
<tr><td>• A statement of the date and of the place where the bill is issued
• The signature of the person who issues the bill (drawer)</td><td>• A statement of the date and of the place where the promissory note is issued
• The signature of the person who issues the instrument (maker)</td></tr>
</table>

Source: own compilation of the author

The convention defined the essential elements of a valid bill of exchange and promissory note, including their form, content, and negotiability. It established standardized rules for acceptance, protest, dishonor, and other procedures related to these instruments. The convention aimed to promote clarity, certainty, and efficiency in international transactions involving bills of exchange and promissory notes. While not all major trading nations initially adopted the convention, it played a significant role in: (i) harmonizing legal frameworks across different countries; (ii) facilitating smoother cross-border trade financing; (iii) providing a foundation for subsequent international conventions regulating financial instruments. As of today, 73 countries have ratified or acceded to the convention. Although some provisions have

[459] Hosseini Moghadam, S. H., & Mohammadi, S. (2020). The effect of private agreement on the duties and duties of the holder of a commercial document in Iranian law with a comparative study in the Geneva Conventions of 1931 and 1930. *Journal of Comparative Law*, *4*(1), 107-134.

been overtaken by later developments in international law, the convention remains a relevant reference point for legal practitioners and scholars.

The **Disney Dollars** are certainly an interesting piece of money history. They were first used in 1987, and people can buy with them goods or services is Disneyland Park in California. It was quite an event, with four Anaheim motorcycle police officers escorting an armored truck to the park entrance to unveil the new currency. Disney Dollars sported diverse designs featuring beloved Disney characters and landmarks. We can explore the various series and editions released throughout the years. While Disney Dollars are no longer printed, they still hold value for collectors and can be used in specific ways at the parks.[460]

The **Fureai Kippu** System is a Japanese sectoral currency established in 1995 by the Sawayaka Welfare Foundation.[461] Fureai means connection, while kippu translates to ticket. The core concept involves community members spending time with and caring for their elderly neighbors in exchange for connection tickets.[462] These tickets can be redeemed for services later in life when they themselves require assistance. This innovative system promotes mutual support and intergenerational bonding. It empowers the elderly by providing companionship and assistance to seniors in daily tasks, enhancing their quality of life. The system connects generations and fosters mutual aid, building stronger local communities. It offers an alternative to professional elder care, presenting a more cost-effective solution for local municipalities. With proven success, the Fureai Kippu program operates in over 300 municipalities across Japan. Other countries might consider adopting this model to improve elder care and solidify local communities.[463]

Payments

Beyond the plastic money (cards) various models of **mobile payments** (m-payments) have emerged globally, expanding the range of electronic payment options. These models leverage the rapid advancements in mobile

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[460] Wills, J. (2017). *Disney culture*. Rutgers University Press.
[461] Hayashi, M. (2012). Japan's Fureai Kippu Time-banking in elderly care: Origins, development, challenges and impact. *International Journal of Community Currency Research*, *16*(A)), 30-44.
[462] LaFave, S. E., Szanton, S. L., & Gitlin, L. N. (2021). Innovations for aging in place. In *Handbook of Aging and the Social Sciences* (pp. 337-354). Academic Press.
[463] Green, K. R. (2021, May). Can the Architecture of a Monetary System Evoke Care?. In *The Social Life of Care*.

phone functionalities, the widespread use of mobile devices across all demographics and regions, and their ease of use at any time, whether within or outside areas with Internet access.[464] Two distinct types of m-payments stand out: neighborhood small payments and large remote payments. For small payments, mobile phones are more efficient than electronic wallets, reducing transaction costs for users and eliminating the need for shopkeepers to invest in specific terminals. For large remote payments, m-payments provide services without requiring an ATM, bank branch, or Internet connection.

Four models and the level of implication of partners

		Operators involvment	
		High	Low
Banks involvment	High	**Bank Centric** Customer > Bank > Vendor (CashEdge)	**Collaborative Model** Contacless Payment (NFC, USB Key… SEMOPS) Mobile Banking
	Low	**Independent Service Provider** Customer > ISP > Vendor (PayPal)	**Operator Centric** Customer > Operator > Vendor (M-Pesa)

Source: own compilation of the author based on Chaix, L., & Torre, D. (2011). Four models for mobile payments. University Nice Sophia-Antipolis, JEL Classification E, 42, O33.

Until now four sorts of models are discussed and seem to compete:[465]

- bank centric model: a bank is the central node of the model, manages the transactions and distributes the property rights;
- operator centric model: the same scenario with the operator in the strategic role;
- collaborative model: financial intermediaries and telephonic operators collaborate in the managing tasks and share cooperatively the proprietary rights;
- independent service provider (ISP) model: in this model, a third party of confidence operates as an independent and \neutral" intermediary between financial agents and operators. Google or PayPal

[464] Flavián, C., Guinaliu, M., & Lu, Y. (2020). Mobile payments adoption–introducing mindfulness to better understand consumer behavior. *International Journal of Bank Marketing*, *38*(7), 1575-1599.
Al-Qudah, A. A., Al-Okaily, M., Alqudah, G., & Ghazlat, A. (2024). Mobile payment adoption in the time of the COVID-19 pandemic. *Electronic Commerce Research*, *24*(1), 427-451.
[465] Chaix, L., & Torre, D. (2011). Four models for mobile payments. *University Nice Sophia-Antipolis, JEL Classification E*, *42*, O33.

are the ISP the most frequently associated to this model in these last months.

One of the key issues of free capital movement and financial markets is the provision of **cross-border payment services**. This is confirmed by TFEU Article 63(2), on the basis of which all restrictions on payment transactions between Member States and between Member States and third countries are prohibited. The relevant EC Regulation 2560/2001[466] was replaced in 2009 by the Regulation on cross-border payments in the Community.[467]

Actually, the Regulation 2021/1230 sets the rules on cross-border payments in the European Union.[468] Pursuant to the regulation, banks are required to charge the same rate for euro-based electronic payment transactions across the borders of two European countries as they apply to corresponding euro-based electronic payment transactions within the same European country. In parallel, the PSD (or PSD 1) directive[469] was followed by the **PSD 2** (Payments Services Directive),[470] which creates the legal basis for the further development of a more integrated internal market for electronic payments within the EU and the EEA. It implements comprehensive rules with the aim of making international payments – within the EU – as simple, efficient and secure as similar payments within a country. It improves transparency and consumer protection and adjusts the rules to accommodate innovative payment services, including internet and mobile payments. In accordance with the provisions, regulatory technical standards and enforcement technical standards are prepared by the European Banking Authority, but they are accepted by the European Commission. The PSD 2 directive is supplemented by the Regulation 2015/751,[471] which sets a maximum interchange fee for

[466] Regulation (EC) No 2560/2001 of the European Parliament and of the Council of 19 December 2001 on cross-border payments in euro

[467] Regulation (EC) No 924/2009 of the European Parliament and of the Council of 16 September 2009 on cross-border payments in the Community and repealing Regulation (EC) No 2560/2001

[468] Regulation (EU) 2021/1230 of the European Parliament and of the Council of 14 July 2021 on cross-border payments in the Union

[469] Directive 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market amending Directives 97/7/EC, 2002/65/EC, 2005/60/EC and 2006/48/EC and repealing Directive 97/5/EC

[470] Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC

[471] Regulation (EU) 2015/751 of the European Parliament and of the Council of 29 April 2015 on interchange fees for card-based payment transactions

banks for card-based transactions. This has reduced costs for merchants by allowing debit and credit cards to be accepted.

Regulation 2021/1230 vs. PSD2

Regulation 2021/1230	PSD 2 – Directive
• Electronic payment operations: transfers, direct debits, ATMs, bank card and credit card payments, cash transfers • Payments in euro or in the national currency of other EU countries • Use of International Bank Account Number (IBAN) and Bank Identification Code (BIC) • Disputes between banks and customers: complaints and complaint handling, effective out-of-court complaint and redress procedures; • Fines	• Electronic payments: also including internet and new innovative payment services similar to mobile payments • Strict security requirements: protection of consumers' financial data; secure identification; reducing the risk of fraud • Transparency and information • Rights and obligations of users and service providers of payment services • Decree 2015/751: bank commission maximum

Source: own compilation of the author

In the PSD2, **payment services** mean eight activities. (1) Services enabling cash to be placed on a payment account as well as all the operations required for operating a payment account. (2) Services enabling cash withdrawals from a payment account as well as all the operations required for operating a payment account. (3) Execution of payment transactions, including transfers of funds on a payment account with the user's payment service provider or with another payment service provider: (i) execution of direct debits, including one-off direct debits; (ii) execution of payment transactions through a payment card or a similar device; (iv) execution of credit transfers, including standing orders. (4) Execution of payment transactions where the funds are covered by a credit line for a payment service user: (i) execution of direct debits, including one-off direct debits; (ii) execution of payment transactions through a payment card or a similar device; (iii) execution of credit transfers, including standing orders. (5) Issuing of payment instruments and/or acquiring of payment transactions. (6) Money remittance. (7) Payment initiation services. (8) Account information services.

The **Single Euro Payments Area** (SEPA) aims to ensure that (i) making electronic payments in the euro area is as easy as making cash payments; (ii) no extra charges are involved when making an electronic euro payment from one Member State to another.[472] Regulation 260/2012/EU establishes the rules and technical requirements for transfer and direct debit operations carried out in euros in the SEPA area.[473] Access (availability) to national accounts used for transfers and withdrawals must be ensured in each EU country. Payment systems must be interoperable. Transfers and direct debit operations must: use international bank account numbers, bank identification codes and financial messaging standards for all euro payments; the right of paying parties to give specific instructions, such as the amount and frequency of collection. PSD2 requires the charges and exchange rate used in cross-border payments to be transparent. It also specifies the information to be given to customers.

In relation to the payments and money transfers **anti-money laundering** package of EU legislative measures is based on Regulation 2015/847 on the data accompanying money transfers;[474] and Directive 2015/849 (AML4)[475] on preventing the use of financial systems for money laundering or terrorist financing. According to the regulation, taking into account the characteristics of the national payment systems, it must be possible for the member states that money transfers can be traced back to the paying party in all cases. The requirement to verify the correctness of the payer's and beneficiary's data shall only apply to individual money transfers exceeding €1,000. Given the potential risk of money laundering and terrorist financing in the case of anonymous money transfers, it is appropriate to require payment service providers to request data on the payer and the payee. In addition,

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[472] Levente, K., & Sándor, D. (2020). From the Emergence of the Euro to the Development of the Single Euro Payment Area.
Jantoń-Drozdowska, E., & Mikołajewicz-Woźniak, A. (2017). The impact of the distributed ledger technology on the Single Euro Payments Area development. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, *12*(3).
Santamaría, J. (2021). Developments in fast payments in the Single Euro Payments Area. *Journal of Payments Strategy & Systems*, *15*(4), 355-359.

[473] Regulation (EU) No 260/2012 of the European Parliament and of the Council of 14 March 2012 establishing technical and business requirements for credit transfers and direct debits in euro and amending Regulation (EC) No 924/2009

[474] Regulation (EU) 2015/847 of the European Parliament and of the Council of 20 May 2015 on information accompanying transfers of funds and repealing Regulation (EC) No 1781/2006

[475] Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Regulation (EU) No 648/2012 of the European Parliament and of the Council, and repealing Directive 2005/60/EC of the European Parliament and of the Council and Commission Directive 2006/70/EC

it tightens the rules regarding the identification of the actual owners of customers, especially business companies and legal associations (trust management schemes); and forbids them to keep a non-registered account and open a non-registered savings account. Following the terrorist attacks in Europe in 2016, Directive 2018/843 (AML5) was adopted,[476] which extended the scope of AML4 to auditors, external accountants, tax advisors, real estate agents and art dealers, if the rental fee or transaction value exceeds €10,000. It also prohibits banks from opening non-name vault accounts, and lowered the threshold above which prepaid card holders must prove their identity from €250 to €150. The former rules are detailed and clarified by Regulation 2019/758 on the addition of regulatory technical standards for minimum measures and types of additional measures,[477] and Directive 2019/1153 on the establishment of rules for the prevention of certain crimes of financial and other information.[478]

Accounting

The International Accounting Standards Committee (IASC) was formed in 1973, marking the first attempt at international accounting standards. Despite issuing several International Accounting Standards (IAS), adoption remained uneven due to the voluntary nature of the standards and limited enforcement mechanisms. In 2001 the IASC is restructured and renamed the **International Accounting Standards Board** (IASB). [479] It gained greater independence and resources, strengthening its authority and legitimacy. The board issues new and revised standards, aiming for convergence with national standards globally. The IASB and the US Financial Ac-

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[476] Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU

[477] Commission Delegated Regulation (EU) 2019/758 of 31 January 2019 supplementing Directive (EU) 2015/849 of the European Parliament and of the Council with regard to regulatory technical standards for the minimum action and the type of additional measures credit and financial institutions must take to mitigate money laundering and terrorist financing risk in certain third countries

[478] Directive (EU) 2019/1153 of the European Parliament and of the Council of 20 June 2019 laying down rules facilitating the use of financial and other information for the prevention, detection, investigation or prosecution of certain criminal offences, and repealing Council Decision 2000/642/JHA

[479] Fuertes, I. (2020). Towards harmonization or standardization in governmental accounting? The international public sector accounting standards board experience. In *Institutions and Governance in Comparative Policy Analysis Studies* (pp. 246-264). Routledge.

counting Standards Board (FASB) agreed in 2005 to work towards convergence, marking a significant step towards a single set of global accounting standards. Many countries adopted the **International Financial Reporting Standards** (IFRS) developed by the IASB, promoting global comparability. Later, in 2007, the European Union mandated IFRS for listed companies. The IASB continues to refine and update standards, addressing emerging issues like sustainability reporting and digital assets. The IASB Foundation was established in 2011, providing independent oversight and funding for the board. In 2013, the convergence project with FASB was completed, resulting in a significant number of converged standards.

The **International Public Sector Accounting Standards** (IPSASs) are a set of accounting standards issued by the **International Public Sector Accounting Standards Board** (IPSASB, established in 2003) for use by public sector entities around the world in the preparation of their financial statements.[480] IPSASs are based on IFRSs, which are a set of accounting standards used by private sector entities. However, IPSASs also take into account the unique needs of public sector entities, such as the emphasis on accountability and stewardship. The **European Public Sector Accounting Standards** (EPSAS) are developed by the European Commission aimed at increasing the transparency and comparability of public sector financial accounting and reporting between and within EU member states.[481]

The 1990s witnessed the birth of **online payment systems**, transforming the way people conducted financial transactions. In 1994 the First Virtual Holdings introduced one of the earliest online payment systems, allowing customers to make purchases using their email addresses and an ID number. The CyberCash was launched in 1995, aiming to create a secure online payment infrastructure for real-time credit card payments. In 1996, Visa, Mastercard, IBM, Microsoft, and Netscape collaborated to develop SET (Secure Electronic Transaction), a method for secure payments on the internet. The Confinity.com company was founded by Peter Thiel and Max Levchin, initially focusing on digital wallets and secure online payments. In 2000, Confinity.com merged with X.com, an online financial services company

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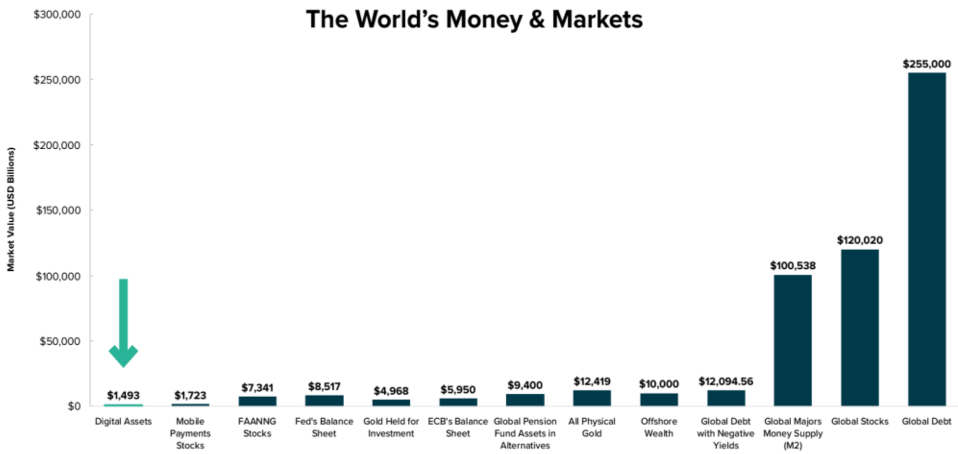
[480] Schmidthuber, L., Hilgers, D., & Hofmann, S. (2022). International Public Sector Accounting Standards (IPSASs): A systematic literature review and future research agenda. *Financial Accountability & Management*, *38*(1), 119-142.

[481] Sforza, V., Cimini, R., & Fanti, E. (2023). The debate around EPSAS: a structured literature review for scholars and practitioners. *Public Money & Management*, 1-10.
Vértesy L. (2020). The Conformity of the Hungarian Public Sector Accounting Regulation with the EPSAS Conceptual Framework. *Jogelméleti Szemle* 21(2) 55-73.

founded by Elon Musk. This merger led to the creation of **PayPal**, a revolutionary e-wallet that allowed users to send and receive money online securely and conveniently. Among its success factors we can mention (i) the user-friendly interface; (ii) the strong and robust security features to protect users' financial information; and (iii) the trategic partnerships with major online retailers, increasing the visibility and adoption. The emergence of online payment systems in the 1990s, particularly PayPal's success, transformed the e-commerce. It paved the way for a more convenient, secure, and efficient way to conduct online transactions, laying the foundation for the digital payments revolution we are witnessing today.

The Worlds Money and Markets



Source: https://grayscale.com/wp-content/uploads/2021/11/Grayscale_Investor_Deck_Nov21_Final.pdf

The **digital assets**, which can encompass a wide range of things like cryptocurrencies, non-fungible tokens (NFTs), and digital collectibles, currently represent a relatively small portion of the global market compared to more established asset classes like real estate, equities, and bonds. In 2024, the global crypto market capitalization sits around $2 trillion, while the global stock market value exceeds $90 trillion. Real estate is estimated at around $326 trillion globally. While digital assets have experienced significant growth in recent years, their overall market size remains considerably smaller compared to traditional asset classes.[482] Reasons for the current size difference, digital assets are a relatively new asset class compared to others, meaning there's less established infrastructure and wider public understanding. The regulation and/or the regulative sandbox surrounding digital assets is still evolving, which can create uncertainty for some investors. Cryptocurrencies and other digital assets are known for their high volatility, which can deter some investors who prefer more stable options. Not everyone has the knowledge or means to access and invest in digital assets, creating a barrier to entry for some. Despite their current size, digital assets have the potential to grow significantly in the future, driven by factors. As more people learn about and understand digital assets, their adoption is likely to increase. Developments in blockchain technology and related infrastructure could make it easier and safer to invest in digital assets. Growing interest from institutional investors could bring significant capital into the market. Clearer regulations could provide more stability and attract a wider range of investors.

17.4. Digital and Electronic Money

The 1990s saw an exciting period of experimentation with digital currencies, with several vying for mainstream adoption. While ultimately none of them achieved the lasting success of Bitcoin, their stories offer valuable insights into the evolution of this technology.

The **E-Cash** (DigiCash) considered the first true digital currency, launched in 1990 by David Chaum's DigiCash company. Offered features like anonymity and double-spending prevention, using innovative cryptography. Gained traction with banks and online merchants but struggled with high transaction fees and complex technology. Filed for bankruptcy in 1998 due to limited mainstream adoption and regulatory challenges.

The **Proton** was an early electronic cash system in Belgium, launched in 1995. It allowed users to store electronic money on a smart card, enabling

[482] Statista - Digital Assets - Worldwide: https://www.statista.com/outlook/fmo/digital-assets/worldwide (Estimates global digital asset market revenue in 2024 between $73.21 billion and $80.08 billion); PwC - Digital Assets – an emerging trend in capital markets: https://www.pwc.com/ng/en/publications/digital-assets-an-emerging-trend-in-capital-markets.html (States combined US market capitalization of digital assets grew from $14 billion in 2016 to $3 trillion in 2021); Fortune Business Insights - Digital Asset Management Market Growth Trends: https://www.fortunebusinessinsights.com/ (Estimates global digital asset management market at $3.45 billion in 2022)

quick and secure payments at participating merchants.[483] Proton gained initial success, but faced challenges over time due to the emergence of alternative payment methods. The Proton system was discontinued in 2014 as the Belgian payment system shifted toward more advanced and diversified electronic payment solutions.[484]

The **Octopus card system** in Hong Kong is a pioneering contactless smart card payment system that has become a ubiquitous part of daily life in the city. Originally introduced for public transportation, the Octopus card has evolved into a versatile payment tool widely used for retail, dining, and various services. Launched in 1997, the Octopus card employs RFID technology, allowing users to simply tap the card on card readers for quick and convenient transactions. Beyond its efficiency in public transportation, the Octopus card's seamless integration into various aspects of daily life has contributed to its popularity and success.[485]

The **Chipknip** was a smart card electronic cash system used in the Netherlands, introduced in the late 1990s.[486] While it gained popularity for its ease of use and the ability to make small-value transactions at various locations, the Chipknip system faced challenges with the rise of alternative payment methods, including contactless and mobile payments. Ultimately, the Chipknip system was phased out in 2015 as the payment environment evolved, with users transitioning to other electronic payment options.

London's Oyster card system is a renowned contactless smart card system used primarily for public transportation in the city. Introduced in 2003, the Oyster card enables commuters to travel seamlessly across the extensive London transport network, including buses, trains, trams, the London Underground, and even the Thames Clippers river services. With the convenience of touchless transactions, users can add credit to their Oyster cards

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[483] Lelieveldt, S. L. (1996). How to regulate electronic cash: an overview of regulatory issues and strategies. *Am. UL Rev.*, *46*, 1163.
[484]
[485] Chau, P. Y., & Poon, S. (2003). Octopus: an e-cash payment system success story. *Communications of the ACM*, *46*(9), 129-133.
[486] van der Hof, S., & Vorselaars, H. A. C. M. (1998). De Algemene Voorwaarden Chipknip, geknipt voor de consument?. In *De kaarten op tafel. Een verkenning van de juridische en bestuurskundige aspecten van chipcards.* (pp. 117-132). SDU-uitgevers.

and easily use London's bustling transit system. The Oyster card has significantly streamlined travel in the city, offering cost-effective and efficient options for both residents and visitors.[487]

Japan's **FeliCa** is a contactless smart card system widely utilized for electronic payments and various applications. Developed by Sony, FeliCa technology has become an integral part of Japan's advanced and efficient payment ecosystem. Introduced in the early 2000s, FeliCa cards use radio-frequency identification (RFID) technology to enable fast and secure transactions through proximity communication.[488] These cards are commonly used for public transportation, allowing users to effortlessly tap their cards at card readers to pay for train and bus rides. Beyond transportation, FeliCa has expanded its application to include electronic money, access control systems, and loyalty programs. The versatility of the technology makes it a popular choice for a range of services, contributing to the seamless and convenient nature of daily life in Japan. The FeliCa ecosystem has also evolved with the integration of mobile devices, enabling users to store FeliCa-compatible cards digitally on their smartphones. This development has further streamlined transactions, offering users greater flexibility and convenience.

In the European Union, according to the Electronic Money Directive 2009/110/EC (EMD), **electronic money** means electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions, and which is accepted by a natural or legal person other than the electronic money issuer.[489] Electronic money institutions must inform the competent authorities in advance of any material change in measures taken for safeguarding of funds that have been received in exchange for electronic money issued. In broad terms, the EMD seeks to (i) facilitate the emergence of innovative and secure e-money services; (ii) provide market access opportunities for new companies; (iii) foster effective competition among all participants in the market. More specifically, the EMD updates EU regulations on e-money, aligning the prudential framework for e-money institutions with

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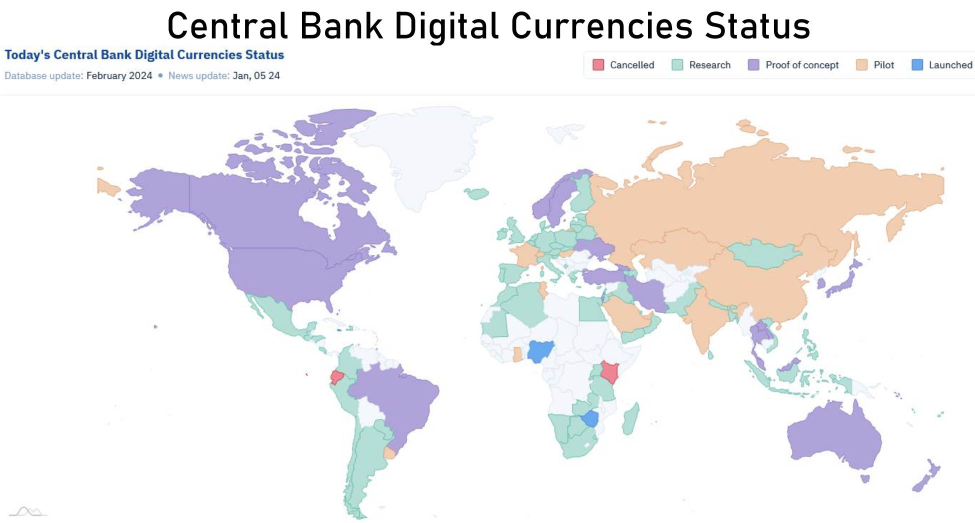
[487] Reades, J., Zhong, C., Manley, E. D., Milton, R., & Batty, M. (2016). Finding pearls in London's oysters. *Built Environment*, *42*(3), 365-381.
[488] Rottenberg, C., & Sisi, L. (2002). The mobil speedpass and mobile commerce. *MUR*.
[489] Jacques, J. (2022). E-money and trusts: A property analysis. *Law Quarterly Review (Forthcoming)*.
Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC

the requirements set for payment institutions in the PSD. It introduces proportional prudential requirements to facilitate entry into the market for new players, including a reduction in the initial capital requirement to €350,000 and the implementation of new rules for calculating own funds. The scope of the EMD encompasses various institutions, such as banks, e-money institutions, the European Central Bank, and national central banks. E-money institutions, under the EMD, are permitted to engage in activities that include providing payment services and extending credit related to these payments. It's noteworthy that in October 2015, the EU adopted a new directive on **payment services**, commonly known as PSD2, with the specific objectives of enhancing security, broadening consumer choice, and keeping pace with ongoing innovation.[490]

Governments worldwide started exploring the potential of their own digital currencies, raising questions about the future of monetary systems. The **central bank digital currencies** (CBDCs) are digital forms of a nation's central bank currency. Unlike traditional cash, which is physical, CBDCs exist electronically and are issued directly by the central bank to individuals and businesses.



Source: CBDC Tracker. (2024). Today's Central Bank Digital Currencies Status (https://cbdctracker.org/)

[490] Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC

CBDCs can potentially reach unbanked populations, promoting financial inclusion and fostering economic development. They can potentially streamline payments and enable new financial services, boosting efficiency and innovation within the financial system.[491] Combatting cash-based illegality, they can facilitate easier tracking of transactions, potentially aiding in combating tax evasion and other financial crimes. Governments hope CBDCs can complement cash and ensure central banks retain control over monetary policy in an increasingly digital world. Among the types of CBDCs, the (i) retail CBDCs accessible to the general public for everyday transactions, similar to cash; (ii) wholesale CBDCs are primarily used by financial institutions for interbank settlements and large-value payments; (iii) hybrid CBDCs combine features of both retail and wholesale models.[492]

Many central banks are actively **researching** and experimenting with CBDCs, but few have launched official versions yet. China is a pioneer, launching its digital yuan in pilot programs across several cities. The United States, European Union, and other major economies are still in research and development phases. Among the potential **benefits**, we can mention (i) the increased financial inclusion and access to digital payments, (ii) faster and more efficient payment systems, (iii) enhanced transparency and traceability of financial transactions, and (iv) potential for innovative financial services and applications. For the challenges the following raise: (i) privacy concerns related to data collection and government surveillance; (ii) cybersecurity risks and potential vulnerability to cyberattacks; (iii) impact on existing financial institutions and potential disintermediation; and (iv) ensuring equitable access and preventing digital divide. There are four countries beyond the full implementation of retail CBDCs.: the Bahamas (2017), Jamaica (2023), Zimbabwe and Nigeria (2021).[493] In addition, the seven countries of the Organization of Eastern Caribbean States, and Cambodia can be mentioned. The Philippines, Kenya, Denmark, Curacao, Singapore, Ecuador and Finland cancelled the initiative.

[491] Auer, R., Frost, J., Gambacorta, L., Monnet, C., Rice, T., & Shin, H. S. (2022). Central bank digital currencies: motives, economic implications, and the research frontier. *Annual review of economics*, *14*, 697-721.
[492] Ozili, P. K. (2023). Central bank digital currency research around the World: a review of literature. *Journal of Money Laundering Control*, *26*(2), 215-226.
[493] Wang, Y., Lucey, B. M., Vigne, S. A., & Yarovaya, L. (2022). The effects of central bank digital currencies news on financial markets. *Technological Forecasting and Social Change*, *180*, 121715.

The prediction for a **cashless world**, by some experts that by 2025, 71% of the global population will have access to digital payment technologies. This would represent a significant shift away from traditional cash-based payments.[494] The rise of cryptocurrencies, mobile payments, and other digital payment options is contributing to this trend.

In 2022 the European Union adopted the Regulation 2022/858 on the **distributed ledger technology** (DLT),[495] which entered into force in 2023, and aimed to establish a temporary common EU pilot regime for financial services based on this. The concept of DLT market infrastructure comprises DLT multilateral trading facilities (DLT MTF), DLT settlement systems (DLT SS) and DLT trading and settlement systems (DLT TSS). Distributed ledger technology means a technology that enables the operation and use of distributed ledgers. The distributed ledger is an information repository that keeps records of transactions and that is shared across, and synchronized between, a set of DLT network nodes using a consensus mechanism. Admission to trading or recording on a DLT market infrastructure under this pilot regime is limited to the following: (i) shares, the market capitalization of which must be below €500 million; (ii) bonds and other forms of securitized debt, including depositary receipts, or money market instruments with a value of less than €1 billion; (iii) units in collective investment undertakings – the market value of the assets under management must be below €500 million. The total value of all DLT financial instruments must not exceed €6 billion.[496] Other relevant rules cover the (i) DLT multilateral trading facility (MTF); (ii) DLT securities settlement system (SSs); and (iii) DLT transferable securities (TSS), with relation to the Regulation 600/2014 (MiFIR), Directive 2014/65 (MiFID II), and Regulation 909/2014 (CSDR).

17.5. Cryptocurrencies

The emergence of cryptocurrencies marks a significant moment in financial history, revolutionizing how we perceive and utilize money. Tracing their roots back to the late 20th century, these digital currencies have evolved

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[494] Marszałek, P., & Szarzec, K. (2021). Digitalization and the Transition to a Cashless Economy. In *Digitalization and Firm Performance: Examining the Strategic Impact* (pp. 251-281). Cham: Springer International Publishing.

[495] Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022 on a pilot regime for market infrastructures based on distributed ledger technology, and amending Regulations (EU) No 600/2014 and (EU) No 909/2014 and Directive 2014/65/EU

[496] https://eur-lex.europa.eu/legal-content/EN/LSU/?uri=celex:32022R0858

rapidly, sparking both excitement and controversy. The groundwork for cryptography-based currencies was laid in the 1980s.

In 1979 David Chaum introduced a **blockchain-like concept** in his dissertation titled *Computer Systems Established, Maintained, and Trusted by Mutually Suspicious Groups*.[497] Stuart Haber and W. Scott Stornetta expanded on this idea in 1991 with a focus on creating a cryptographically secure chain of blocks to secure document timestamps.[498] They with Dave Bayer further enhanced their design in 1992 by integrating Merkle trees, which allowed multiple document certificates to be grouped into one block, thus improving efficiency.[499] Through their company Surety, Haber, have been publishing document certificate hashes in The New York Times weekly since 1995.[500]

The **blockchain** is a cryptographic, or encoded, distributed ledger – a database of transactions in the form of blocks arranged in a chain. These are validated by multiple users through consensus mechanisms (such as proof-of-work in Bitcoin mining) shared across a public or private network. Blockchain technology could cut banks' infrastructure costs for cross-border payments, securities trading, and regulatory compliance. Among the advantages we can find (i) reduced costs of overall transactions and IT infrastructure; (ii) irrevocable and tamper-resistant transactions; (iii) reduction in systemic risks (eliminate credit and liquidity risks); (iv) consensus in variety of transactions; (v) ability to store and define ownership of any tangible or intangible asset; (vi) increased accuracy of trade data and reduced settlement risk; (vii) near-instantaneous clearing and settlement; (viii) improved security and efficiency of transactions; (ix) enabling effective monitoring and auditing by participants, supervisors, and regulators.

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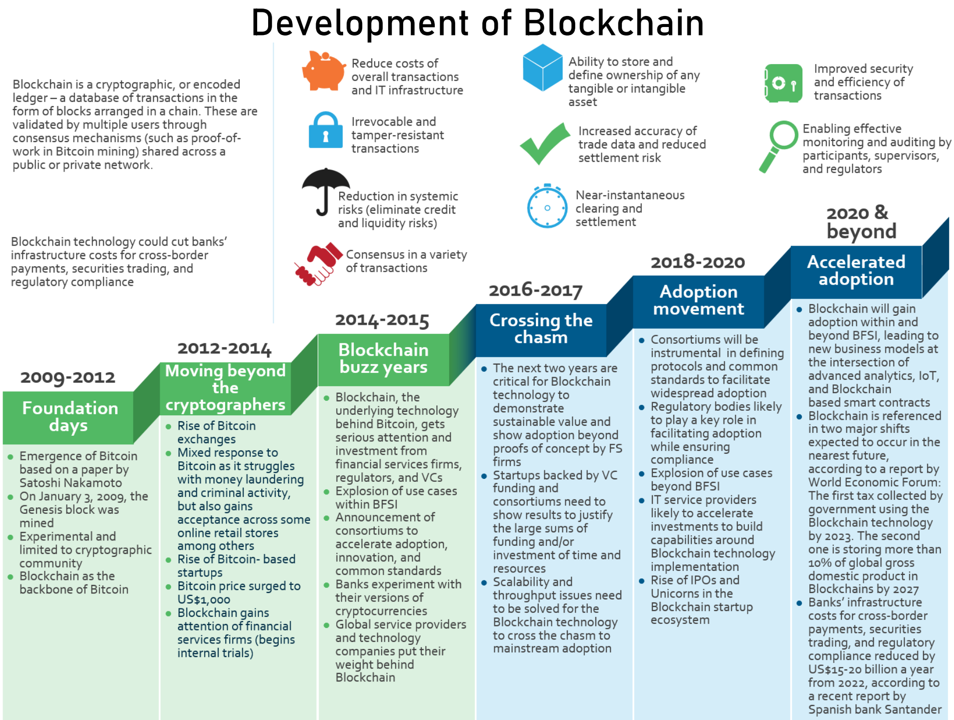
[497] Chaum, D. L. (1979). *Computer Systems established, maintained and trusted by mutually suspicious groups*. Electronics Research Laboratory, University of California.
Sherman, A. T.; Farid, J.; Zhang, H.; Golaszewski, E. (2019). On the Origins and Variations of Blockchain Technologies. *IEEE Security Privacy*. 17 (1): 72–77
[498] Haber, S., & Stornetta, W. S. (1991). *How to time-stamp a digital document* (pp. 437-455). Springer Berlin Heidelberg.
[499] Bayer, D., Haber, S., Stornetta, W.S. (1992, 1993). Improving the Efficiency and Reliability of Digital Time-Stamping. In: Capocelli, R., De Santis, A., Vaccaro, U. (eds) Sequences II. Springer, New York
[500] Oberhaus, D. (2018). The World's Oldest Blockchain Has Been Hiding in the New York Times Since 1995. www.vice.com.



Source: EverestGroup (2020): Defining Blockchain | Market Insights. (https://www.everest-grp.com/market-insights/big-data/blockchain-technology-bfsi-benefits-market-insights.html)

Nick Szabó's **Bit Gold** concept (1998) further explored a **decentralized, secure electronic currency**.[501] Bit gold was never implemented, but has been called a direct precursor to the bitcoin architecture. Even Szabó introduced the concept of **smart contracts** in the 1990s, as "*a set of promises, specified in digital form, including protocols within which the parties perform on these promises*".[502]

Foundation Days, 2009-2012

Satoshi Nakamoto's anonymous whitepaper (2008) proposed **Bitcoin**, the first decentralized cryptocurrency using blockchain technology. Bitcoin's first genesis block was mined in January 2009, marking the official launch

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[501] Szabo, N. (1998). Bit Gold: towards trust-independent digital money. *Recuperado de: https://web. archive. org/web/20140406003811/http://szabo. best. vwh. net/bitgold. html*. and Szabo, N. (2008). Bit Gold proposal. *Decentralized Business Review*, 21449.
[502] Szabo, N. (1996). Smart contracts: building blocks for digital markets. *EXTROPY: The Journal of Transhumanist Thought,(16)*, *18*(2), 28.

and establishing a peer-to-peer network for validation and security.[503] The blockchain technology served as the sturdy backbone of Bitcoin, laying the groundwork for what was to come. In the 2010s Bitcoin experienced substantial price volatility, attracting enthusiasts and raising concerns about financial stability. The association with illicit activities through platforms like Silk Road led to increased regulatory scrutiny and debate. With rapid growth and increasing acceptance the Bitcoin achieved a $1 trillion market cap in just 12 years, becoming the fastest asset to reach this threshold. This event sparked renewed interest and investment in Bitcoin and other cryptocurrencies.

The **Initial Coin Offerings** (ICOs) are fundraising mechanisms used by blockchain projects and startups to raise capital.[504] In an ICO, the project sells a portion of its cryptocurrency tokens to investors in exchange for established cryptocurrencies like Bitcoin or Ethereum, or sometimes fiat currency. These tokens typically represent a stake or utility within the project's ecosystem. ICOs gained popularity during the cryptocurrency boom of the late 2010s as a way for startups to bypass traditional venture capital funding and access capital directly from the public.[505] However, they have also been associated with regulatory concerns due to their decentralized and sometimes unregulated nature, leading to various legal challenges and scams.[506]

The **Litecoin** was launched in late 2011 by Charlie Lee, a former Google and Coinbase engineer. Often referred to as the silver to Bitcoin's gold due to its similarities and differences in technology. Litecoin aimed to offer faster transaction times and lower fees compared to Bitcoin. The **Dogecoin** was created in 2013 as a joke by Billy Markus and Jackson Palmer, poking fun at the wild speculation in the cryptocurrency market.[507] Based on the popular Doge meme featuring a Shiba Inu dog. Dogecoin gained unex-

[503] Nakamoto, S. (2008). Bitcoin whitepaper. *URL: https://bitcoin. org/bitcoin. pdf-(: 17.07. 2019).* and Nakamoto, S. (2009). Bitcoin. *A peer-to-peer electronic cash system, 21260*.
[504] Li, J., & Mann, W. (2021). Initial coin offerings: Current research and future directions. *The Palgrave Handbook of Technological Finance,* 369-393.
[505] Campino, J., Brochado, A., & Rosa, Á. (2022). Initial coin offerings (ICOs): Why do they succeed?. *Financial Innovation*, *8*(1), 17.
[506] Shrestha, P., Arslan-Ayaydin, Ö., Thewissen, J., & Torsin, W. (2021). Institutions, regulations and initial coin offerings: An international perspective. *International Review of Economics & Finance, 72,* 102-120.
[507] Chohan, U. W. (2021). A history of Dogecoin. *Discussion Series: Notes on the 21st Century*.

pected popularity and has been used for charitable donations and online tipping. Other cryptocurrencies, known as altcoins, emerged, diversifying the ecosystem with varied functionalities and goals.

Moving Beyond the Cryptographers, 2012-2014

Moving beyond the realm of cryptographers, the years 2012 to 2014 witnessed a significant shift. Bitcoin exchanges began to rise, offering mixed responses as the cryptocurrency grappled with issues of money laundering and criminal activities. However, it also found acceptance in various online retail stores. Simultaneously, Bitcoin-based startups emerged, fueled by the surging price of Bitcoin, which peaked at US$1,000. Financial services firms started to take notice, initiating internal trials and delving into the potential of blockchain technology.

Blockchain Buzz Years, 2014-2015

These years garnered serious attention and investments from financial services firms, regulators, and venture capitalists alike. Within the banking, financial services, and insurance (BFSI) sector, an explosion of use cases emerged. Consortiums were announced, aimed at accelerating adoption, fostering innovation, and establishing common standards. Banks ventured into creating their versions of cryptocurrencies, while global service providers and technology companies threw their weight behind blockchain technology.

The **Ethereum** was started in 2015 by Vitalik Buterin, and it is much more than just a cryptocurrency.[508] While Ether (ETH), its native token, is the second-largest cryptocurrency by market capitalization, the Ethereum blockchain platform offers a wider range of capabilities. Ethereum utilizes **blockchain** technology, a distributed ledger ensuring transparency and security for transactions. It goes beyond simple payments by enabling programmable contracts known as **smart contracts**, which execute automatically when predefined conditions are met. Built on top of the Ethereum platform, the **decentralized applications** (dApps) run on a decentralized network, independent of any single entity's control. This facilitates diverse applications, including

[508] Buterin, V. (2013). Ethereum white paper. *GitHub repository*, *1*, 22-23. and Buterin, V. (2016). Ethereum: platform review. *Opportunities and Challenges for Private and Consortium Blockchains, 45*. Buterin, V. (2022). *Proof of stake: The making of Ethereum and the philosophy of blockchains*. Seven Stories Press.

DeFi (Decentralized Finance)	Peer-to-peer lending, borrowing, and other financial services without relying on traditional institutions
NFTs (Non-Fungible Tokens)	Unique digital assets representing ownership of virtual or real-world items, fostering innovation in areas like art, collectibles, and gaming.
DAOs (Decentralized Autonomous Organizations)	Community-driven organizations governed by transparent rules and smart contracts, enabling collective decision-making and collaboration.

It is open-source, therefore anyone can contribute to the development and improvement of the platform. The vast potential of smart contracts opens doors to diverse applications beyond finance. The network relies on a consensus mechanism called Proof-of-Stake (PoS) to secure transactions, aiming for improved energy efficiency compared to Bitcoin's Proof-of-Work (PoW). Ongoing upgrades like Ethereum 2.0 address scalability limitations to handle more transactions and users efficiently.[509]

Bitcoin vs. Ethereum

Features	Bitcoin	Ethereum
Inception Year	2009	2015
Founder/Creator	Satoshi Nakamoto	Vitalik Buterin
Token	BTC	ETH
Purpose	Primarily designed as a digital currency.	Intended for smart contracts and DApps.
Primary Use Case	Store of Value, Peer-to-Peer Transactions	Smart Contracts, DApps, DeFi, NFTs
Blockchain Technology	Transaction-Based, UTXO Model	Smart Contracts, Ethereum Virual Machine (EVM)
Consensus Mechanism	PoW (Proof of Work)	Transitioned from PoW to PoS (Ethereum 2.0)
Maximum Supply	21 million BTC	No fixed limit (dynamic issuance)
Transaction Speed	10 minutes per block Slower transaction speeds (app. 7 transactions /sec)	Variable up 15 transitions / sec Higher transaction throughput with plans for scalability improvements

[509] Park, D., Zhang, Y., & Rosu, G. (2020). End-to-end formal verification of Ethereum 2.0 deposit smart contract. In *Computer Aided Verification: 32nd International Conference, CAV 2020, Los Angeles, CA, USA, July 21–24, 2020, Proceedings, Part I 32* (pp. 151-164). Springer International Publishing.

Features	Bitcoin	Ethereum
Scalability	Lighting Network, sidechains	Layer-two (L2s) scaling like zk rollups, optimistic rollups and state channels; sidechains
Developer Community	Active, with contributions using BIPs	Active, focused on dApps, DeFi, and EIPs
Security Features	Robust security and immutability	Smart contract vulnerabilities, ongoing improvements
Legal Status	Varies by jurisdiction, regulatory challenges	Varies by jurisdiction, regulatory challenges
Historical Performance	Pioneering with significant growth with volatility	Impressive growth with volatility
Real-world Applications	Cross-border remittances, hedge against inflation	DeFi, NFTs, upply chain, identity verification
Industry Adoption	Investments from institutions, payment processor integration	Enterprises exploring use cases, EEA

Source: own compilation of the author based on INX Digital Company INC. (2023). Ethereum vs Bitcoin: A Comprehensive Comparison of Blockchain's Big Two. (https://www.inx.co/learn/beginners/ethereum-vs-bitcoin-a-comprehensive-comparison-of-blockchains-big-two/)

Ethereum and Bitcoin share numerous similarities: Both are digital currencies traded through online exchanges and held in various forms of cryptocurrency wallets. However, they diverge significantly in their core purposes. Bitcoin is crafted to offer an alternative to traditional physical or fiat currency, whereas Ethereum is tailored for intricate smart contracts and decentralized applications. Bitcoin was the arrival of a fundamentally new type of digital currency that functions independently of governmental or corporate oversight. On the other hand, Ethereum suggested leveraging blockchain technology not solely for upholding a decentralized payment system, but also for fueling secure decentralized financial agreements and applications.[510]

Crossing the Chasm, 2016-2017

Crossing the chasm between innovation and mainstream adoption became the focal point of 2016 to 2017. Startups, backed by venture capital funding and consortiums, faced the critical challenge of demonstrating tangible results to justify their investments. Scalability and throughput issues

[510] Arslanian, H. (2022). The history of money. In *The Book of Crypto: The Complete Guide to Understanding Bitcoin, Cryptocurrencies and Digital Assets* (pp. 1-43). Cham: Springer International Publishing.

loomed large, requiring solutions for blockchain to transition into mainstream adoption beyond proofs of concept by financial services firms.

Adoption movement, 2018–2020

The years 2018 to 2020 marked an adoption movement characterized by consortiums defining protocols and common standards to facilitate widespread adoption. Regulatory bodies played a crucial role in the adoption while ensuring compliance. The explosion of blockchain use cases extended beyond BFSI, with IT service providers ramping up investments to build capabilities around blockchain implementation. The blockchain startup ecosystem witnessed the rise of IPOs and unicorns, indicating the growing maturity of the industry.

Accelerated adoption, 2020–

Looking ahead to 2020 and beyond, accelerated adoption of blockchain is anticipated within and beyond BFSI, paving the way for new business models at the intersection of advanced analytics, the Internet of Things, and blockchain-based smart contracts. According to a report by the World Economic Forum, significant shifts are expected, including governments collecting taxes using blockchain technology by 2023 and storing more than 10% of the global gross domestic product in blockchains by 2027. Moreover, reports suggest that banks' infrastructure costs for cross-border payments, securities trading, and regulatory compliance could be substantially reduced by US$1.5-20 billion annually from 2022, as indicated by a recent report from Santander Bank.

The mainstream recognition and transformation started at the beginning of the 2020s. Major companies and financial institutions began exploring blockchain and cryptocurrencies, prompting wider discussion and potential integration. Innovative applications beyond payments, like **decentralized finance** (DeFi), fueled interest in the potential of cryptocurrencies for financial services.[511]

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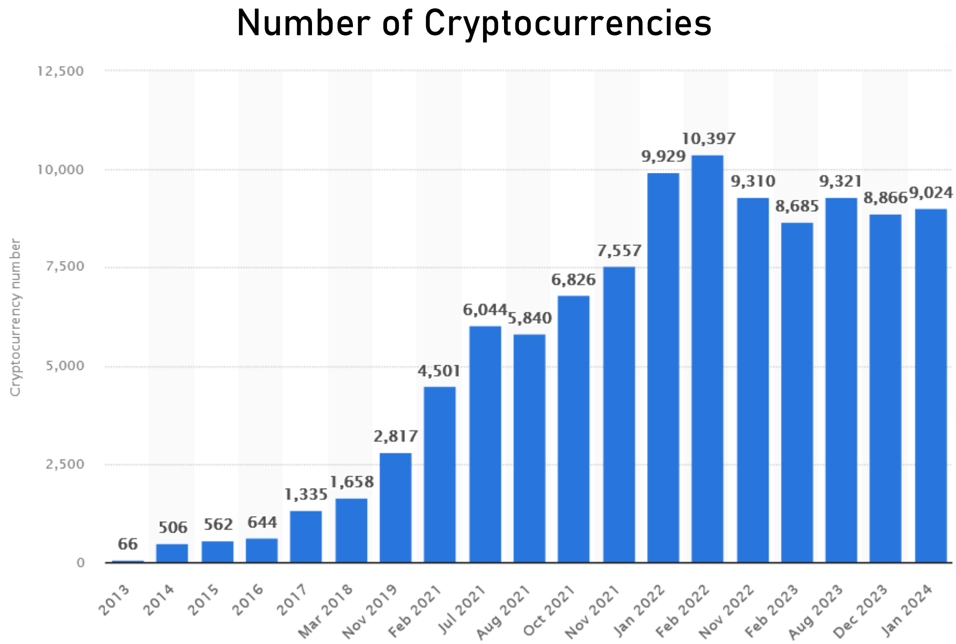
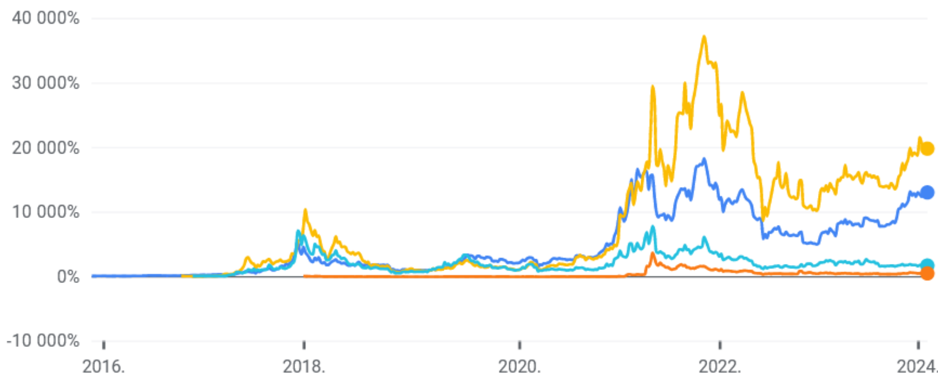
[511] Ozili, P. K. (2022). Decentralized finance research and developments around the world. *Journal of Banking and Financial Technology*, *6*(2), 117-133.



Source: Statista. (2024). Number of cryptocurrencies worldwide from 2013 to January 2024. (https://www.statista.com/statistics/863917/number-crypto-coins-tokens/)

In January 2024, there were a little more than 9,000 cryptocurrencies as of 2023. It's worth noting that the number of digital coins was even more substantial in the early months of 2022. However, a significant portion of these cryptocurrencies may not hold considerable significance in the market. Alternative estimates suggest that around 20,000 cryptocurrencies exist, but many of them are either inactive or discontinued. Notably, the top 20 cryptocurrencies collectively constitute nearly 90 % of the total market. The proliferation of cryptocurrencies can be attributed to the accessible nature of their creation process. Any individual or company with the knowledge of writing a program on a blockchain has the technical capability to create a cryptocurrency. Popular blockchain platforms like Ethereum and Binance Smart Chain facilitate this creation process, offering avenues for the incorporation of smart contracts within the realm of DeFi. While the ease of crypto creation enables some to address real-world payment issues, others engage in the creation of cryptocurrencies with the hope of quick financial gains. This diversity in motivations explains why certain cryptocurrencies may lack practical utility. Notably, meme coins like Dogecoin, named after a Japanese dog species, serve as a notorious example, with its creator acknowledging that the coin originated as a joke. Cryptocurrencies can be categorized into various types, each serving distinct purposes. Apart from meme coins, other categories include altcoins, utility tokens, governance tokens, and stablecoins. Altcoins, often benchmarked against Bitcoin, encompass all cryptocurrencies created after Bitcoin, which was the inaugural digital currency. Utility tokens and governance tokens are linked to Non-Fungible Tokens (NFTs) and the metaverse, with examples like the MANA cryptocurrency facilitating real estate transactions in the decentral and metaverse. Stablecoins, such as Tether, are pegged to real-world assets like the U.S. dollar, aiming to exhibit lower volatility compared to conventional cryptocurrencies.

Cryptocurrencies – Price change (%), Euro (2024)



Bitcoin (BTC / EUR)	40 118,47	+39 811,45	↑12 967,04%
Ether (ETH / EUR)	2 162,17	+2 151,27	↑19 752,14%
Litecoin (LTC / EUR)	63,19	+59,55	↑1 634,81%
Dogecoin (DOGE / ...	0,0735	+0,0593	↑419,94%

Source: BTC / EUR. February 2024 (https://www.google.com/finance/quote/BTC-EUR?sa=X&ved=2ahUKEwiZqMqC_5OEAxUV1wIHHXF2CD8Q-fUHegQIFBAf&window=MAX&comparison=ETH-EUR%2CLTC-EUR%2CDOGE-EUR)

Cryptocurrencies are very volatile, which means that their prices can fluctuate significantly in a short period of time. This can make it difficult to predict how much your investment will be worth in the future. All four cryptocurrencies have experienced significant price volatility since 2016. This is evident from the large swings in price shown on the graph. For example, the price of Bitcoin increased by over 40,000% between 2016 and 2021, before falling by over 50% in 2022. The volatility of cryptocurrencies has decreased somewhat in recent years. This is likely due to a number of factors, such as the increasing adoption of cryptocurrencies by institutional investors and the development of more sophisticated trading platforms. However, cryptocurrencies are still much more volatile than traditional assets such as stocks and bonds. This means that they are more likely to experience large price swings, which can make them risky investments.

18. Inflation

The inception of inflation presupposes the emergence of money as an unexpected social construct, perhaps over a span of approximately 2500 years, through various innovations and advancements (circa 630 BC Lydia and Ionia, China). It is a key concept in economics, and refers to the sustained increase in the general price level of goods and services over time. It is a phenomenon that impacts economies worldwide, influencing consumer purchasing power, investment decisions, and monetary policy. Understanding inflation involves examining its various forms, causes, and historical manifestations. In addition to inflation itself, there exist several related concepts and phenomena, including deflation, disinflation, stagflation, and stagnation. These terms describe different economic conditions characterized by changes in the rate of inflation or the overall price level. Furthermore, inflation can vary in terms of its speed, ranging from low and moderate inflation to galloping and hyperinflation, each with distinct implications for economic stability and policymaking. Additionally, inflation can stem from different sources, such as demand-pull inflation, cost-push inflation, and built-in inflation, each driven by specific economic factors. Throughout history, notable instances of inflation have left their mark on various civilizations and economies. From Ancient Rome's debasement of currency to the Price Revolution fueled by the influx of gold and silver from the New World to Habsburg Spain, historical examples illustrate the profound economic and social consequences of inflationary episodes. Moreover, countries like Hungary, Zimbabwe, and Argentina have experienced hyperinflation in more recent times, highlighting the ongoing relevance of inflation as a monetary phenomenon.

During periods of **commodity money** usage, inflation and deflation alternated based on the economic state. Prolonged influxes of gold or silver could lead to inflation. **Precious metal coins**, often collected by the state, were melted down, mixed with other metals (such as copper, lead), and reissued at the same nominal value (devaluation), resulting in decreased costs per individual coin, thereby enabling governments to profit from the increase in seigniorage. This practice augments the money supply while diminishing the relative value of individual coins, necessitating consumers to tender more coins for the same goods and services as before. Variable levels of inflation emerged since the 16th-century **price revolution**, driven by the influx and extraction of gold and particularly silver by the Spanish in Latin America. The introduction of **fiat currency** from the 18th century onwards facilitated much larger fluctuations in the money supply. Rapid increases in the money supply occurred on numerous occasions in countries experiencing political crises, leading to hyperinflation (this extreme inflation was significantly higher than in earlier periods of commodity money). However, since the 1980s, inflation has been kept low and stable in countries with independent central banks. This has led to the moderation of economic cycles and the dampening of fluctuations in most macroeconomic indicators, e.g. the Great Moderation between 1985-2007 in the U.S.

Friedrich A. **Hayek** (1899-1992) expressed his greatest regret in a lifetime of writing was that he never wrote a book-length refutation of Keynesian economics. Economist Sudha Shenoy took up the challenge, compiling and analyzing Hayek's scattered writings on Keynesian policy over 40 years. The resulting book, initially released in 1972: **A Tiger by the Tail** - The Keynesian Legacy of Inflation.[512]

We now have a tiger by the tail: how long can this inflation continue? If the tiger (of inflation) is freed he will eat us up; yet if he runs faster and faster while we desperately hold on, we are still finished! I'm glad I won't be here to see the final outcome…

Friedrich A. Hayek
A Tiger by the Tail (1972) 126.

In Hayeks metaphor the inflation is the tiger, and the central bank with the monetary policy tries to control it, therefore is like trying to catch a tiger by the tail.[513] What Keynesianism unleashes is wicked inflation that no one can control. The tiger-taming act facing central banks is a difficult and dangerous one.[514] According to Hayek inflation is not a monetary phenomenon, but a social and political one. It is caused by governments spending more money than they collect in taxes, which forces them to print more money. This increase in the money supply leads to higher prices, as there are more units of currency chasing the same amount of goods and services. Keynesian economists have misunderstood the nature of inflation. They believe that inflation can be controlled by manipulating interest rates, but this approach is ultimately ineffective. Inflation has harmful consequences for

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512 Hayek, F. A. (1972). *A Tiger by the Tail*. The Keynesian Legacy of Inflation. compiled by Sudha Shenoy. CATO Institute.

513 The *tiger by the tail* metaphor refers to something too difficult to manage or cope with. In this situation people find themselves involved in some kind of problem or circumstance that is more formidable or troublesome than they would initially thought, and they have to proceed with it. It specifically shows a situation that is rather difficult to control or let go of without facing the potential danger or consequences that come with doing so. It may be more dangerous or difficult to escape from or uncomfortable to continue.

514 Haldane, A. (2021). Inflation: A tiger by the tail?. *Speech by Andy Haldane. Bank of England, February, 26.*

society. It erodes the value of savings and investments, discourages long-term planning, and leads to social unrest. The only way to stop inflation is to reduce government spending and allow the money supply to grow at a stable rate.

Overall, A Tiger by the Tail is a thought-provoking book that offers a challenging critique of Keynesian economics. It is a valuable resource for anyone interested in understanding the causes and consequences of inflation. For some critics, Hayek and Shenoy's definition of inflation is too narrow. They focus on government-created inflation, but there are other types of inflation, such as cost-push inflation, that are not caused by government spending. The book does not adequately address the potential benefits of Keynesian policies. In some cases, government intervention in the economy can be necessary to prevent recessions and promote economic growth. The book's recommendations for stopping inflation are unrealistic. It is often difficult for governments to reduce spending, and there is no guarantee that doing so will always lead to lower inflation.

18.1. …flations

Prices and the purchase power of the money always are in changing. Economists reflects this trends by different expressions which end with -flation. The suffix is in relation to blowing, breathing, ventilation. In other sciences, for example inflation usually means expansion or increase in size, especially by injecting gas.

In economics **inflation** refers to the permanent rise in the general price level in prices, indicating a decrease in purchasing power over time. This increase refers to the dilution of money or the economy. The rate at which purchasing power diminishes can be gauged by observing the average increase in prices of a predetermined selection of goods and services over a specific period. This increase in prices, often expressed as a percentage, signifies that a given unit of currency can purchase fewer goods and services compared to previous periods. Inflation denotes the rate at which prices of goods and services escalate. Individuals holding tangible assets such as real estate or stocked commodities may perceive some inflation favorably as it boosts the value of their assets.

In contrast, **deflation** occurs when general price level decrease, resulting in an increase in purchasing power, a reduction in the nominal cost of goods and services, often euphemistically referred to as an economic contraction. The **disinflation**, on the other hand, denotes a decrease in the rate of inflation (not in prices, because there is still inflation but with a lower rate). The **stagflation** is characterized by a combination of inflation alongside stagnant economic growth and high unemployment rates or recession. The **stagnation** occurs when prices remain constant without any significant change.

According to its **speed**, the **low**, creeping or walking inflation is characterized by prices rising slowly and predictably, typically at a single-digit annual rate of less than 3%. A **moderate**, walking, or trotting inflation occurs when prices rise at a moderate pace, typically ranging from 3% to 10% annually. The **galloping** inflation denotes a faster rise in prices, with double or triple-digit increases occurring annually. The **hyperinflation** refers to a situation of extremely high inflation rates, marked by price increases of one million or even one billion percent per year.[515]

Inflation is **categorized** into three main types: demand-pull inflation, cost-push inflation, and built-in inflation. The **demand-pull inflation** occurs when aggregate demand in the economy exceeds aggregate supply. In simpler terms, when there's more money chasing fewer goods and services, prices tend to rise. This can happen due to several factors, such as an increasing demand for items (e.g. in the case of fashion, scarcity). If consumers feel optimistic about the economy and their future income, they may be more willing to spend, which can also contribute to demand-pull inflation (rising consumer confidence). When the government injects more money into the economy through spending programs, it can lead to increased demand for goods and services, potentially pushing prices up (increased government spending). Central banks can also influence inflation by adjusting interest rates and the money supply or simply printing more money. Lowering interest rates and increasing the money supply can stimulate borrowing and spending, potentially leading to demand-pull inflation (expansionary monetary policy).[516]

As its name show, in the case of **cost-push inflation**, the cost of producing goods and services increases. If the prices of raw materials, labor, or other inputs (energy, fuel) used in production increase, businesses may pass on these costs to consumers in the form of higher prices (rising input costs). Supply shocks refer to events that disrupt the supply of goods and services, such as natural disasters or trade wars. If workers demand higher wages to keep up with inflation, and businesses raise prices to cover their increased

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[515] Liping, H. (2017). *Hyperinflation: A world history*. Routledge.
[516] Jain, M. P., Sharma, A., & Kumar, M. (2022). Recapitulation of Demand-Pull Inflation & Cost-Push Inflation in An Economy. *Journal of Positive School Psychology*, 2980-2983.

labor costs, this can create a self-reinforcing cycle of inflation (wage-price spirals).[517]

The **built-in inflation** is based on the expectations of future inflation. If people and businesses expect prices to continue rising in the future, they may be more willing to accept higher prices today, which can become a self-fulfilling prophecy. If people have experienced high inflation in the past, they may be more likely to expect it to happen again in the future (past experiences). If wages and contracts are automatically adjusted for inflation, it can make it more difficult to bring inflation down (indexation of wages and contracts). If people believe that inflation is inevitable, they may be more likely to spend money now rather than save it, which can put upward pressure on prices (psychological factors).

Different **indices** or indexes can measure the inflation. The **Consumer Price Index** (CPI) serves as a metric that evaluates the weighted average of prices concerning a selection of essential goods and services vital for consumers (food, cloth, basic goods, transportation, medical care). Calculation of the CPI involves assessing the price fluctuations for each item within the designated basket of goods and subsequently averaging them based on their respective significance in the overall basket. The prices taken into account are typically the retail prices of each item, as observed in transactions made by individual consumers. On the other hand, **the Wholesale Price Index** (WPI) stands as another prevalent gauge of inflation, monitoring alterations in the prices of goods at stages preceding the retail level. While the specific items included in the WPI can vary from one nation to another, they generally encompass commodities at the producer or wholesale levels (cotton prices for raw cotton, cotton yarn, cotton gray goods, and cotton clothing). Furthermore, the **Producer Price Index** (PPI) represents a group of indexes aimed at evaluating the average shift in selling prices received by domestic producers of intermediate goods and services across time. Unlike the CPI, which assesses price changes from the perspective of buyers, the PPI examines price variations from the viewpoint of sellers.

In history for **deflation** the Great Depression is a distressed example, while for **stagflation** we can bring the two oil crises, or the period after the political changes in central Europe and the collapse of the USSR.

[517] Chen, P., & Semmler, W. (2024). Inflation: Demand Pull or Cost Push? A Markov Switching Approach. *A Markov Switching Approach (January 12, 2024)*.

Hanke-Krus Hyperinflation Table

Location	Start Date	End Date	Month With Highest Inflation Rate	Highest Monthly Inflation Rate	Equivalent Daily Inflation Rate	Time Required for Prices to Double
Hungary[1]	Aug. 1945	Jul. 1946	Jul. 1946	4.19×10^{16}%	207%	15.0 hours
Zimbabwe[2]	Mar. 2007	Mid-Nov. 2008	Mid-Nov. 2008	7.96×10^{10}%	98.0%	24.7 hours
Yugoslavia[3]	Apr. 1992	Jan. 1994	Jan. 1994	313,000,000%	64.6%	1.41 days
Republika Srpska†[4]	Apr. 1992	Jan. 1994	Jan. 1994	297,000,000%	64.3%	1.41 days
Germany[5]	Aug. 1922	Dec. 1923	Oct. 1923	29,500%	20.9%	3.70 days
Greece[6]	May. 1941	Dec. 1945	Oct. 1944	13,800%	17.9%	4.27 days
China§[7]	Oct. 1947	Mid-May 1949	Apr. 1949	5,070%	14.1%	5.34 days
Free City of Danzig[8]	Aug. 1922	Mid-Oct. 1923	Sep. 1923	2,440%	11.4%	6.52 days
Armenia[9]	Oct. 1993	Dec. 1994	Nov. 1993	438%	5.77%	12.5 days
Turkmenistan††[10]	Jan. 1992	Nov. 1993	Nov. 1993	429%	5.71%	12.7 days
Taiwan[11]	Aug. 1945	Sep. 1945	Aug. 1945	399%	5.50%	13.1 days
Peru[12]	Jul. 1990	Aug. 1990	Aug. 1990	397%	5.49%	13.1 days
Bosnia and Herzegovina[13]	Apr. 1992	Jun. 1993	Jun. 1992	322%	4.92%	14.6 days
France[14]	May 1795	Nov. 1796	Mid-Aug. 1796	304%	4.77%	15.1 days
China[15]	Jul. 1943	Aug. 1945	Jun. 1945	302%	4.75%	15.2 days
Ukraine[16]	Jan. 1992	Nov. 1994	Jan. 1992	285%	4.60%	15.6 days
Poland[17]	Jan. 1923	Jan. 1924	Oct. 1923	275%	4.50%	16.0 days
Nicaragua[18]	Jun. 1986	Mar. 1991	Mar. 1991	261%	4.37%	16.4 days
Congo (Zaire) [19]	Nov. 1993	Sep. 1994	Nov. 1993	250%	4.26%	16.8 days
Russia††[20]	Jan. 1992	Jan. 1992	Jan. 1992	245%	4.22%	17.0 days
Bulgaria[21]	Feb. 1997	Feb. 1997	Feb. 1997	242%	4.19%	17.1 days
Moldova[22]	Jan. 1992	Dec. 1993	Jan. 1992	240%	4.16%	17.2 days
Russia / USSR[23]	Jan. 1922	Feb. 1924	Feb. 1924	212%	3.86%	18.5 days
Georgia[24]	Sep. 1993	Sep. 1994	Sep. 1994	211%	3.86%	18.6 days
Tajikistan††[25]	Jan. 1992	Oct. 1993	Jan. 1992	201%	3.74%	19.1 days
Georgia[26]	Mar. 1992	Apr. 1992	Mar. 1992	198%	3.70%	19.3 days
Argentina[27]	May 1989	Mar. 1990	Jul. 1989	197%	3.69%	19.4 days
Bolivia[28]	Apr. 1984	Sep. 1985	Feb. 1985	183%	3.53%	20.3 days
Belarus††[29]	Jan. 1992	Feb. 1992	Jan. 1992	159%	3.22%	22.2 days
Kyrgyzstan††[30]	Jan. 1992	Jan. 1992	Jan. 1992	157%	3.20%	22.3 days
Kazakhstan††[31]	Jan. 1992	Jan. 1992	Jan. 1992	141%	2.97%	24.0 days
Austria[32]	Oct. 1921	Sep. 1922	Aug. 1922	129%	2.80%	25.5 days
Bulgaria[33]	Feb. 1991	Mar. 1991	Feb. 1991	123%	2.71%	26.3 days
Uzbekistan††[34]	Jan. 1992	Feb. 1992	Jan. 1992	118%	2.64%	27.0 days
Azerbaijan[35]	Jan. 1992	Dec. 1994	Jan. 1992	118%	2.63%	27.0 days
Congo (Zaire)[36]	Oct. 1991	Sep. 1992	Nov. 1991	114%	2.57%	27.7 days
Peru[37]	Sep. 1988	Sep. 1988	Sep. 1988	114%	2.57%	27.7 days
Taiwan[38]	Oct. 1948	May 1949	Oct. 1948	108%	2.46%	28.9 days
Hungary[39]	Mar. 1923	Feb. 1924	Jul. 1923	97.9%	2.30%	30.9 days
Chile[40]	Oct. 1973	Oct. 1973	Oct. 1973	87.6%	2.12%	33.5 days
Estonia††[41]	Jan. 1992	Feb. 1992	Jan. 1992	87.2%	2.11%	33.6 days
Angola[42]	Dec. 1994	Jan. 1997	May 1996	84.1%	2.06%	34.5 days
Brazil[43]	Dec. 1989	Mar. 1990	Mar. 1990	82.4%	2.02%	35.1 days
Democratic Republic of Congo[44]	Aug. 1998	Aug. 1998	Aug. 1998	78.5%	1.95%	36.4 days
Poland[45]	Oct. 1989	Jan. 1990	Jan. 1990	77.3%	1.93%	36.8 days
Armenia††[46]	Jan. 1992	Feb. 1992	Jan. 1992	73.1%	1.85%	38.4 days
Tajikistan[47]	Oct. 1995	Nov. 1995	Nov. 1995	65.2%	1.69%	42.0 days
Latvia[48]	Jan. 1992	Jan. 1992	Jan. 1992	64.4%	1.67%	42.4 days

Source: Hanke, S. H., & Krus, N. (2013). World hyperinflations. *The Handbook of Major Events in Economic History*, R. Parker and R. Whaples, eds., Routledge Publishing

18.2. Notable inflations

From the annals of economic history, notable episodes of inflation have left enduring marks on societies and shaped the trajectory of nations. We highlight some them. From ancient civilizations to modern economies, inflation has been both a consequence of economic factors and a catalyst for significant social and political change. This introduction will explore several notable inflations throughout history, spanning from Ancient Rome and Medieval China to more recent occurrences such as the Price Revolution, hyperinflation in Hungary, the Great Moderation in the United States, and the tumultuous experiences of Zimbabwe and Argentina. Each of these instances offers unique insights into the complexities of inflationary pressures, their causes, consequences, and the strategies employed to mitigate their effects. The Mises Institute issued a comprehensive book, which is a popular guide into this topic: ridiculous economic policy from the ancient world to modern times, spelling out also the theory of wage and price controls.[518]

Ancient Rome

The **denarius** was the main silver coin of the Roman Republic and early Empire. It was introduced in 211 BC and was made of silver. During the reign of Emperor Nero in 54 AD, the denarius consisted of over 90% silver. The silver content of the denarius gradually declined over the years, but it remained a mostly silver coin until the 3rd century AD. The **antoninianus** was a Roman coin introduced by emperor Caracalla in 215 AD. It was initially made of silver, but the silver content was gradually debased over the years.[519] This decline in the value of the Roman currency was due to a number of factors, including the need to pay for the military and the empire's vast administrative expenses. The Roman Empire was constantly engaged in wars, which required a lot of money to pay for soldiers and supplies. The empire also had a large bureaucracy, which needed to be paid for. The emperors often minted new coins with less silver in order to make more money. The economy of the empire was not doing well, which made it difficult to generate revenue. During the crisis of the 3rd century (235-284 AD) the value of the antoninianus declined significantly. The silver content was 40% in the 240s, then 30% in the 250s, 20 % in the 260s and finally less than 5% by the

[518] Schuettinger, R. L., & Butler, E. F. (1979). *Forty centuries of wage and price controls: how not to fight inflation*. Ludwig von Mises Institute.
[519] Elliott, C. P. (2020). The role of money in the economies of Ancient Greece and Rome. *Handbook of the History of Money and Currency*, 67-86.

270s; made mostly of bronze and was worth very little.[520] The decline of the antoninianus had a number of negative consequences for the Roman Empire. It made it more difficult for the government to pay its bills, and it led to inflation. It also made it harder for people to buy goods and services.

When silver and/or gold are the currency, governments had the ability to gather the coins, melt them down, blend them with other comparatively less valuable metals like copper or lead, and subsequently redistribute them at their original nominal value, a practice commonly referred to as **debasement**. As the intrinsic value of a coin decreases, its purchasing power weakens, leading to inflation. The **seigniorage** is the difference between the face value of a coin and the cost of producing it; it is the government's profit from minting coins. When the cost of each coin is lowered in this way, the government profits from an increase in seigniorage. Historically, debasement was often used as a quick fix for financial problems, while seigniorage provided an incentive for governments to engage in the practice.

Medieval China

The **Song Dynasty** (960-1279) witnessed the birth of paper money in China, not just its printing. Around the 7th century, private merchants began using promissory notes called jiaozi, considered the earliest form of paper money. By the 11th century, the government embraced this concept and established the **jiaozi wu**, officially issuing paper notes backed by reserves of precious metals and silk. This marked a significant shift from the cumbersome copper coins previously used, facilitating trade and economic growth. The hui-zi, which in Chinese means certificate of meeting, was a nationally standardized Jiao-zi under the auspices of the bureaucracy from 1161 onward. In the decade of the 1230s, the issue of hui-zi increased about 80 %, whilst price levels rose 1,002 %, at an average annual rate of 28 %. It is possible that in certain years during this period, or in some months during one of the years, price levels rose more than 500 % annually or 50 % monthly.[521] The Mongol-led **Yuan Dynasty** (1271-1368) inherited the paper money system but faced challenges. To fund wars and ambitious projects, the government excessively printed notes, leading to hyperinflation. By the late 13th century, paper money had significantly lost value, causing economic instability and public distrust. Under Külüg Khan (1307-11) the levels of inflation rose to 80% as the government kept printing more banknotes due. In

[520] Cope, L. H. (1969). The nadir of the imperial Antoninianus in the reign of Claudius II Gothicus, ad 268-270. *The Numismatic Chronicle (1966-)*, 145-161.
[521] Liping, H. (2017). *Hyperinflation: A world history*. Routledge. 23-26.

order to ensure the government's control on the currency the Khan banned the usage of silver and gold coins, and stopped the circulation of silver certificates in favour of fiat banknotes.[522] This eventually contributed to the dynasty's decline. The **Ming Dynasty** (1368-1644) initially rejected paper money due to the Yuan's inflationary woes, reverting to copper coins. However, the sheer volume of trade and the limitations of metal currency led to the reintroduction of paper money in the 15th century. This time, stricter controls were implemented, including designated printing houses, limited issuance, and convertibility to precious metals. This more cautious approach helped restore some public confidence and stabilize the economy.

Medieval Egypt

Mansa Musa was the ninth mansa of the Mali Empire, which reached its territorial peak during his reign. He can be regarded as the richest man in history, with a fortune estimated at 400 billion dollars, considering time and inflation.[523] His legendary hajj to Mecca in 1324 was indeed a remarkable event, particularly thanks to its extravagant nature and the significant impact it had on the gold market.[524] **Mansa Musa**'s entourage was indeed massive, numbering around 60,000 people, including soldiers, scholars, merchants, artisans, and even 12,000 slaves. Hundreds of camels laden with gold, estimated to be around 12,000 kilograms, accompanied the caravan. This vast amount of gold was intended for various purposes, including gifts, offerings at Mecca, and supporting the journey's expenses. During his stop in **Cairo**, Mansa Musa's generosity knew no bounds. He distributed gold to the poor, funded public works, and showered gifts upon prominent figures. This extravagant spending, however, had a significant unintended consequence. The sheer volume of gold Mansa Musa injected into the Egyptian economy caused a major disruption. The influx of gold significantly outpaced demand, leading to a drastic decrease in its value. Estimates suggest that the price of gold dropped by 10-25%, and it took over a decade for the market to recover.[525] As an economic lesson, it demonstrates how large-scale injections

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[522] Guan, H., Palma, N., & Wu, M. (2022). *The Rise and Fall of Paper Money in Yuan China, 1260-1368*. School of Social Sciences, The University of Manchester.

[523] Abbou, T. (2016). Mansa Musa's journey to Mecca and its impact on Western Sudan.

[524] Krasner, B. (2016). *Mansa Musa: The Most Famous African Traveler to Mecca*. The Rosen Publishing Group, Inc.

[525] Magu, S. M. (2023). Arab Maghreb Union (AMU):(In or Mostly) Out of Africa and Tumultuous Inertia. In *Towards Pan-Africanism: Africa's Cooperation through Regional Economic Communities (RECs), Ubuntu and Communitarianism* (pp. 269-297). Singapore: Springer Nature Singapore.

of precious metals can disrupt established economic systems, highlighting the need for responsible management of currency value.

> This man [Mansa Musa] flooded Cairo with his benefactions. He left no court emir nor holder of a royal office without the gift of a load of gold. The Cairenes made incalculable profits out of him and his suite in buying and selling and giving and taking. They exchanged gold until they depressed its value in Egypt and caused its price to fall." … Gold was at a high price in Egypt until they came in that year. The mithqal did not go below 25 dirhams and was generally above, but from that time its value fell and it cheapened in price and has remained cheap till now. The mithqal does not exceed 22 dirhams or less. This has been the state of affairs for about twelve years until this day by reason of the large amount of gold which they brought into Egypt and spent there.

Ibn Fadlallah al-Umari (1301-1349)
Hopkins, J. F., & Levtzion, N. (1981).
Corpus of Early Arabic Sources for West African History.
Cambridge University Press, 1981. 269-273.

Price Revolution

From the second half of the 15th century to the first half of the 17th century, Western Europe went through a major inflationary cycle known as the price revolution, when the prices have risen sixfold on average over 150 years. The price index during this period (1500 = 100%) raised to 480% in Spain, 700% in England,[526] and more than 800% in Brabant. The price index for all three regions increased significantly in the mid-16th century.[527]

As a result of the Age of Discovery, impressive amount of **gold and silver flowed into Habsburg Spain from the New World**. Precious metals became more widely available in Europe, which had previously suffered from a lack of cash. While the influx of New World silver is often cited as the primary cause, it's crucial to acknowledge other contributing factors. European monarchs debased the coinage by frequently reducing the silver content of their coins to finance wars and other expenses, further accelerating inflation. Wages did not keep pace with rising prices, leading to decreased purchasing power for the working class. Significant historical events were the Reformation and the Counter-Reformation, the Thirty Years' War (1618-1648) with the Peace of Westphalia, the English Civil War (1642-1651) and the decline of the Spanish Empire. Other wars, political instability, and disruptions in trade routes hampered economic growth and contributed to price

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[526] Horrell, S. (2023). Household consumption patterns and the consumer price index, England, 1260–1869. *The Economic History Review*.
[527] García-Hiernaux, A., & Dobado-González, R. (2021). Prices and Money in the Globalization of the Early Modern Era. In *The Fruits of the Early Globalization: An Iberian Perspective* (pp. 133-172). Cham: Springer International Publishing.

increases. As an additional demographic factor, the European population growth began after the plague epidemics (Black Death: 1347-1353),[528] before the arrival of New World precious metals. This demographic expansion may have initiated the process of inflation, which was further accelerated by the influx of New World silver in the 16th century.

The Price Revolution had profound social and **economic consequences**. (i) The increased money supply stimulated investment and entrepreneurial activity, laying the groundwork for the rise of capitalism. (ii) Inflation disproportionately affected the poor, leading to social unrest and peasant revolts. (iii) The economic shift benefited merchants and landowners, while wage earners and peasants faced hardship.

Germany

The hyperinflation seriously affected the German Papiermark, the Weimar Republic's currency, primarily in 1923,[529] driven by heavy borrowing during World War I and exacerbated by reparations payments.[530] The German central bank's attempt to meet reparations demands by purchasing hard currency with inflated paper money worsened the situation. By November 1923, hyperinflation reached staggering levels, 29,500%. Various measures were introduced to stabilize the currency, including the Rentenmark and the Reichsmark. In 1923, Hjalmar Schacht (1877-1970) became the currency commissioner,[531] who played a crucial role in introducing the Rentenmark (mortgage mark), a new currency backed by mortgages on all properties (Rente is a technical term for mortgage in German).[532] This led to a brief

[528] Miskimin, H. A. (1975). Population growth and the price revolution in England. *Journal of European Economic History*, *4*(1), 179.
[529] Munson, D. P. (2022). The German hyperinflation of the early 1920s: a financial look. *Financial History*, (142), 32-35.
[530] Mayer, T., & Schnabl, G. (2023). How to escape from the debt trap: Lessons from the past. *The World Economy*, *46*(4), 991-1016.
[531] van der Hek, A. (2020). Hjalmar Schacht - Präsident der Reichsbank zwischen zwei Weltkriegen. Springer
Pezzani, F. (2020). An example to recall for recovery: Hjalmar Schacht (the money wizard). *International Journal of Social Sciences*, *1*(1), 1-17.
Elitas, C. (2020). Effects of globalization versus nationalization on financial structure: an evaluation of Hjalmar Schacht's national economy practice.
[532] Busch, U. (2023). Die Hyperinflation 1922/23 und die gegenwärtige Teuerung. *Berliner Debatte Initial*, *34*. Reuter, G. (1924). Der Zauber der Rentenmark. Essays. 178. (https://scholarsarchive.byu.edu/sophnf_essay/178)
Federau, F. (2020). *Die deutsche Geldwirtschaft*. Walter de Gruyter GmbH & Co KG.

period where Germany had two separate currencies: the Reichsmark, overseen by Rudolf Havenstein, President of the Reichsbank, and the newly established Rentenmark under Schacht's management. On November 16, the new Rentenmark replaced the worthless paper marks (one Rentenmark to equal one trillion, 10^{12} old marks), twelve zeros were cut from prices, and the prices nominated in the new currency remained stable. Havenstein passed away on November 20, 1923. On December 22, 1923, following Schacht's successful economic policies that helped combat hyperinflation and stabilize the German Reichsmark (known as the Helfferich Plan), he was appointed President of the Reichsbank (in office: 1923-1930 and 1933-1939). Despite stabilization in 1924, hyperinflation caused significant political instability.[533] The Reichsmark replaced the Rentenmark in 1924 as the official currency, both being of equal value. This transition signaled a return to a gold-backed currency, in line with the Dawes Plan's implementation. Despite this change, the Rentenbank remained operational beyond 1924, with its notes and coins remaining in circulation. The last Rentenmark notes were valid until 1948.

Hungary

After World War II hyperinflation occurred in Hungary in 1945-46, as a result of various factors. The Győr Program of 1938 allocated 1 billion pengő for military expenditures, funded primarily through money printing. The war-related losses, such as the country's devastated state, infrastructure and factory destruction, and production decline due to ongoing conflicts, further exacerbated the economic situation.[534] Additionally, in 1944, the Red Army issued pengő banknotes, and in 1945, the Hungarian National Bank's gold and foreign exchange reserves were evacuated to the West. At the beginning of 1945, only 1% of state expenditures were covered by tax revenues. Hungary was burdened with forced reparations in dollars and gold after the war. Consequently, the pengő lost its original functions, being marginalized in daily commercial transactions, while assets such as gold and dollars gained prominence.[535] Barter trade became prevalent, with goods like tobacco, cigarettes, rice, and valuable clothing items being exchanged directly (e.g. direct product exchange: 100 kg of coal = 30 kg of potatoes; 1 liter of milk = 2 kg of corn; 1 kg of fat = 8 liters of wine). In this chaotic economic environment,

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[533] Roselli, A. (2021). Hyperinflation, depression, and the rise of Adolf Hitler. *Economic Affairs*, *41*(2), 300-308.
[534] Kumar, V. (2020). The Hungarian hyperinflation: A look into the production side. *Journal of Economics Library*, *7*(1), 54-68.
[535] Siklos, P. L. (1991). The money growth–inflation relationship under hyperinflation: an illustration from Hungary's postwar experience. *Applied Economics*, *23*(9), 1453-1460.

there was a high demand for accountants capable of handling astronomical figures.

Nobody understands numbers anymore. A dollar, a hundred and a few trillion, a kilo of cooking flour is forty trillion... Then what's next? A trillion? How much is that? A thousand trillion? A million trillion? The digits flash like constellations. Old women with quivering mouths they are standing in the hall, in front of a pile of potatoes, counting their trillions, the ragged stacks of paper. Maybe ten trillion runs for a kilo of potatoes... But by the time they make up their minds, it's no longer running. The seller doesn't even know how much to ask for.

Sándor Máray: *Ami a naplóból kimaradt* (1945-1946)

In 1946, the highest monthly inflation rate was 4.19×10^{16}, prices doubled every 15.3 hours, prompting the transition to the forint through a currency exchange process without foreign borrowing. The introduction of planned economy, excluding market processes, aimed at ensuring sufficient stocks of goods, effective and centrally formulated fiscal consolidation programs, and the establishment of a new price and wage system. The stabilization program involved gradually introducing a predetermined amount of money into circulation to maintain equilibrium between purchasing power and existing commodity bases.[536]

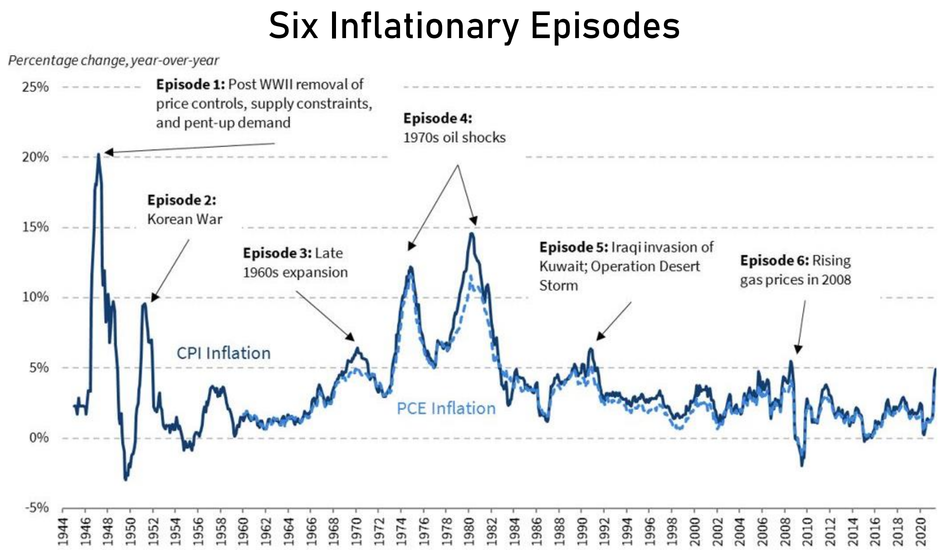
Six Inflationary Episodes in the U.S. and the Great Moderation

In the U.S. six distinct episodes of inflation can be observed, spanning from the post-World War II period to the early 21st century.[537] Between July 1946 and October 1948, inflation surged (1947, 20%) following World War II due to factors such as the removal of price controls, supply shortages, and pent-up demand. From December 1950 to December 1951, the Korean War triggered increased demand as households rushed to purchase goods, resulting in a rebound in prices. From March 1969 to January 1971, a booming economy drove up prices, with inflation mitigated after President Nixon instituted a wage and price freeze. Between April 1973 and October 1982, heightened inflation occurred due to two surges in oil prices, notably resulting from oil embargoes and geopolitical tensions in the Middle East. Federal

[536] Siklos, P. L. (1995). The End of Hungarian Hyperinflation of 1945–1946. *PL Siklos (ed.). Great Inflations of the 20th Century: Theories, Policies and Evidence.–Edward Elgar*, 289-305.

[537] Rouse, C., Zhang, J. and Tedeschi, E. (2021). Historical Parallels to Today's Inflationary Episode. Council of Economic Advisers (https://www.whitehouse.gov/cea/written-materials/2021/07/06/historical-parallels-to-todays-inflationary-episode/)

Reserve Chair Paul Volcker implemented interest rate hikes to combat inflation. From April 1989 to May 1991, the first Gulf War led to increased uncertainty and higher crude oil prices, resulting in a brief period of elevated inflation. In July and August 2008, inflation exceeded 5 % for two months due to skyrocketing gas prices, driven by a significant increase in the cost of crude oil.



Source: Rouse, C., Zhang, J. and Tedeschi, E. (2021). Historical Parallels to Today's Inflationary Episode. Council of Economic Advisers (https://www.whitehouse.gov/cea/written-materials/2021/07/06/historical-parallels-to-todays-inflationary-episode/)

The **Great Moderation** is a fascinating period in economic history often referred to as a time of reduced macroeconomic volatility. It generally applies to developed nations, including the United States, and is considered to have spanned from the mid-1980s to the late 2000s, ending with the 2007-2008 financial crisis.[538] Following the Treasury–Fed Accord of 1951, the US Federal Reserve was liberated from fiscal constraints, paving the way for the evolution of contemporary monetary policy. As noted by John B. Taylor, this enabled the Federal Reserve to transition away from discretionary macroeconomic policies dictated by the US federal government, thereby establishing new objectives aimed at enhancing economic performance.[539]

[538] Stock, J. H., & Watson, M. W. (2002). Has the business cycle changed and why?. *NBER macroeconomics annual*, *17*, 159-218.
[539] Taylor, J. B. (2011). The cycle of rules and discretion in economic policy. *National Affairs, 7(Spring)*.

And please let Alan Greenspan accept the things he cannot change,
give him the courage to change the things he can,
and the wisdom to know the difference.
(A joke from the era.)

The period aligns with the tenure of Alan Greenspan as Fed chairman, spanning from 1987 to 2006. The Great Moderation marked by reduced volatility in output fluctuations but also characterized by a decoupling of the business cycle from household investments. This separation eventually led to the creation of toxic assets, contributing to the onset of the U.S Housing bubble, and the Great Recession in 2008.[540] Additionally, the Great Moderation, according to Hyman Minsky, fostered an era of financial instability, as stable growth encouraged greater financial risk-taking.[541]

Zimbabwe and Argentina

Zimbabwe experienced a more extreme and shorter-lived hyperinflation episode compared to Argentina's persistent but less intense high inflation. Both countries suffered greatly, but the extent and duration of economic and social disruptions varied, and are still adjusting to the aftereffects of high inflation.

In **Zimbabwe** the hyperinflation period (2008-2009) was estimated with a peak monthly inflation rate of 79.6 billion %, 7.96×10^{10} %. The causes included printing money to finance government spending, economic disruptions due to land redistribution programs, imposition of sanctions, and currency devaluation. Hyperinflation led to widespread poverty, shortages of basic goods, collapse of healthcare and education systems, mass unemployment, and social unrest. Zimbabwe officially abandoned its own currency in 2009, adopting a multicurrency system primarily based on the US dollar and other currencies (South African rand, Botswana pula, pound sterling, Indian rupee, euro, Japanese yen, Australian dollar, Chinese yuan). While inflation remains high, it is significantly lower than during the hyperinflation period. The Reserve Bank of Zimbabwe eliminated the multi-currency system, and introduced a new national currency called the RTGS Dollar, which served as

[540] Pettifor, A. (2008). *Americas financial meltdown: Lessons and prospects*. OpenDemocracy. Archived from the original on December, 16.
[541] Bellofiore, R., & Halevi, J. (2011). A Minsky moment? The subprime crisis and the ‘new’capitalism. *Credit, Money and Macroeconomic Policy. A Post Keynesian Approach*, 268-288.; Whalen, C. (2008). Understanding the credit crunch as a Minsky moment. *Challenge*, *51*(1), 91-109. and Cassidy, J. (2008). The Minsky Moment. *The New Yorker*, *4*, 19.

the sole official currency in the country from June 2019 to March 2020. Subsequently, the allowance of multiple foreign currencies resumed.

Argentina has grappled with high inflation for decades, although it hasn't always reached hyperinflation levels. Recent peaks occurred in 1989-1990 and 2018-2023. Similar to Zimbabwe, the causes of high inflation in Argentina include fiscal deficits, currency devaluation, and lack of confidence in the peso. High inflation in Argentina has led to the erosion of purchasing power, wage-price spirals, increased poverty, and social unrest. Inflation remains high in Argentina, with estimates exceeding 50% for 2023, and projected 93.7 in 2024.

19. Finance – FinTech

Finance and FinTech play crucial roles in managing monetary resources and driving innovation. This introduction explores their evolution from ancient practices to modern systems. **Finance** encompasses money management and investment analysis, evolving from basic accounting to specialized disciplines like public, corporate, and personal finance. It has transitioned through phases marked by technological advancements, from manual processes in Finance 1.0 to digital finance in Finance 2.0, advanced technologies in Finance 3.0, and cutting-edge innovations in Finance 4.0. **FinTech** leverages technology to enhance financial services, evolving through infrastructure development, digitization, innovation, and integration phases. It is shaped by trends like embedded finance, blockchain, and cybersecurity, impacting customer experience and regulatory compliance.

19.1. Finance

Finance encompasses the management, creation, and analysis of money and investments, utilizing credit, debt, securities, and investment to fund present projects with future income streams.[542] It is the system that includes the circulation of money, the granting of credit, the making of investments, and the provision of banking facilities. In plural, finances refer to money or other liquid resources of a government, business, group, or individual. It is closely intertwined with concepts like the time value of money and interest rates due to its temporal nature. Finance, as a study of theory and practice distinct from the field of economics, arose in the 1940s and 1950s.[543]

Finance can be categorized into three main branches: public finance, corporate finance, and personal finance. Additionally, there are specialized areas like behavioral finance, which investigates the emotional, social, and psychological factors influencing financial decisions. Key points to remember about finance include its historical roots tracing back to ancient civilizations, its interdisciplinary nature involving fields like economics, statistics, and mathematics, and its blend of scientific principles with artistic elements.

[542] "Finance." *Merriam-Webster.com Dictionary*, Merriam-Webster, https://www.merriam-webster.com/dictionary/finance.
[543] The works of Harry Markowitz, William F. Sharpe, Fischer Black, and Myron Scholes can be mentioned.

Finance 1.0 to 4.0

Finance 0.0	**Early times** (Pre-1940s)	• Basic accounting
Finance 1.0	**Scientific finance** (19th century – 1940-1960s)	• Financial statement analysis • Scientific Management • Capital budgeting • Management cost calculation • Mathematical models
Finance 2.0	**Automation Era** Computer software and systems (1960-90s)	• Financial modeling • Budget and rolling forecast • ERP and data warehouse • Dashboard and Scorecard
Finance 3.0	The Digitization Age Information, process and organization planning (1990s - 2020s)	• Share Service Center (SSC) • Center of Excellence (CoE) • FP&A Business Partnership • EPM with BI and analytics tools
Finance 4.0	**The Future of Finance** The data-driven and AI-based digital financial function (2020s -)	• Intelligent financial service provider with autonomous and intelligent RPA • IoT -capable systems with horizontal and vertical integration • Cloud-based computing with BigData and predictive analytics • Cyber security, block chain and cognitive and encryption technology

ERP: Enterprise Resource Planning, EPM: Enterprise Performance Management, BI: Business Intelligence, FP&A: Financial Planning & Analysis, FBP: Finance Business Partnering, RPA: Robotic Process Automation

Source: own compilation of the author based on Halima, T. (2022). The Evolution of Finance over 500 years: from Basic Accounting to Data-Driven and AI-Enabled Digital Finance. InsiderFinanceWire (https://wire.insiderfinance.io/the-evolution-of-finance-over-500-years-from-basic-accounting-to-data-driven-and-ai-enabled-1240c43e9dbf)

Finance 1.0 refers to traditional finance systems characterized by physical transactions, paper-based records, and manual processes. It represents the early stages of financial systems before the widespread adoption of digital technologies. This phase is characterized by manual processes, paper-based transactions, and physical interactions. The key players were traditional banks, insurance companies, and brokerage houses. It was slow, inefficient, and limited accessibility, primarily catered to high-net-worth individuals and businesses. **Finance 2.0** marks the transition to digital finance with the advent of computers and electronic transactions. It includes the development of online banking, electronic payments, and the automation of various financial processes. The introduction of computers and automation leads to faster transactions, electronic record-keeping, and wider access to financial products. The key technologies were the ATMs, credit cards, debit cards, and early online banking platforms. It relied on centralized systems, still restricted in terms of financial inclusion and innovation. **Finance 3.0** involves the integration of advanced technologies such as artificial intelligence, big data analytics, and blockchain into financial systems. It enables more efficient and secure transactions, as well as the emergence of new financial products and services such as peer-to-peer lending, robo-advisors, and cryptocurrencies. The rise of the internet and digital technologies, including online banking, mobile payments, and e-commerce, resulted into an increased accessibility and global reach. The key Players are the online financial institutions, digital wallets, peer-to-peer lending platforms, and high-frequency trading. Security concerns and the potential for cyberattacks are arisen with a growing complexity of financial instruments. **Finance 4.0** characterized by the widespread adoption of cutting-edge technologies such as machine learning, Internet of Things (IoT), decentralized finance (DeFi) platfroms, FinTech startups, AI-powered financial advisors, and central bank digital currencies (CBDCs). It encompasses innovations such as algorithmic trading, smart contracts, tokenization, and decentralized autonomous organizations (DAOs), revolutionizing the way financial services are delivered and consumed. Among the potentials the following can be highlighted: increased financial inclusion, democratization of finance, greater risk management, and innovative financial products and services. The current challenges reflect to the regulatory uncertainty, ethical considerations surrounding AI and data privacy, and potential job displacement as automation increases.

Finance 1.0 and 2.0 primarily focused on transactions and record-keeping, remained largely inaccessible to many; while Finance 3.0 and 4.0 emphasize customer experience, personalization, and data-driven insights, furthermore aim for greater financial inclusion through technology. Finance 4.0 is still in its early stages, but its potential to transform the finances is immense. As technology continues to evolve, we can expect even more innovative solutions and greater accessibility to financial services for everyone. However, careful consideration of ethical issues, security concerns, and regulatory frameworks will be crucial to ensure a responsible and inclusive future of finance.

19.2. FinTech

The **financial technology** (FinTech or Fintech) refers to innovative technology aiming to enhance and automate the delivery and use of financial services.[544] It involves integrating technology into the offerings of financial service providers to improve their usability and accessibility to consumers. Specialized software and algorithms used on computers and increasingly on smartphones assist businesses and consumers in managing their financial operations and processes. Initially, this technology was applied to the back-end systems of established financial institutions, used in financial backend systems. However, today, FinTech encompasses various sectors and industries, including education, retail banking, fundraising, nonprofit organizations, investment management, and more. The funding for FinTech is increasing, but a myriad of regulatory issues arises. FinTech segments include payments, Insurtech, Regtech, Wealthtech, blockchain and cryptocurrency, smart contracts, open banking, robo(t) advisors, and cyber security.

FinTech 1.0 to 4.0

FinTech 1.0	**The Infrastructure Era** • Rethinking the old system • Creation of infrastructure (1866-1966)	• Transatlantic cable (1866), railway networks • Mechanical computers • Encryption (codes)
FinTech 2.0	**The Digitization Era** • Development of traditional digital financial services • Appearance of banks (1967-2008)	• Calculator, ATM, developed payment systems • NASDAQ (1971), SWIFT (1973)
FinTech 3.0	**The Innovation Era** • The democratization of digital financial services • World of Startups (2008 -)	• Fintech startup companies • Innovative digital financial solutions (API)
FinTech 3.5	• Emerging markets • Catalyst role (2014-)	• Raise of emerging markets (Africa, Asia), to promote economic growth by financial services
FinTech 4.0	**The Integration Era** • Bigtech companies (2018 - ...	• Combination of services and digital solutions • Presence of BigTech companies

Source: own compilation of the author

[544] "Fintech." *Merriam-Webster.com Dictionary*, Merriam-Webster, https://www.merriam-webster.com/dictionary/fintech.

In **FinTech 1.0** the electronic and information technology (IT) brings increased efficiency and sophistication to the financial sector by enhancing financial functions in four areas: increased back-office efficiency, enhanced sophistication of payment methods, improved security, and expansion of new financial channels and integration of channels. The planning and laying of the transatlantic cable in 1866 was a huge milestone in terms of infrastructure, it was the basis of financial globalization. The telegraph, railway networks and steamships supported cross-border financial relations. The codes used in World War II provided the basis for the encryption of today's bank financial transactions. Compliance with regulations is addressed through RegTech (regulatory technology). Think of it as the plumbing behind the financial system.

During **FinTech 2.0**, the disruptive factors are separating the financial business sector. Previously, financial institutions were the only entities capable of providing comprehensive services ranging from payment settlements to deposits and financing, requiring extensive infrastructure and systems for such comprehensive financial services. The establishment of NASDAQ in 1971 and SWIFT in 1973 marked significant milestones in the evolution.[545] The appearance of Texas Instruments' first handheld calculator, Barclays' first ATM in 1967, and the development of payment systems, both domestic and international, between 1960 and 1970, exemplify significant advancements in financial technology during that period. The phenomenon of separation is enabled by advancements in information technology, allowing financial functions previously integrated by a single financial institution to be performed separately, thus reducing barriers to participation in the financial services sector for individuals working in other industries. The emergence of disruptors, such as FinTech businesses or startups, seeks to separate the existing financial services sector. There is an attempt to componentize financial functions, and activities around FinTech 2.0 currently represent the most attention-grabbing form of FinTech activities. This marked a significant shift from manual processes to more automated and accessible financial services.

Within **FinTech 3.0**, the FinTech startup companies appeared after the crisis of 2008, and served consumer needs with innovative digital financial solutions. They were favored by the loss of confidence in the traditional banking sector. FinTech companies in emerging markets (Africa, Asia) aim to promote economic growth by ensuring access to financial services. The

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[545] Robinson, G., Dörry, S., & Derudder, B. (2023). Global networks of money and information at the crossroads: Correspondent banking and SWIFT. *Global Networks, 23*(2), 478-493.

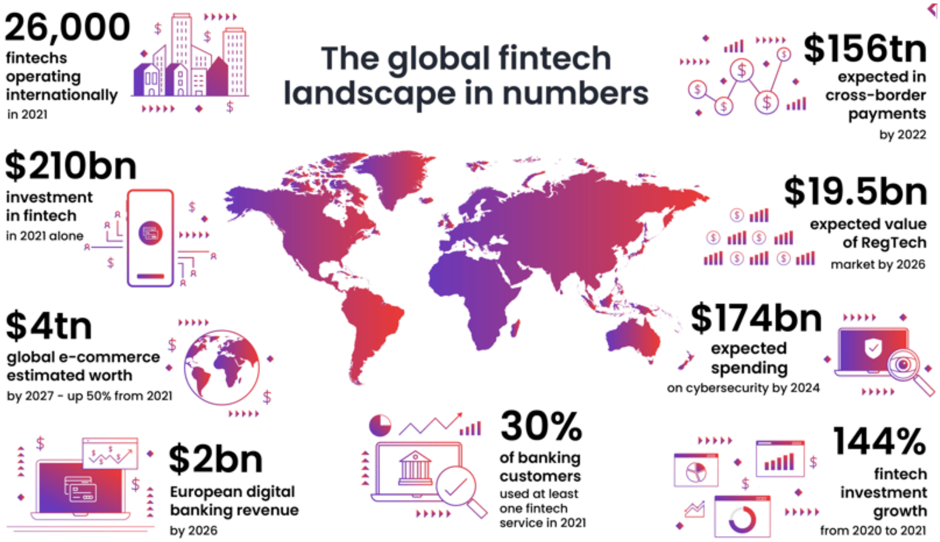
rise of the API economy signifies a movement towards reassembling components and providing decomposed functionalities, facilitated by Application Programming Interfaces (APIs). APIs represent a set of procedures and protocols used when one software program invokes the functions of another software, allowing external programs, services, and data to be utilized as components. By integrating multiple APIs, it becomes possible to offer services that rival those provided by existing financial institutions. Moreover, entirely new technological innovations, such as artificial intelligence (AI) and blockchain technology, are being applied in financing, further accelerating and amplifying the changes brought about by APIs in the financial sector. Think of it as the democratization of finance, with more players and competition entering the scene.

In **FinTech 4.0**, the reconfiguration of the financial business sector is characterized by the convergence of multiple previously separate web services (e.g., email, calendars, video streaming) under a single identifier. This era entails the integration and combination of these APIs, blockchain, smart contracts, DeFi, by both financial institutions and other businesses, leading to the creation of new financial services. Non-financial companies operating in these areas are likely to serve as platforms for these services, blurring the boundaries between finance and technology. The increasing presence of BigTech companies like Apple, Alibaba, Amazon, Google, and Facebook in the financial services markets is reshaping the industry. The boundaries between finance and technology become increasingly blurred as these companies serve as platforms for innovative financial solutions.

In 2022, the **global fintech sector** boasted over 26,000 companies with investments exceeding $210 billion worldwide. As fintech matures and transitions from a disruptive force to an established technology, key trends are poised to shape the sector in 2024 and beyond. These trends include the relentless growth of digital channels, with global e-commerce projected to reach $4 trillion by 2027, representing a 50% increase from 2021. Cloud banking is gaining momentum, with a projected doubling of cloud-based banking tasks, currently at just 12% in North America, in the next two years. Additionally, embedded finance is diversifying and democratizing financial services, with consumers gaining access to traditionally bank-operated features through non-banking platforms. Big Tech companies like Amazon, Apple, Google, and Facebook are increasingly entering the fintech space, and global fintech investment grew by 144% from 2020 to 2021. Virtual reality (VR) is anticipated to become a $80 billion industry by 2025, and blockchain technology is expected to be worth ten times more ($39 billion) by the same year. RegTech is also on the rise, with the RegTech market projected to reach

$19.5 billion by 2026. Cybersecurity spending is expected to reach $174 billion by 2024, as fraud remains a significant challenge in digital financial services. Emerging markets are increasingly adopting fintech services, with cross-border payments growing by roughly 5% per year and expected to exceed $156 trillion in 2022. Finally, the greater use of sensors and the Internet of Things (IoT) in banking and e-commerce is expected to continue, providing smoother, swifter, and more secure services. These trends underscore the ongoing evolution and transformation of the fintech environment, with implications for customer experience, technological innovation, and regulatory compliance.

The Global FinTech Environment



Source: Zai. (2022). The outlook for the global financial technology (fintech) industry. (https://www.hellozai.com/blog/the-outlook-for-the-global-financial-technology-fintech-industry)

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IV. CYCLES AND CRISES

Did you know economists have predicted nine out of the last five recessions?

The study of economic fluctuations has long been a central focus of economic inquiry, with scholars and policymakers alike seeking to comprehend the cyclical nature of economic activity and the crises that punctuate these cycles. At its core, the concept of business cycles encapsulates the rhythmic patterns of expansion and contraction in economic activity. These cycles, characterized by fluctuations in output, employment, and other key economic indicators, have been observed throughout history, reflecting market economies' inherent dynamism and complexities.

Throughout antiquity, societies grappled with economic ebbs and flows, though formal conceptualizations of business cycles were yet to emerge. It was not until modern capitalism emerged that scholars systematically analyzed and theorized about these phenomena. The rise of financial markets in the 17th and 18th centuries gave birth to the first documented instances of financial bubbles, speculative frenzies that inflated asset prices beyond their intrinsic value, often culminating in abrupt and devastating crashes. The 19th century witnessed the proliferation of panics and crises as financial markets became increasingly interconnected and vulnerable to contagion effects. The 20th century brought unprecedented levels of economic volatility, marked by deep recessions, depressions, and black days that reverberated across the globe. From the stock market crash of 1929 to the oil crises of the 1970s, the century bore witness to a series of profound economic upheavals, each leaving a lasting imprint on the trajectory of economic thought and policy. As we venture into the 21st century, the specter of financial crises looms large, underscored by the interconnectedness of global financial markets and the proliferation of complex financial instruments. From the dot-com bubble of the early 2000s to the subprime mortgage crisis of 2008, the century has already borne witness to its share of economic upheavals, underscoring the enduring relevance of understanding cycles and crises in the complexities of modern economies. These episodes of financial turmoil left indelible marks on societies and economies, prompting policymakers to devise measures aimed at mitigating their adverse effects. In this exploration, we delve into the conceptual foundations of business cycles, examine the historical evolution of economic crises, and scrutinize the dynamics of financial instability in the contemporary era.

20. Concepts of Business Cycles

The phenomenon of business cycles encapsulates the recurrent fluctuations in economic output, employment, and other key indicators over time. From periods of prosperity and expansion to downturns and recessions, the business cycle mirrors the inherent volatility and uncertainty that pervade market economies. Understanding the conceptual underpinnings of business cycles provides invaluable insights into the drivers and dynamics of economic fluctuations. Within the overarching framework of the business cycle, distinct stages emerge, each characterized by its unique features and economic dynamics. The investment clock, a conceptual tool delineating the business cycle stages, helps investors identify opportune moments for asset allocation and portfolio rebalancing. Similarly, sector rotation strategies entail reallocating investments across different sectors of the economy in anticipation of shifting economic conditions, thereby optimizing risk-adjusted returns. Beyond the immediate fluctuations of the business cycle, broader economic waves profoundly influence the trajectory of economic growth and development. From long-term Kondratieff waves and Kuznets to shorter-term Juglar and Kitchin cycles, these economic waves reflect underlying patterns of technological innovation, investment cycles, and structural shifts within economies. Understanding the interplay between business cycles and economic waves provides a nuanced perspective on the evolutionary dynamics of economic systems.

The **business cycles** refer to the undulating patterns of economic development within a given economy, region, or integration.[546] The business or economic cycle manifests as a series of fluctuations in aggregate economic activities such as output (Gross Domestic Product or GDP), consumption, and investments. The causes of these cyclical fluctuations encompass overproduction, economic policy decisions, monetary dynamics, investment patterns, purchases of durable consumer goods, and political cycles.[547] This cyclical phenomenon involves expanding numerous economic activities occurring simultaneously, succeeded by generalized contractions, commonly identified as recessions.

[546] Gabisch, G., & Lorenz, H. W. (2013). *Business cycle theory: A survey of methods and concepts*. Springer Science & Business Media.
[547] Mitchell, W. C. (2022). *Business cycles and their causes*. Univ of California Press.

The alternating **phases** within the business cycle are characterized as expansions and contractions, the latter also referred to as recessions.[548] Notably, the descending branch of the cycle creates the causal factors for the ascending branch, and conversely, the ascending branch generates the causes that lead to the descending branch. This cyclical progression is recurrent, though not strictly periodic, displaying a certain irregularity in its occurrence. The measurement of these cyclical fluctuations is facilitated by implementing the Three Peaks and Three Troughs (3P and 3D) methodology, providing a comprehensive approach to understanding the dynamics and nuances of business cycles.[549]

3Ps and 3Ds

Strength of an Expansion 3P (how)	**Pronounced**	noticeable, marked, certain, clear; conspicuous
	Pervasive	spreading widely throughout an area or a group of people, the economy
	Persistent	continuing to exist or endure over a prolonged period
Severity of a Recession 3D	**Depth**	the quality of being intense or extreme, a point far below the top oraverage
	Diffusion	spreading more widely; spreading in many directions (sectors)
	Duration	length of time that the recession lasts

Source: own compilation of the author

Business cycles, as examined through the lens of economic theories such as **Monetarism and the Keynesian approach**, elucidate divergent perspectives on achieving and maintaining economic stability. Within the framework of **Monetarism**, the contention posits that the governmental pursuit of economic stability can be effectively realized through meticulous control over the growth rate of the money supply.[550] This approach intricately links the economic cycle to the credit cycle, wherein alterations in interest rates serve as pivotal instruments capable of either curtailing or stimulating economic activity. The fluctuation in interest rates, in turn, exerts influence over the propensity of households, businesses, and the government to engage

[548] Angeletos, G. M., Collard, F., & Dellas, H. (2020). Business-cycle anatomy. *American Economic Review*, *110*(10), 3030-3070.
[549] Achuthan L. (2022). Business Cycle: What It Is, How to Measure It, the 4 Phases. Investopedia (https://www.investopedia.com/terms/b/businesscycle.asp)

[550] Roberts, J. M. (1993). The sources of business cycles: a monetarist interpretation. *International Economic Review*, 923-934.

in borrowing, thereby affecting the overall costliness or affordability of such financial transactions.[551]

Monetarism and the Keynesian approach

Monetarism	Keynesian approach
• The government can achieve economic stability through their money supply's growth rate. • It ties the economic cycle to the credit cycle, where changes in interest rates reduce or induce economic activity by making borrowing by households, businesses, and the government more or less expensive.	• The changes in aggregate demand, spurred by inherent instability and volatility in investment demand, are responsible for generating cycles. • Business sentiment turns gloomy and investment slows, a self-fulfilling loop of economic malaise can result • Less spending means less demand, which induces businesses to lay off workers • Unemployment means less consumer spending • When the whole economy sours, with no clear solution other than government intervention and economic stimulus

Source: own compilation of the author

Conversely, the **Keynesian** approach underscores the significance of changes in aggregate demand as the primary catalyst for the emergence of business cycles.[552] According to this paradigm, inherent instability and volatility in investment demand are pivotal in generating economic cyclical patterns. During periods when business sentiment becomes pessimistic and investment slows, a self-fulfilling loop of economic malaise can ensue. This cyclicality is perpetuated as reduced spending triggers diminished demand, prompting businesses to enact workforce reductions. The ensuing rise in unemployment further contributes to a decline in consumer spending, creating a pervasive economic downturn.

In the absence of a spontaneous resolution, the entire economy may experience a downturn, necessitating intervention and economic stimulus from the government as the most viable remedial course of action. This in-

[551] Cutsinger, B. P. (2023). Monetary policy and business cycles: a post-crisis research agenda for Austrian economics. *A Research Agenda for Austrian Economics*, 21-44.

[552] Murakami, H. (2018). A two-sector Keynesian model of business cycles. *Metroeconomica*, *69*(2), 444-472. and Tihtina, A. Z., & Dufera, T. T. (2022). On a Three-Sector Keynesian Model of Business Cycles. *Journal of Mathematics, 2022*.
Galí, J. (2015). *Monetary policy, inflation, and the business cycle: an introduction to the new Keynesian framework and its applications*. Princeton University Press.

terventionist approach acknowledges the Keynesian perspective that proactive government measures are imperative to rejuvenate economic activity and restore stability in times of economic distress.[553] Thus, the dichotomy between Monetarism and the Keynesian approach underscores the multifaceted nature of addressing and mitigating business cycles within the realm of economic theory.[554]

The **Lucas critique**, named after Nobel laureate Robert **Lucas**, is a fundamental critique of traditional macroeconomic models, particularly those used to understand and predict business cycles. It argues that these models, which often rely on historical data and statistical relationships, are fundamentally flawed because they fail to account for how economic agents' expectations and behavior change in response to policy changes.[555] It contends that attempting to forecast the outcomes of altering economic policy solely based on patterns observed in past data, particularly when the data is highly aggregated, is simplistic.[556] In more technical terms, it suggests that the governing principles of Keynesian models, like the consumption function, cannot be deemed as structurally sound, as they may not remain unchanged in the face of shifts in government policy variables.

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[553] Dehejia, V. H., & Rowe, N. (1998). The effect of business cycles on growth: Keynes vs. Schumpeter. *Economic Inquiry*, *36*(3), 501-511.
[554] Vianna, M. T. (2023). Business cycle theories after Keynes: A brief review considering the notions of equilibrium and instability. *Structural Change and Economic Dynamics*, *64*, 134-143.
[555] Lucas, R. E. (1980). Methods and problems in business cycle theory. *Journal of Money, Credit and banking*, *12*(4), 696-715.
[556] Galbács, P. (2021). What did it take for Lucas to set up 'useful'analogue systems in monetary business cycle theory?. *Economics and Business Review*, *7*(3), 61-82.

20.1. Phases of Business Cycle

The delineation of business cycles unfolds through distinctive stages, each marked by discernible economic phenomena and dynamics.

Phases of Business Cycle

Improvement: recovery/expansion	• characterized by a positive accelerator effect • the period from the bottom turning point of the economic cycle to the inflection point of the rising branch
Prosperity: boom	• characterized by slowdown, deceleration • the processes of this stage prepare the recession • the section from the inflection point of the rising branch of the economic cycle to the upper turning point
Recession: contractions	• characterized by a negative accelerator effect • the section from the upper turning point of the business cycle to the inflection point of the descending branch
Depression: crisis	• characterized by slowdown, deceleration • the processes of this stage prepare the expansion • the section from the inflection point of the downward branch of the economic cycle to the bottom turning point

Source: own compilation of the author; Point of inflection: the location where a curve changes from sloping up or down to sloping down or up

The initial phase, denoted as **Improvement or Recovery/Expansion**, is characterized by a positive accelerator effect. This phase spans the interval from the nadir, or bottom turning point, of the economic cycle to the inflection point of the ascending branch, where economic indicators exhibit a trajectory of improvement and augmentation. The **Prosperity or Boom** phase features a distinctive slowdown and deceleration. The intricate processes unfolding during this period set the stage for an impending recession. The Prosperity phase extends from the inflection point of the ascending branch of the economic cycle to the zenith, or upper turning point, encapsulating a period of heightened economic activity. Conversely, the **Recession or Contraction** phase, characterized by a negative accelerator effect, ensues from the upper turning point of the business cycle to the inflection point of the descending branch. This phase is marked by a contraction in economic activities, with a discernible downturn in various indicators indicative of a broader economic decline. The final stage in the cyclical progression is **Depression or Crisis**, which mirrors the Prosperity stage in its attributes of slowdown and deceleration. Processes unfolding during the Depression stage serve to prepare the groundwork for the subsequent expansion. This stage spans the interval from the inflection point of the descending branch of the economic cycle to the nadir, or bottom turning point, signifying the culmination of economic decline.

Business Cycle

		Expansion – growth		Recession – decline	
		the economy is growing in real terms, indexes (indicators) are improving		the economy declines and shrinks indexes, indicators decrease	
Phase		**Improvement** *Inflationary growth*	**Prosperity** *Inflationary recession*	**Recession** *Deflationary growth*	**Depression** *Deflationary recession*
Production **Expenditures** **Business trust**		**growth**	**high-level**	**falling levels, decline**	**very poor, weak**
Characteristics		• savings and profits increase • low interest rates • healthy banking system	• high profits • growing investments • increasing debt (corporate)	• high interest rates • debt growth (consumer) • wealth differences	• stock market crashes • bankruptcies • defaulted debts • trade disputes, conflicts
Inflation		increasing (slow, creeping)	acceleration (faster, galloping)	disinflation	deflation
Unemployment		takes time to moderate	low	increasing	sharp rise
Sectoral performance	**Good Best**	Finance, Stocks Real Estate, Consumer Durables, IT, Industry	IT, Industry	Raw materials, Daily consumer goods, Healthcare, Energy, Utilities	Consumer Goods, Healthcare, Energy, Communications, Public Utilities, Gold
	Poor Worst	Everyday consumer goods, Health, Energy,Bonds, Communication, Public Utilities	Raw materials, Public Utilities	Consumer durables, IT, Industry	Real estate, IT, Industry, Raw materials

Source: own compilation of the author

20.2. Investment Clock and Sector Rotation

Business cycles impact investments. The **Merrill Lynch** or ML's **Investment Clock** is a conceptual framework utilized in financial analysis and investment strategy, providing a visual representation of the various stages within the economic or business cycle.[557] Developed by Merrill Lynch, a renowned global wealth management and financial services company, this clock model divides the economic cycle into distinct phases, each associated with specific investment strategies and asset classes that tend to perform well during those stages.

The Four Phases of the Investment Clock

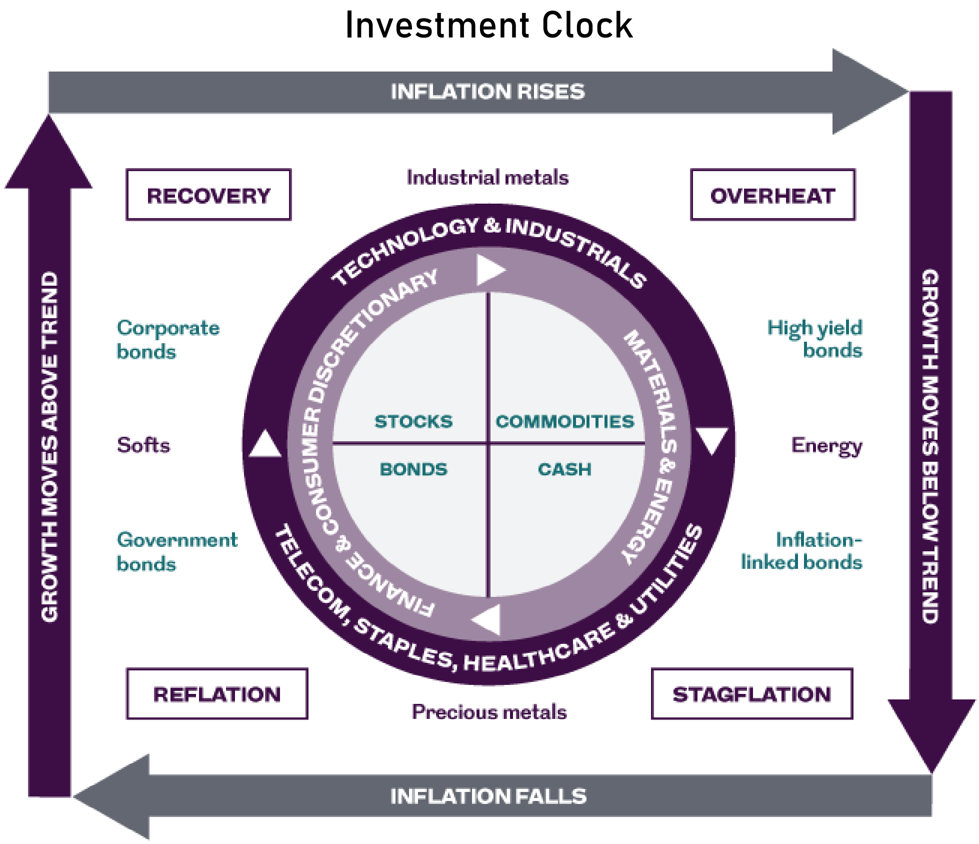
Phase	Growth	Inflation	Best Asset Class	Best Equity Sectors	Yield Curve Slope
I Reflation	↓	↓	Bonds	Defensive Growth	Bull Steepening
II Recovery	↑	↓	Stocks	Cyclical Growth	-
III Overheat	↑	↑	Commodities	Cyclical Value	Bear Flattening
IV Stagnation	↓	↑	Cash	Defensive Value	-

Source: ML Global Asset Allocation. Growth relative to trend (i.e. "output gap")

The concept of using a Clock to illustrate the cyclical nature of the economy with various investments positioned where they are most attractive can be traced back many decades. In the 1990s, Trevor Greetham, Head of Multi Asset at Royal London Asset Management, started the research that led to the comprehensive Investment Clock model we use today. The Investment Clock comprises four primary stages, each corresponding to a specific phase of the economic cycle. The first stage is the Early Cycle, marked by the recovery phase after a downturn. During this period, economically sensitive assets such as stocks and commodities may perform well. The second stage is the Mid-Cycle, characterized by sustained economic growth, and investments in equities, especially cyclical stocks, may continue to thrive. The third stage is the Late Cycle, where economic expansion reaches its peak,

[557] Merrill Lynch (2004). *The Investment Clock: Making Money from Macro*. Report. The investment clock is a macroeconomic analysis and broad asset allocation model proposed by Merrill Lynch in 2004. It adopts OECD output gap and CPI inflation data as the two main indicators to measure economic growth and price level.

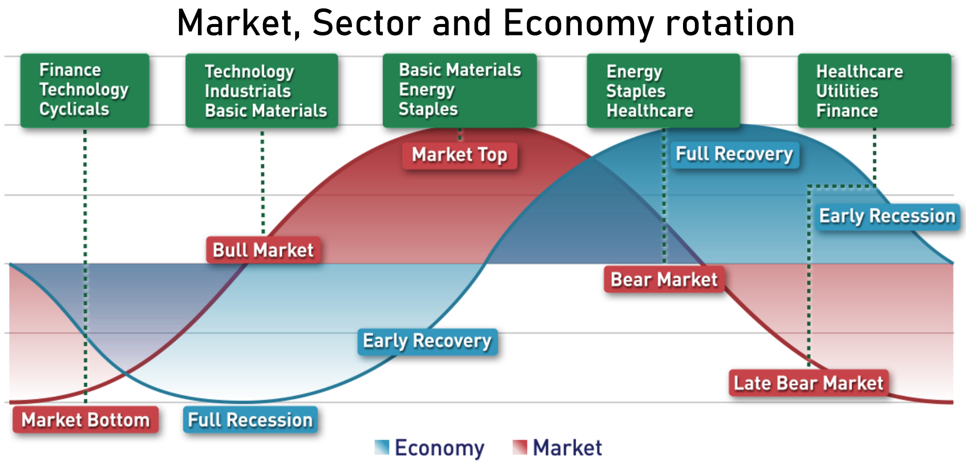
and defensive assets like bonds and dividend-paying stocks may become more attractive. Finally, the fourth stage is the Recession, a phase of economic contraction during which defensive assets and safe-haven investments are often preferred.



Source: Royal London Asset Management. (2023). The Investment Clock (https://www.rlam.com/uk/intermediaries/our-capabilities/multi-asset/investment-clock/)

The Merrill Lynch Investment Clock is not only a descriptive tool but also serves as a strategic guide for investors to adjust their portfolios based on the prevailing economic conditions. By aligning investment decisions with the identified stage of the economic cycle, investors aim to optimize returns and mitigate risks associated with specific market conditions.[558]

[558] Tao, Y. (2024). Introduction and Applications of the Investment Clock Theory. *Highlights in Business, Economics and Management*, *24*, 704-708.



Source: Katz, E. (2020): The Mother of all Sector Rotation Strategies (https://themarketmadeeasy.com/sector-rotation-investing/)

The **lag between phases and sectors** in the context of economic cycles refers to the time delay or interval between the occurrence of specific phases in the overall economy and the subsequent impact or response observed in different sectors or industries.[559] Understanding this lag is crucial for investors, policymakers, and analysts as it provides insights into the timing and sequencing of economic events. Sectors or industries within the economy do not respond simultaneously to changes in economic conditions. Some sectors are more sensitive to economic fluctuations, while others exhibit delayed reactions.

This lag is influenced by different factors such as production cycles, demand elasticity, and the nature of goods or services provided by each sector. Investors often rely on market signs and leading indicators to anticipate shifts in economic cycles. Financial equities often exhibit strong performance during market peaks and the initial stages of economic downturns, as investors gravitate towards these stocks for perceived safety. In contrast, technology stocks tend to flourish in the early phases of economic recoveries, aligning with the increased optimism among investors regarding future prospects. On the other hand, basic materials stocks demonstrate robust performance during complete economic recoveries, coinciding with heightened economic activity. Energy stocks commonly thrive in bullish market conditions, particularly during upward trends, as the prices for oil and gas experience an upswing. In contrast, healthcare stocks maintain resilience across all

[559] Chong, J., & Phillips, G. M. (2015). Sector rotation with macroeconomic factors. *The Journal of Wealth Management*, *18*(1), 54-68.

market phases, displaying a tendency to perform well, irrespective of economic downturns. This resilience is attributed to the sector's inherent resistance to the adverse impacts of economic contractions.

These signs can include changes in interest rates, stock market performance, commodity prices, and consumer sentiment. The sector rotation can occur, and investors move their money from one sector of the economy to another in response to changing economic conditions. For example, investors may move from financial stocks to technology stocks as the economy recovers. Sector rotation can be a profitable strategy for investors who can identify the sectors that are likely to outperform soon.

However, it's important to note that these signals may precede actual changes in the broader economy. For instance, a stock market decline or an inverted yield curve may signal an impending economic downturn. Investors and analysts use such leading indicators to position their portfolios in anticipation of future economic conditions, recognizing that markets can react to expected changes before those changes are fully realized in economic data.

20.3. Economic Waves

The concept of **economic waves** refers to the recurrent and cyclical patterns observed in economic activity over time. Various economists have proposed different theories to explain these cycles, each focusing on different time frames and drivers of economic fluctuations. Some notable economic waves include the Pork Cycle, Kitchin Cycle, Juglar Cycle, Kuznets Cycle, and Kondratiev Cycle.[560] These concepts provide frameworks for understanding the cyclical nature of economic activity, highlighting different aspects of the drivers and durations of economic fluctuations at different time scales. While these cycles may not perfectly align with every economic event, they contribute to the broader understanding of the dynamics shaping economic waves over time.

[560] Korotayev, A. V., & Tsirel, S. V. (2010). A spectral analysis of world GDP dynamics: Kondratieff waves, Kuznets swings, Juglar and Kitchin cycles in global economic development, and the 2008–2009 economic crisis. *Structure and Dynamics*, *4*(1).

Economic Waves, Cycles

	Years	Base	Characteristic
Pork, hog	2-4	**livestock**	• fluctuations of supply and prices in livestock markets (pork cycle, hog cycle, or cattle cycle)
Kitchin	3–5 (40 months)	**inventory or stock**	• time lags in information movements affecting the decision making of commercial firms • inventory, stock, which is in the storage, warehouse • adaption to changes in demand
Juglar	7–11	**fixed assets, investment**	• observe oscillations of investments into fixed capital and not just changes in the level of employment of the fixed capital
Kuznets	15–25	**infrastructure, construction industry**	• housing construction, heavy industry/prices and associated consumer spending • connected these waves with demographic processes
Kondratiev	45–60	**technology**	• 1930s Schumpeter - technological innovation • social inequalities • demographic theory • agricultural land speculation • debt deflation

Source: own compilation of the author

The **Pork cycle**, also known as the Hog Cycle, is a short-term (2 to 4 years) economic cycle predominantly manifesting in livestock markets, entails discernible fluctuations in both supply and prices, specifically related to the hog or pork industry.[561] It is characterized by alternating periods of overproduction and underproduction in the pork market. Farmers respond to high prices by expanding production, leading to oversupply and subsequent price declines. This prompts a reduction in production, creating a cycle of price volatility in the pork industry.

The **Kitchin cycle**, named after economist Joseph Kitchin, lasts approximately 3 to 5 years (40 months). It is often associated with inventory adjustments in response to changes in business conditions.[562] The cycle in-

[561] Holst, C., & von Cramon-Taubadel, S. (2012). International synchronisation of the pork cycle. *Acta Oeconomica et Informatica*, *15*(394-2016-24281), 18-23.
Chavas, J. P., & Holt, M. T. (1991). On nonlinear dynamics: the case of the pork cycle. *American Journal of Agricultural Economics*, *73*(3), 819-828.
[562] Kitchin, J. (1923). Cycles and trends in economic factors. *The Review of economic statistics*, 10-16.

volves fluctuations in business inventories, with periods of inventory accumulation followed by adjustments to align with changes in demand. Characterized by the temporal lags in information transmission that influence the decision-making processes of commercial entities, this cycle is intimately tied to the adaptation strategies of businesses to changes in demand. The inventory or stock, housed within storage facilities and warehouses, becomes a focal point for examining how firms handle fluctuations and make strategic adjustments in response to shifting market conditions.

The **Juglar cycle**, proposed by the French economist Clément Juglar, is an intermediate-term economic cycle with a typical duration of 7 to 11 years.[563] It is often linked to fixed assets and investments, reflecting the periodicity of major business investments, such as the construction of factories and infrastructure projects. This temporal framework provides insight into the cyclical patterns inherent in the decision-making processes surrounding long-term investments in fixed assets.

The **Kuznets cycle** or Kuznets swing from Simon Kuznets, is another long-term economic cycle with a duration of around 15 to 25 years.[564] This cycle is associated with structural changes in the economy, such as shifts in income distribution and demographic factors. Kuznets suggested that long waves of economic development could be linked to demographic changes and technological innovations. The emphasis shifts towards infrastructure and the construction industry. This cycle is intricately linked to housing construction and heavy industry, with associated implications for both prices and consumer spending. Furthermore, Kuznets connects these trends with demographic processes, elucidating how population dynamics intertwine with and contribute to the cyclical undulations within the broader economy.[565]

The **Kondratiev cycle** or K-waves, named after Russian economist Nikolai Kondratiev, who wrote The Major Economic Cycles (1925),[566] is a

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[563] Juglar, C. (1862). Des Crises commerciales et leur retour periodique en France, en Angleterre, et aux Etats, Unis, 1862, archives BNF.

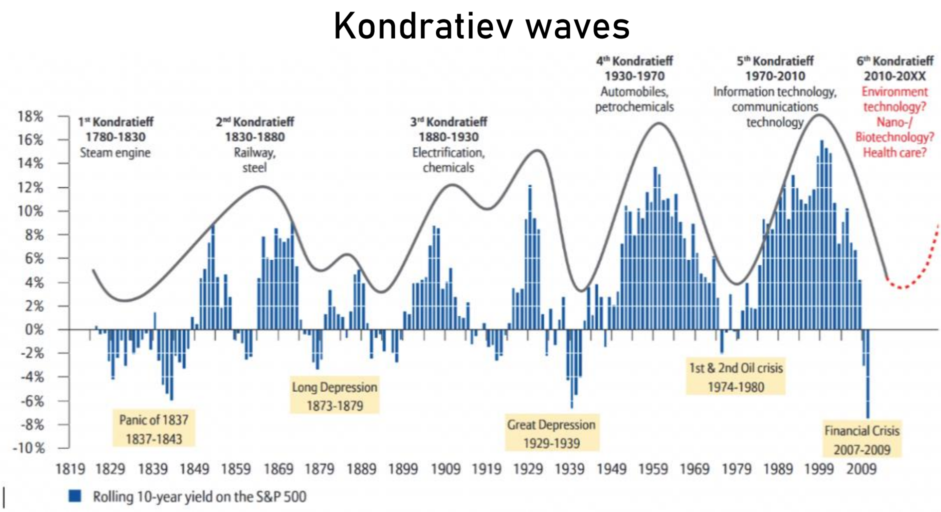
[564] Kuznets S. (1930). *Secular Movements in Production and Prices. Their Nature and their Bearing upon Cyclical Fluctuations*. Boston: Houghton Mifflin

[565] Isik, C., Ongan, S., Ozdemir, D., Ahmad, M., Irfan, M., Alvarado, R., & Ongan, A. (2021). The increases and decreases of the environment Kuznets curve (EKC) for 8 OECD countries. *Environmental Science and Pollution Research*, *28*, 28535-28543.

[566] Kondratiev, N. (1925). The Major Economic Cycles English version Nikolai Kondratieff (1984). Long Wave Cycle. Guy Daniels. E P Dutton.

Kondratiev, N. (1928) The Major Cycles of the Conjuncture, Кондратьев Н. Д., Опарин Д. И. Большие циклы конъюнктуры: Доклады и их обсуждение в Институте экономики., long-term economic cycle with a duration of approximately 40 to 60 years. It is often referred to as the **long wave** or super cycle. Kondratiev cycles are associated with major technological innovations that drive economic growth and transformation. This expansive temporal framework serves as a lens through which scholars and economists can explore the enduring impacts of technological shifts and their multifaceted ramifications on societal and economic structures. Originating in the 1930s, Joseph Schumpeter linked this cycle to periods of significant technological innovation, highlighting the cyclical interplay of social inequalities, demographic theories, agricultural land speculation, and debt deflation within the broader economic context. The difference is that according to Schumpeter, the innovation waves are getting shorter and shorter, while Kondratiev proposed approximately equal lengths on average.

The Kondratiev cycle is further distinguished by its pervasive global impact, manifesting not only in the comprehensive influence it exerts on the world economy but also in its discernible presence across diverse spheres, including demography, politics, crime, fashion, and various artistic and literary trends and schools.

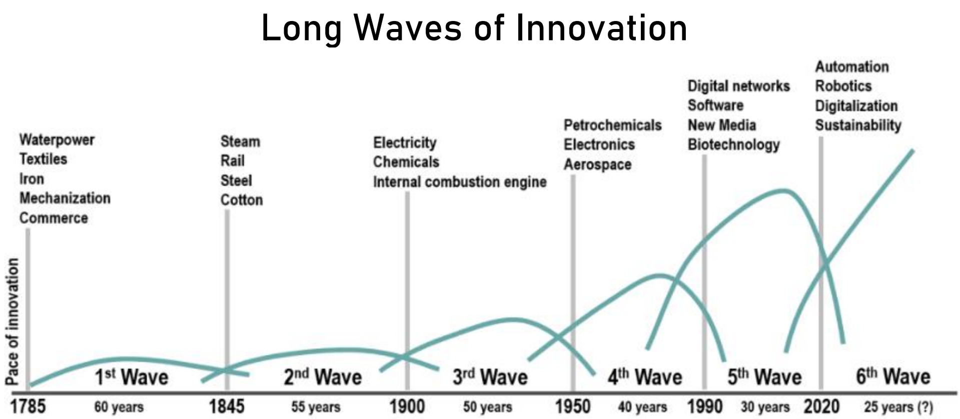


Source: Hepworth, M. (2020): *Build back better*: In the Winter of the 5th Kondratieff wave. University of Bath (https://blogs.bath.ac.uk/iprblog/2020/06/11/build-back-better-in-the-winter-of-the-5th-kondratieff-wave/)

1928. (Kondratiev N. D., Oparin D. I. Large cycles of the market: Reports and their discussion at the Institute of Economics. — 1st ed.)

Four empirical regularities characterize the protracted duration of Kondratiev cycles, amplifying our understanding of their intricate dynamics. Firstly, preceding or coinciding with the inception of the ascending wave, noteworthy transformations transpire within economic realms. These alterations span the genesis of inventions and their practical application, modifications in production conditions, the expansion of global economic interconnections, shifts in monetary circulation, and the ascendancy of gold production. This foundational period sets the stage for the unfolding trajectory of the long cycle. Throughout the ascendant phase of the Kondratiev cycle, a notable propensity for social upheavals and consequential changes, including revolutions and wars, becomes markedly pronounced. The heightened frequency of such transformative events during this phase underscores the dynamic interplay between economic evolution and broader societal shifts.

As the cycle enters its descending phase, a pervasive crisis ensues within the agricultural sector, persisting as a recurrent feature. This enduring agricultural predicament during the downward trajectory further accentuates the multifaceted repercussions of Kondratiev cycles on various sectors of the economy. During the declining period of the cycle, the depression phases within the context of the 8–11-year medium cycles exhibit a distinctive pattern. These downturns are characterized by prolonged durations and heightened severity, reflecting a protracted period of economic downturn. In stark contrast, the subsequent upswing within the same medium cycles is marked by brevity and relative weakness, underscoring the asymmetrical nature of economic fluctuations within the broader framework of the Kondratiev cycle.



Source: Hargroves, K., & Smith, M. H. (2013). *The natural advantage of nations: Business opportunities, innovations and governance in the 21st century*. Earthscan. 17.

Joseph Alois **Schumpeter** argued that **technological innovation** primarily drives long economic activity cycles.[567] He built upon the ideas of Kondratiev, whose work initially brought attention to these cycles but focused on different causes. While Schumpeter's perspective gained more prominence, Kondratiev's contributions were also acknowledged. He credited the foundations of long wave theory to Kondratiev, and coined the term Kondratiev Waves (K-waves). According to Schumpeter, periods of technological innovation, the **innovation waves** lead to fluctuations in investment and economic growth, creating long cycles with not an average, rather an accelerating periods form 60 to 25 years. Innovations tend to cluster around specific times, prompting entrepreneurs to make significant commitments. The process of technological change involves intricate relationships among various factors such as inventions, innovations, diffusion paths, and investment activities. The impact of technological innovation on overall economic output is influenced by the speed and effectiveness of transforming inventions into practical applications and their diffusion throughout the economy.

The **Austrian Business Cycle Theory** (ABCT) integrates principles from the Austrian school's capital, money, credit, and interest theories to elucidate the recurring cycles of economic booms and busts. Developed by economists of the Austrian School such as Ludwig von Mises and Friedrich Hayek (latter won the Nobel Prize in Economics in 1974 for his work on this theory),[568] ABCT explains how low interest rates stimulate borrowing and capital spending, leading to widespread malinvestment.[569] ABCT emphasizes the importance of coordinating resources over time, with interest rates as a key tool in this process by reflecting the time price. When central banks artificially lower interest rates through expansionary monetary policies, it disrupts the alignment between future production and consumption plans. This leads to an initial economic boom fueled by false expectations and a recession as unsustainable investments are revealed.

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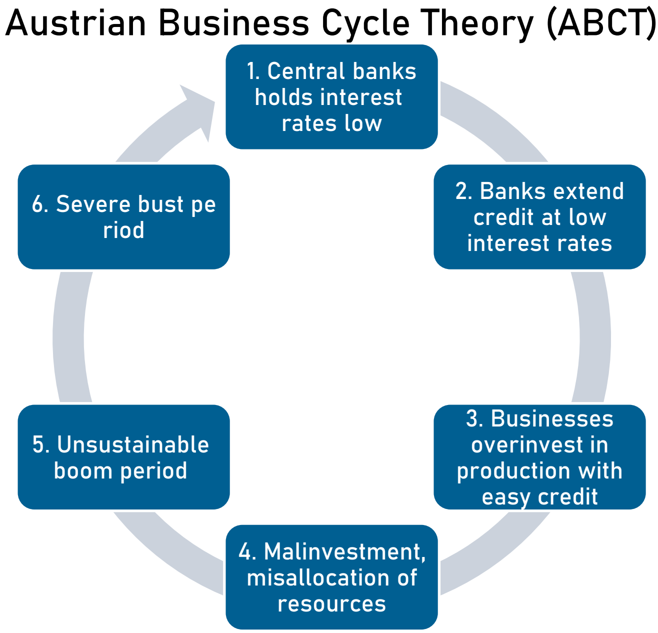
[567] Schumpeter, J. (1927). The explanation of the business cycle. *Economica*, (21), 286-311.
Schumpeter, J. A. (1934). The theory of economic development: An inquiry into profits, capital, credits, interest, and the business cycle. *Harvard Economic Studies, Translated by Opie, R*. (1961)
Schumpeter, J. A. (1939). Business Cycles: A Theoretical Historical and Statistical Analysis of the Capitalist Process (Vol. 1-2). New York: Mcgraw-hill.
[568] Hayek. F. A. (1931, 1935). *Preise und Produktion.* 1931, Prices and Production
von Hayek, F. A. (2012). *Prices and Production and Otherworks*. Bubok.
[569] Batemarco, R. J. (1994). Austrian business cycle theory. In *The elgar companion to austrian economics*. Edward Elgar Publishing.
Salter, A. W., & Luther, W. J. (2016). The optimal Austrian business cycle theory. In *Studies in Austrian Macroeconomics* (Vol. 20, pp. 45-60). Emerald Group Publishing Limited.



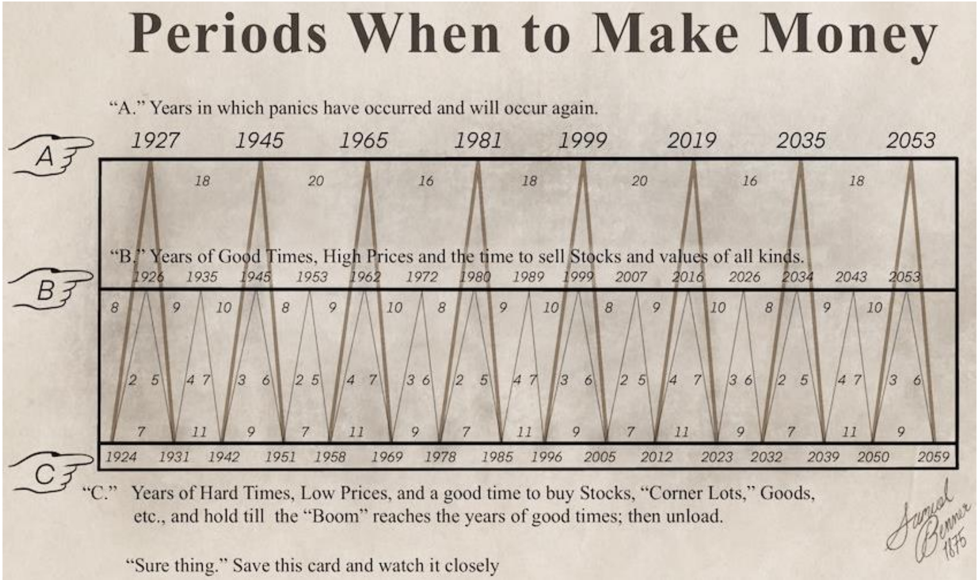
Source: Lionfin Capital (2014). What Is Austrian Business Cycle Theory? (https://seekingalpha.com/article/2154223-what-is-austrian-business-cycle-theory)

Austrians view recessions as necessary corrections to restore balance, with their duration and severity influenced by the extent of the initial monetary expansion and attempts to mitigate the recession's effects. Eventually, a correction or credit crunch occurs, known as a "recession" or "bust", when the credit expansion reaches its limit. While ABCT diverges from mainstream economic theories, its proponents continue to defend its principles despite criticisms from mainstream economists.[570]

Another interesting observation is the **Brenner's waves**, a forecasting methodology proposed by Samuel Brenner in 1875, represent a conceptual framework employed for business and commodity price forecasting.[571] These waves delineate distinct phases within economic cycles, providing strategic insights into optimal periods for buying or selling various financial assets.

[570] Macovei, M. (2015). The Austrian Business Cycle Theory: A Defense of Its General Validity. *Quarterly Journal of Austrian Economics*, *18*(4), 409.
Carilli, A. M., & Dempster, G. M. (2008). Is the Austrian business cycle theory still relevant?. *The Review of Austrian Economics*, *21*(4), 271-281.
[571] Armstrong M. (2023). Brenner & Kondratieff Waves v Economic Confidence Model (https://www.armstrongeconomics.com/armstrongeconomics101/understanding-cycles/brenner-kondratieff-waves-v-economic-confidence-model/)

Brenner's waves



Source: Armstrong M. (2023). Brenner & Kondratieff Waves v Economic Confidence Model (https://www.armstrongeconomics.com/armstrongeconomics101/understanding-cycles/brenner-kondratieff-waves-v-economic-confidence-model/)

Notably, Brenner's model identifies three pivotal phases. In the **Panic Years**, market dynamics are characterized by panic-induced fluctuations, wherein stocks are subject to irrational buying or selling behaviors that propel prices to extremes, either skyrocketing or plummeting beyond expectations. Representing a period of prosperity, the **Good Times** phase is characterized by elevated prices, presenting optimal conditions for selling various financial instruments, including stocks and other assets. During these years, market participants are positioned to capitalize on favorable valuations and reap profits from their investments. Contrarily, the **Hard Times** phase constitutes years in which strategic buying of stocks, commodities, and assets is recommended. Investors are advised to hold these investments until the subsequent 'boom' years (Good Times), wherein optimal selling conditions emerge. Brenner's waves, notably outlined in a table forecasting panics or peaks for the years 1911, 1927, 1945, 1965, 1981, 1999, and 2019, exhibit a prescient alignment with favorable selling opportunities in all years except 1981. The efficacy of this forecasting model is further corroborated through an overlay analysis of the Shiller Price Earnings Ratio, which illustrates and substantiates the observed alignment of Brenner's waves with periods conducive to divestment and profit-taking. This underscores the model's potentials for investors seeking strategic guidance in financial markets.

21. Economic Crises

Why did the economic historian become a stand-up comedian?
Because they knew how to make even the most
depressing economic recessions sound hilarious!

A crisis, in its essence, represents a critical juncture marked by a sudden and acute breakdown in the normal functioning of systems, like community or non-community crises; political, social, economic or financial[572] crises; industrial and natural crises. Whether stemming from financial imbalances, geopolitical tensions, or natural disasters, crises unleash a cascade of destabilizing forces that challenge the resilience of societies and economies alike. Economic crises, bubbles, panics, recessions, maniacs etc. manifest in various forms, each characterized by its unique triggers and consequences.[573] An economic crisis transcends mere disruptions in financial markets, encompassing broader macroeconomic imbalances that jeopardize the stability and sustainability of economic systems. From recessions and depressions to sovereign debt crises and banking crises, economic crises undermine confidence, erode wealth, and inflict lasting scars on the fabric of societies. Within the realm of financial markets, the metaphorical animals of risk prowl amidst the ebbs and flows of market sentiment, embodying the primal instincts and behavioral biases that drive market participants, like black, grey, and green swans, the elephant in the room, grey rhino, black jellyfish, Russel chickens, dragon king, or the Minsky moments.

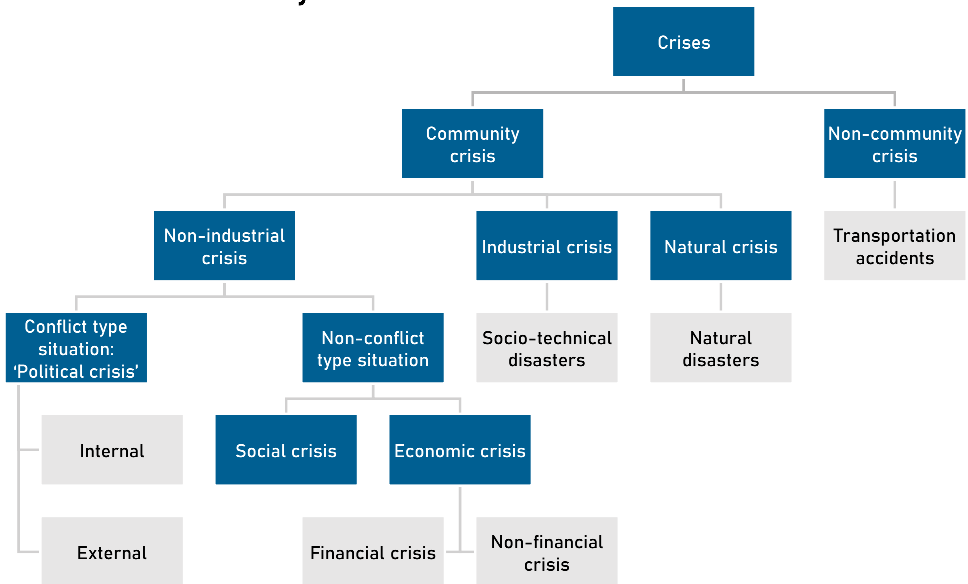
21.1. Crisis

The term **crisis** (in plural crises) broadly refers to a critical, decisive, or crucial turning point or situation that demands immediate attention and resolution. It is characterized by a state of emergency or a critical juncture in which events unfold with potentially far-reaching consequences. A crisis can manifest in various forms and contexts, encompassing financial, economic, political, social, environmental, or personal spheres. Examples of crises include financial crises, natural disasters, public health emergencies, political unrest, economic recessions, and personal crises. The term is applicable to a

[572] Sufi, A., & Taylor, A. M. (2022). Financial crises: A survey. *Handbook of International Economics*, *6*, 291-340.
[573] Aliber, R. Z., Kindleberger, C. P., & McCauley, R. N. (2015). *Manias, panics, and crashes: A history of financial crises* (p. 256). Basingstoke: Palgrave Macmillan.

wide range of situations where the status quo is disrupted, and urgent action is required through or overcome the challenges presented.

Systematization of Crises



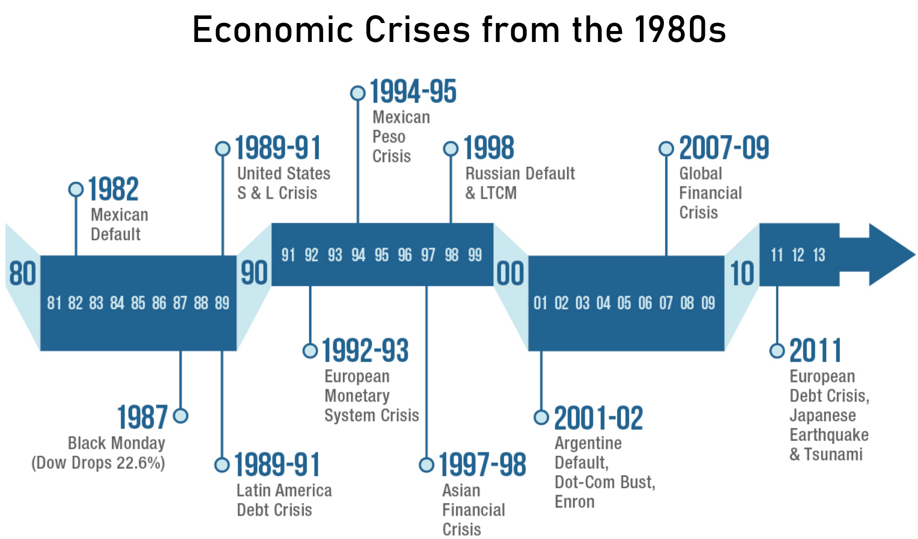
Source: own compilation of the author

The system of crises encompasses a broad array of complex situations, each with distinctive characteristics, implications, and contextual frameworks. Among these, **community crises** can be delineated into non-industrial crises, which further branch into conflict and non-conflict types. Within the conflict category, the multifaceted nature of crises becomes evident through the delineation of political crises, which, in turn, manifest in internal and external dimensions. Moreover, within the broader spectrum of non-conflict types, social and economic crises emerge as significant categories, further differentiating into financial and non-financial crises. In the realm of non-industrial crises, industrial crises unveil yet another layer, notably encompassing socio-technical disasters that underscore the intricate interplay between societal and technological dimensions. Furthermore, natural crises, constituting a critical facet of the crisis taxonomy, encapsulate the occurrence of natural disasters, reflecting the unpredictable and formidable forces of nature that can precipitate crises on various scales.

Contrastingly, the classification of **non-community crises** introduces the category of transportation accidents, exemplifying situations that extend beyond the immediate confines of community boundaries. This nuanced classification underscores the diverse manifestations of crises, ranging from local to global contexts, and further underscores the imperative of an inclusive and comprehensive understanding of crisis typologies.

21.2. Economic Crisis

The concept of **economic crises** refers to periods of significant disruption, downturn, or upheaval within an economic system, manifesting in widespread distress across various sectors. Economic crises are characterized by a range of adverse conditions, including recessionary trends, financial instability, unemployment spikes, and reduced economic output. A combination of systemic vulnerabilities, external shocks, or inherent weaknesses within the economic structure often precipitates the onset of an economic crisis.



Source: Iglesias, M. O. (2015). Financial crises and flushing toilets. Elcano Royal Institute (https://www.realinstitutoelcano.org/en/blog/financial-crises-flushing-toilets/)

Economic crises frequently entail financial instability, marked by disruptions in banking and financial markets.[574] Bank failures, liquidity crises, and a breakdown of trust in financial institutions are common manifestations during such periods. They are often accompanied by recessions, characterized by a contraction in economic activity, a decline in Gross Domestic Product (GDP), and a downturn in business cycles. Reduced consumer spending,

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[574] Račickas, E., & Vasiliauskaitė, A. (2012). Classification of financial crises their occurrence frequency in global financial markets. *Socialiniai tyrimai*, (4), 32-44.

diminished business investment, and falling employment rates are prevalent indicators of recessionary pressures. Businesses facing financial constraints may implement cost-cutting measures, leading to layoffs and a rise in joblessness. The labor market is significantly impacted, contributing to social and economic challenges, elevates levels of unemployment. Economic crises frequently witness a sharp decline in asset prices, affecting various markets such as real estate, stocks, and commodities. Investors may experience substantial losses as market values plummet during periods of economic turmoil.[575] Financial stress arises as excessive debt levels become unsustainable, leading to defaults, bankruptcies both at the individual and institutional levels, and a cascading effect on the broader economy. Governments and central banks typically implement a range of policy responses. These measures may include fiscal stimulus packages, monetary policy adjustments, and interventions to stabilize financial markets. From the 19th century, the crises often transcend national borders, with repercussions extending to the global economy. Interconnectedness in trade, finance, and investment means that a crisis in one region can have spillover effects on other economies.

Financial Crises Classification

By origin of financial crises	By scale of financial crises	By causes of financial crises
• Currency crisis • Banking crisis • (Public) debt crisis • Balance of payments crisis • Inflation crisis	• Systemic financial crisis • International financial crisis • Wider economic crisis	• Macroeconomic policy induced crisis • Financial panic • Crisis induced by moral hazard • "Disorderly workout" • Speculative attack on the exchange rate • Speculative bubbles and crashes • Collapse of an asset price bubble

Source: Račickas, E., & Vasiliauskaitė, A. (2012). Classification of financial crises their occurrence frequency in global financial markets. *Socialiniai tyrimai*, (4), 32-44.

The classification of financial crises can be delineated by their (i) originating factors, (ii) scale, and (iii) main causes. Among the **origins** are the **currency crises** characterized by rapid currency depreciation, often triggered

[575] Elson, D. (2013). Economic crises from the 1980s to the 2010s. *New frontiers in feminist political economy, 189.*

by speculative attacks or loss of confidence in monetary policy. The **banking crises** are marked by widespread bank failures or liquidity shortages, resulting in disruptions to financial intermediation. The **public debt crises** occur when a government's debt burden becomes unsustainable, hindering its ability to meet financial obligations. The **balance of payments crises** arise when a country's international transactions fall out of equilibrium, leading to difficulties managing foreign exchange reserves. The **inflation crises** are defined by persistent and significant rises in the general price level, eroding purchasing power and creating economic instability.

Within the **scales**, the **systemic financial crises** are widespread and impact the entire financial systems across multiple countries, posing substantial risks to economic stability. The **international financial crises** affect several countries simultaneously, often due to interconnectedness within the global financial system. The so-called **wider economic crises** extend beyond the financial sector, encompassing broader economic and social ramifications.

Based on the main **causes**, the **macroeconomic policy-induced crises** result from misguided or excessive government interventions in the economy, including monetary or fiscal policies. The **financial panics** are abrupt episodes of widespread fear and loss of confidence, leading to irrational selling and liquidity flight. The **moral hazard-induced crises** arise from implicit or explicit guarantees that encourage excessive risk-taking by financial institutions and investors. Inefficient and protracted resolution processes for distressed financial institutions trigger **disorderly workout crises**. The **speculative attacks on the exchange rate** are coordinated attempts by investors to sell a currency, aiming to depreciate it and profit from exchange rate movements. The **speculative bubbles and crashes** are Periods of irrational exuberance, followed by sharp asset price falls, creating systemic risks and economic disruptions. The **collapse of an asset price bubble** means a sudden and dramatic bursting of an inflated asset price bubble, often leading to significant financial losses and economic downturns.

21.3. Animal Metaphors for Risky Events

The conceptualization of animals within an imagined risk management dictionary serves as powerful metaphors that enable individuals and organizations to comprehend better and categorize different types of risks, fostering a more nuanced and comprehensive approach to risk management and strategic planning. These symbolic representations encompass black, gray, and green swans, grey rhinos, elephants in the room, and black jellyfish, Russel chickens, and Minsky moments, each offering distinct perspectives on risk in diverse contexts. Each metaphor emphasizes distinct risk awareness, preparedness, and mitigation dimensions, contributing to a more holistic understanding of the complex uncertainties and challenges.

Metaphors for Risky Events

Type	Description	Example
Black Swans	Highly improbable, unpredictable events with massive consequences. Think 9/11, the 2008 financial crisis, or a global pandemic.	The rapid collapse of seemingly stable financial institutions due to interconnectedness, exceeding risk models' predictions.
Gray Swans	Less improbable than black swans, but still challenging to predict with significant impact. Think technological disruptions, geopolitical shifts, or natural disasters.	The rise of fintech and cryptocurrencies significantly impacting traditional financial institutions.
Green Swans	Positive, highly improbable events with widespread benefits. Think breakthroughs in clean energy, medical advancements, or unexpected international cooperation.	A major scientific discovery leading to advancements in renewable energy sources, revolutionizing the global energy sector.
Grey Rhinos	Highly probable, neglected threats with significant potential damage. Think climate change, rising inequality, or cyberattacks.	The increasing frequency and intensity of extreme weather events due to climate change, impacting infrastructure and economies.
Elephants in the Room	Obvious, unaddressed problems everyone acknowledges but avoids discussing. Think unsustainable debt levels, aging populations, or political polarization.	The growing national debt burden posing long-term economic risks, despite political gridlock on solutions.
Black Jellyfish	Similar to black swans, but with more frequent occurrences and localized impact. Think regional financial crises, cyberattacks on specific institutions, or flash floods in vulnerable areas.	A cyberattack targeting a critical financial institution, disrupting regional markets and causing temporary chaos.
Russell Chickens	Unforeseen events with potentially disruptive impacts, outside the scope of current models and forecasts. Think technological malfunctions, unexpected regulatory changes, or social unrest triggered by seemingly minor events.	A software bug in a widely used trading platform causing market panic and cascading sell-offs.

Dragon King	An event that is both extremely large in size or effect and born of unique origins relative to its peers. Think extreme financial or business dominance, geopolitical conflicts, major solar storm, supervolcanic eruption.	While inherently unpredictable, some propose scenarios like an asteroid impact, a global superintelligence emergence, or an uncontrollable nanotechnological event.
Minsky Moments	Periods of seemingly stable economic activity that unexpectedly transition to instability. Think periods of excessive leverage and risk-taking leading to inflated asset prices and vulnerabilities.	The buildup of subprime mortgage debt and risky financial instruments before the 2008 financial crisis, creating systemic fragility.

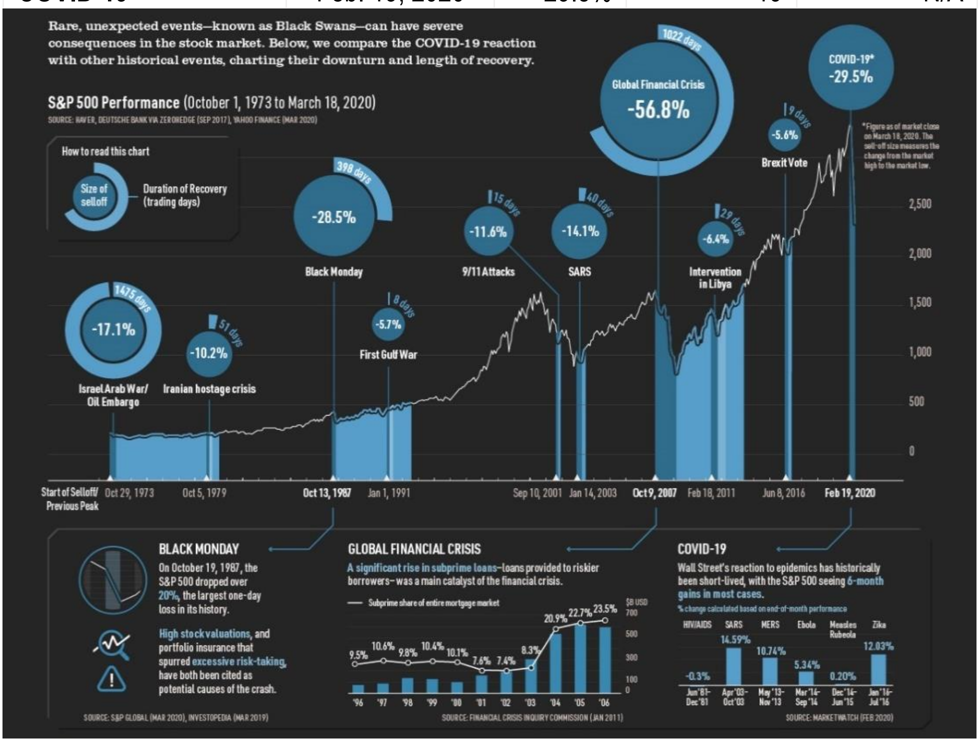
Source: own compilation of the author

The concept of **Black Swan** events, which finds its historical roots in the works of Juvenal during the 2^{nd} century, metaphorically likens such occurrences to a rare bird on earth that bears a striking resemblance to a black swan: *rara avis in terris nigroque simillima cygno* (a rare bird on earth and very similar to a black swan).[576] In his seminal work Fooled By Randomness (2001),[577] Nassim Nicholas Taleb expounds upon the notion of black swans, characterizing them as events of (i) extreme rarity with low-probability but severe consequences. Due to their (ii) unpredictability, unfold as surprises for observers and have a notable (iii) negative impact on markets and investments, often resulting in substantial price drops in financial markets. In the aftermath of the first recorded instance of a Black Swan event, rationalization often occurs, wherein it is retrospectively perceived as if the event could have been expected, despite the relevant data being available but not considered in risk reduction programs. This cognitive bias extends to the personal perception of individuals, highlighting the challenges inherent in effectively anticipating and preparing for such rare and impactful occurrences. These events, such as the COVID-19 pandemic and the war in Ukraine, often catch people by surprise but are rationalized after the fact. An analogous Hungarian expression equates rarity to that of a white raven, emphasizing the exceptional nature of these events. (In fact, both exist the Dutch exploration revealed the presence of black swans in Australia, nowadays we can find also in Russia; and there are some photos about white, albino ravens on the internet.)

[576] Decimus Iunius Iuvenalis: Satires, VI. 165.
577 Taleb, N. (2001). *Fooled by Randomness*: The Hidden Role of Chance in Life and in the Markets. Texere

Notable Black Swan events

Event	Start of Sell-off/Previous Peak	Size of Sell-off	Duration of Sell-off (Trading Days)	Duration of Recovery (Trading Days)
Israel Arab War/Oil Embargo	Oct. 29, 1973	-17.1%	27	1475
Iranian Hostage Crisis	Oct. 5, 1979	-10.2%	24	51
Black Monday	Oct. 13, 1987	-28.5%	5	398
First Gulf War	Jan. 1, 1991	-5.7%	6	8
9/11 Attacks	Sep. 10, 2001	-11.6%	6	15
SARS	Jan. 14, 2003	-14.1%	39	40
Global Financial Crisis	Oct. 9, 2007	-56.8%	356	1022
Intervention in Libya	Feb. 18, 2011	-6.4%	18	29
Brexit Vote	Jun. 8, 2016	-5.6%	14	9
COVID-19*	Feb. 19, 2020	-29.5%	19	N/A



Source: Ross, J. (2020). Black Swan Events: Short-term Crisis, Long-term Opportunity. VisualCapitalist (https://www.visualcapitalist.com/black-swan-events-short-term-crisis-long-term-opportunity/)

Expanding on the spectrum of rare and impactful events, the concept of **Grey Rhino** is introduced by Michele Wucker, delineates a high-probability, high-impact, foreseeable, yet a neglected threat by investors and policymakers due to various reasons such as climate change, debt, and economic inequality.[578] Furthermore, the **Grey Swan** represents an event that, while known and possible, is considered unlikely to transpire, with examples including climate change, population growth, and escalating debt.[579] Grey Swans lie between the unpredictability of Black Swans and the high foreseeability of Grey Rhinos. This nuanced classification of rare and impactful events, ranging from the unpredictability of Black Swans to the high foreseeability of Grey Rhinos and the known yet unlikely occurrence of Grey Swans, underscores the intricacies involved in risk assessment and management. The academic discourse on these concepts contributes to a more comprehensive understanding of the complex interplay between probability, impact, and human cognitive biases in uncertain and volatile environments.

John Elkington introduces the concept of **Green Swans** in his book Green Swans: The Coming Boom In Regenerative Capitalism. These are solutions that take us exponentially toward breakthroughs or systemic solutions to global challenges, solutions that tap into positive exponentials. They deliver exponential progress in the form of economic, social, and environmental wealth creation. Too often, Black Swans take us exponentially where we do not want to go, whereas Green Swans take us exponentially where we do want to go.[580] Green Swans are systemic solutions to global challenges that lead to exponential progress in economic, social, and environmental wealth creation. Unlike Black Swans, which take us in undesirable directions, Green Swans propel us towards positive outcomes. For instance, the adoption of electric vehicles, driven by figures like Elon Musk, exemplifies a Green Swan. This concept emerged from discussions in central banking networks, highlighting concerns about financial instability stemming from climate-related events, which are becoming more frequent and severe.

The **Elephant in the Room** alludes to a well-known and overt risk that, despite its obvious nature, remains unaddressed or unacknowledged within a

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[578] Wucker, M. (2016). *The gray rhino: How to recognize and act on the obvious dangers we ignore*. Macmillan.
Bijak, J., & Czaika, M. (2021). Black swans and grey rhinos: Migration policy under uncertainty. *Migration Policy Practice*, *10*(4), 14-18.
[579] Masys, A. J. (2012). Black swans to grey swans: revealing the uncertainty. *Disaster Prevention and Management: An International Journal*, *21*(3), 320-335.
[580] Elkington, J. (2020). *Green swans: the coming boom in regenerative capitalism*. Greenleaf Book Group.

given context.[581] It represents a consciously overlooked risk, often due to discomfort, denial, or a lack of willingness to confront the issue. In contrast, the concept of Black Swan pertains to highly improbable events that defy prediction.[582]

Expanding the repertoire of risk metaphors, the **Black Jellyfish** represents unintended risks arising from known phenomena. Lisa-Ann Gershwin wrote an illustrative of what occurred in 2013 when a nuclear reactor site in Sweden had to be shut down due to jellyfish obstructing water inlets, shedding light on the potential ramifications of such risks. Notably, rising temperatures associated with climate change are believed to create favorable conditions for jellyfish populations to rapidly increase.[583] It may represent an elusive, pervasive, and potentially harmful risk, akin to the stealthy nature of jellyfish in the ocean. These risks may be subtle, difficult to detect, and capable of causing significant disruptions if not properly identified and managed.

The **Russel Chicken** term is derived from Bertrand Russell, and it represent unforeseen events with potentially significant disruptive impacts on the financial system.[584] These chickens are not readily identifiable or predictable, as they emerge outside the boundaries of current models and forecasts. The concept emphasizes the inherent limitations of economic models in capturing the full spectrum of potential risks and uncertainties. Following the regularist approach, the chickens that are fed by the farmer each morning may well have a theory that it will always be fed each morning – it becomes a law. And it works every day, until the day the chicken is instead slaughtered.

In the animals' farm there was a flock of rational chickens that were more than happy to run to the farmer every morning to be fed. Only one eccentric chicken was increasingly nervous as he had noticed that older chickens had periodically disappeared. One day he expressed the fear that the benevolent farmer was fatting them for the slaughterhouse. The other chickens did not take him seriously. They protested that he was a lugubrious troublemaker and

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[581] Pocas Ribeiro, A. S. (2023). *Consumption: the elephant in the room: Understanding, changing, and reducing consumption for sustainability* (Doctoral dissertation, Utrecht University).
Lianos, T. P. (2020). World population: the elephant in the living room. *Real-world economics review, 91*.
[582] Manning, L., Birchmore, I., & Morris, W. (2020). Swans and elephants: A typology to capture the challenges of food supply chain risk assessment. *Trends in Food Science & Technology, 106,* 288-297.
[583] Gershwin, L. A. (2013). *Stung!: On jellyfish blooms and the future of the ocean*. University of Chicago Press.
[584] Russell, B. (1912). The value of philosophy. *The problems of philosophy*, 237-250.

that if some chickens had disappeared this depended on a fox occasionally perturbing the farm's tranquility. They claimed, however, that no one should worry for the future as the farmer had promised to strengthen the fence the day after. That night the eccentric chicken escaped from the farm before a stronger fence would prevent it and saved himself. The following morning all the other chickens were put on a lorry and brought to the slaughterhouse.

Bertrand Russell

The **Dragon King** (DK) theory, coined by Didier Sornette, represents events of immense magnitude and distinct origins within complex systems, driven by mechanisms like positive feedback and phase transitions. Unlike black swans, DK events may exhibit some predictability, urging for enhanced monitoring and study of extremes to uncover underlying organizing principles. While related to concepts such as black swan theory and risk management, the DK theory emphasizes the dynamic nature of extreme events and the inherent uncertainty that accompanies them, advocating for a rigorous consideration of uncertainty in risk management decisions. This is a metaphor for a sudden, unexpected, and catastrophic event that fundamentally reshapes the financial system, often beyond comprehension or prediction. It draws inspiration from Chinese mythology, where the Dragon King controls the seas and can unleash devastating storms. Like powerful financial institutions or individuals whose actions can significantly impact markets, creating potential instability., or a central bank governor making unexpected policy changes, triggering market volatility.

By getting out of this animal metaphoric sense, the **Minsky Moments** refer to periods where seemingly normal economic activity unexpectedly shifts into instability; named after economist Hyman Minsky and his financial instability hypothesis (FIH).[585] They are a sudden, major collapse of asset values, which marks the end of the growth phase of a cycle in credit markets or business activity. They denote the commencement of a market downturn triggered by the imprudent speculative behavior characteristic of an unsustainable period of market optimism. Typically, crises associated with the Minsky moment arise when investors, driven by overly aggressive speculation, assume heightened levels of credit risk amid bullish market conditions.

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[585] Minsky, H.P. (1982). *Can 'It' Happen Again? Essays on Instability and Finance* .New York: Sharp. and Minsky, H.P. (1986). *Stabilizing an Unstable Economy*. New Haven, CT: Yale University Press.

The term Minsky Moment was coined in 1998 by Paul McCulley, of PIMCO fame, while referring to the Asian Debt Crisis of 1997.

Rosser, J. B. (2020). The Minsky moment as the revenge of entropy. *Macroeconomic Dynamics*, *24*(1), 7-23.

McCulley, P. (2001). Look, Honey, I Caught A Liverwurst! *Fed Focus*, March. Available at: www.pimco.com

The prevailing point of view is that while orthodox theory is good enough in normal conditions (believed to apply most of the time) it is unsatisfactory in abnormal times characterized by severe financial instability (Minsky moments). They are characterized by a buildup of financial fragility through excessive leverage and risk-taking during periods of prosperity. These seemingly stable conditions breed euphoria, leading to an underestimation of risk and vulnerabilities within the system. Minsky moments often precede financial crises, as overheated markets become susceptible to even minor shocks, triggering a cascade of negative consequences. The concept marks the critical juncture at which speculative behavior reaches a precarious peak, culminating in swift price devaluation and an inevitable market collapse.

22. Antiquity

Financial crises in antiquity were recurrent occurrences that disrupted economic stability and social structures in ancient civilizations. While the nature and mechanisms of these crises differed from contemporary financial crises, they shared common elements of economic stress, market disruptions, and societal impacts.

22.1. Financial Crisis - 33

The roots of the **financial crisis of 33 AD** can be traced back to legislative measures undertaken by Julius Caesar in 49 BC. In this era, interest rates were legislatively capped at 10%, and creditors were mandated to possess a specified quantity of arable land in Italy. Initially enacted as a wartime measure to curtail capital outflows, this legislation was largely disregarded. During the reign of Augustus (27 BC - 14 AD), Rome significantly expanded its money supply through cash distributions, extensive public works, projects, and the acquisition of Italian agricultural lands for the settlement of veterans. As a result, interest rates plummeted from 12% to 4% annually. Conversely, Tiberius (14-37 AD) pursued frugal spending, maintaining a budget surplus. Despite a stagnant money supply, gold and silver flowed out of the Roman Empire to procure luxury goods from India. External events precipitated numerous major commercial bankruptcies, leading to a banking crisis.

These events culminated in a general decline in property and agricultural land values. In 33 AD, the courts began enforcing the earlier legislation, bringing charges against numerous citizens. In response, the Roman Senate and Emperor Tiberius decided to grant creditors a grace period of 18 months to align their holdings with legal requirements.[586] However, this inadvertently resulted in a shortage of funds. Compounding the issue, individuals were mandated to invest two-thirds of their cash assets in Italian land. Efforts to finance the deficit through property sales exacerbated the situation, causing a steep decline in land values and pushing many towards bankruptcy.

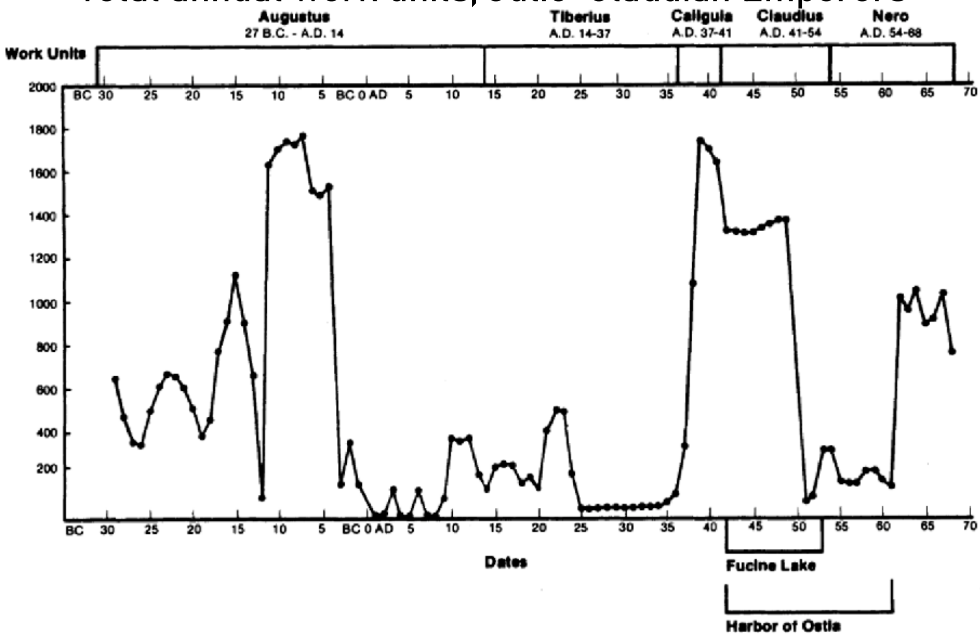
[586] Elliott, C. P. (2015). The Crisis of AD 33: past and present. *Journal of Ancient History*, *3*(2), 267-281.
Thornton, M. K., & Thornton, R. L. (1990). The financial crisis of AD 33: a Keynesian depression?. *The journal of economic history*, *50*(3), 655-662. A work unit is an index number; It took 60 labor units to build the Maison Carrée.

Consequently, numerous banks collapsed, interest rates surged, a credit crunch ensued, and prices began to deflate.

The confluence of a real estate and lending bubble led to a sudden collapse in asset prices. Stability in land prices was only achieved when Emperor Tiberius implemented a state-directed rescue package in the form of interest-free loans through what appeared to be a robust banking system. This historical episode serves as a testament to the complexities of financial systems, the interplay of legislation, and the cascading effects of economic policies in mitigating and managing crises in ancient societies.

In response to the crisis, Tiberius initiated a groundbreaking measure by establishing a 100 million sestertius ($2 billion) credit fund for the bailout.[587] This fund, secured by agricultural land twice the value of the loan, provided interest-free loans to landowners grappling with financial difficulties, injecting liquidity into the system.

Total annual work units, Julio-Claudian Emperors



Source: Elliott, C. P. (2015). The Crisis of AD 33: past and present. *Journal of Ancient History, 3*(2), 267-281. and Thornton, M. K., & Thornton, R. L. (1990). The financial crisis of AD 33: a Keynesian depression?. *The journal of economic history*, *50*(3), 655-662. A work unit is an index number; It took 60 labor units to build the Maison Carrée.

[587] Bartlett, B. (2018). The Financial Crisis, Then and Now: Ancient Rome and 2008 CE. *Epicenter-Weatherhead Center for International Affairs-Harvard. December, 10,* 2018.

22.2. Other crises

The **Persian Empire's economic challenge** was in the 6^{th} century BC.[588] The Achaemenid Persian Empire faced economic challenges, particularly during the reign of Darius I. Efforts to centralize economic control and fund military campaigns strained the Persian economy, contributing to fiscal difficulties.

The **Athenian Financial Crisis** was during the Peloponnesian War (431–404 BC).[589] The protracted Peloponnesian War between Athens and Sparta contributed to financial difficulties for Athens. The diversion of resources to fund the war and the subsequent loss of maritime power led to an economic decline and a financial crisis in Athens.

Another **Roman Financial Crisis** struck the Roman Empire around 3 AD, marked by a devaluation of currency and economic turmoil. Augustus initiated measures to address the crisis, including coinage reforms and the introduction of the *aureus* gold coin.[590]

The **Ancient Chinese Monetary Crisis** belonged to Wang Mang's Xin Dynasty (9-23 AD).[591] During Wang Mang's short-lived Xin Dynasty in ancient China, economic policies, including the introduction of a new currency, led to hyperinflation and economic turmoil. The monetary crisis contributed to social unrest and the eventual downfall of the Xin Dynasty.

The **Byzantine Financial Struggle** was in the 7^{th} Century, when the Byzantine Empire faced financial challenges exacerbated by military defeats, territorial losses, and increased taxation.[592] These factors contributed to economic decline and strained the fiscal resources of the Byzantine state.

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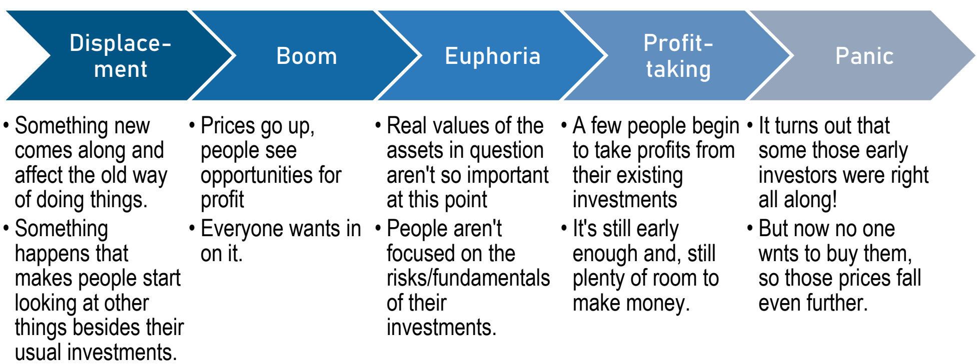
[588] Ruzicka, S. (2012). *Trouble in the West: Egypt and the Persian Empire, 525-332 BC.* OUP USA.
Wu, X. (2005). *Central Asia in the Context of the Achaemenid Persian Empire (6th to 4th Centuries BC)*. University of Pennsylvania.
[589] Halkos, G. E., Economou, E. M., & Kyriazis, N. C. (2022). Tracing the Optimal Level of Political and Social Change under Risks and Uncertainties: Some Lessons from Ancient Sparta and Athens. *Journal of Risk and Financial Management*, *15*(9), 416.
Morris, I. (2009). The greater Athenian state. *The dynamics of ancient empires: state power from Assyria to Byzantium*, 99-177.
[590] Schwei, D. (2020). An Explanation for the Addition of the Aureus to the Roman Imperial Coinage System. *Classical Journal*, *116*(2), 199-214.
[591] Ben, M. A. S. (2022). The history of china: mystery, fantasy, wars and migrations. *Chinese presence in the greater Caribbean: yesterday and today*, 33.
[592] Laiou, A. E., & Bouras, C. (Eds.). (2002). *The economic history of Byzantium: from the seventh through the fifteenth century* (Vol. 39). Dumbarton Oaks.

23. Financial Bubbles from the 17-18th Centuries

The 17th and 18th centuries marked a period of unprecedented financial speculation and volatility, characterized by the emergence of several notable financial bubbles.[593] Fueled by speculative fervor and irrational exuberance, these bubbles captivated investors' imaginations and swept entire economies into a frenzy of boom and bust. Among the most infamous episodes of this era were Tulip Mania in 1637, the first book on stock exchange trading: Confusion of Confusions in 1688, the South Sea Bubble in 1720 with Newton's instructive experience, and the Mississippi Bubble, also in 1720. Each of these episodes left an indelible mark on economic history, serving as cautionary tales about the perils of unchecked speculation and the fragility of financial markets.

In the economic context, a **bubble** commonly denotes a scenario in which the price of a particular entity – be it an individual stock, a financial asset, or an entire sector, market, or asset class – significantly surpasses its intrinsic value. Financial bubbles, interchangeably referred to as asset bubbles or economic bubbles, are broadly categorized into four classifications: (i) stock market bubbles, (ii) market bubbles, (iii) credit bubbles, and (iv) commodity bubbles.[594]

5 Stages of a Financial Bubble



Source: own compilation of the author based on TheGreySwan (2022). Mississippi Company. (https://thegreyswan.substack.com/p/mississippi-company-by-john-law-an)

[593] Quinn, W., & Turner, J. D. (2020). *Boom and Bust: A global history of financial bubbles*. Cambridge University Press.
[594] Brunnermeier, M. K., & Oehmke, M. (2013). Bubbles, financial crises, and systemic risk. *Handbook of the Economics of Finance*, *2*, 1221-1288.

While bubbles are inherently deceptive and unpredictable, investors can enhance their preparedness by comprehending the five distinctive stages characteristically associated with them. The life cycle of a bubble unfolds through five sequential steps: displacement, boom, euphoria, profit-taking, and panic. The aftermath of a bubble's burst is contingent upon factors such as the economic sector(s) involved, the extent of participation across the market, and the degree to which debt contributed to the investments that propelled the bubble's inflation.

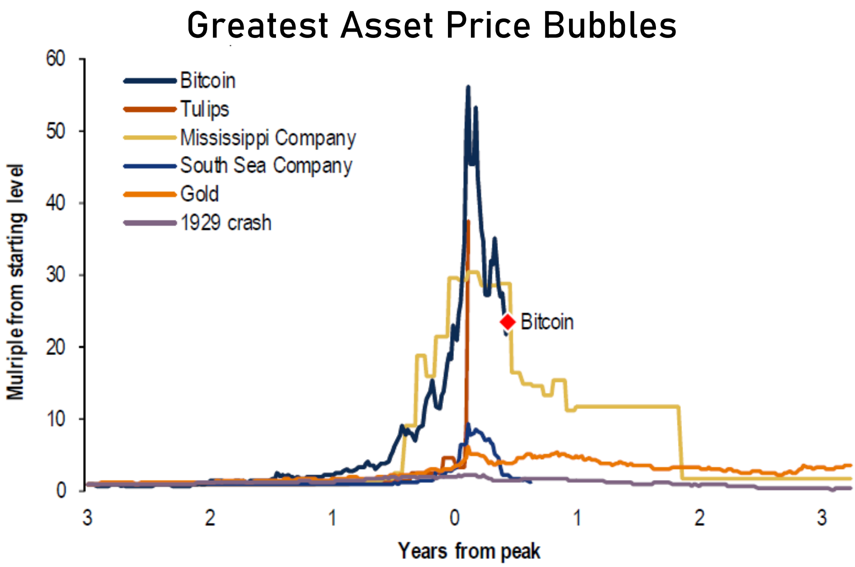
Financial bubbles, such as the infamous Tulip Mania, can be conceptualized within the broader model of the cyclical nature of financial and asset price bubbles. This model delineates a recurring pattern characterized by distinct phases, each marked by specific investor behaviors and market dynamics. In the initial phase, investors experience a departure from rational expectations, succumbing to psychological biases and distortions. Psychological biases and distortions manifest as exuberance, particularly within a specific asset class or sector, resulting in a substantial and unsustainable surge in prices. The positive feedback loop ensues, amplifying the upward trajectory of prices. This cycle of positive reinforcement further inflates asset prices, creating an environment of speculative fervor. Investors eventually realize that the assets they hold are irrationally priced, often detached from fundamental valuations. The bubble reaches its zenith when massive and sudden sell-offs occur, triggered by the recognition of overvaluation. The overwhelming majority of investors face financial distress, leading to widespread defaults.

5 Stages of a Financial Bubble

Loss of Rational Expectations	Investors lose rational expectations
Psychological Distortions	Psychological distortions/biases lead to huge price increases in an asset or sector/sector
Positive Feedback Loop	The positive feedback cycle keeps blowing and inflating prices
Realization of Irrational Pricing	Investors realize they are holding an irrationally priced asset
Collapse	Prices crash due to massive sudden sales and the vast majority go bankrupt

Source: own compilation of the author

Similar cycles of irrational exuberance and subsequent market collapses have been observed in various domains, extending beyond the historical example of Tulip Mania. Instances include the Beanie Babies craze, baseball cards, non-fungible tokens (NFTs), and the South Sea or the Mississippi Bubble of 1720 involving shipping stocks. The cyclical nature of financial bubbles finds contemporary resonance in the realm of cryptocurrencies, prominently illustrated by the case of Bitcoin. The ascent and subsequent corrections in the valuation of cryptocurrencies demonstrate the recurring patterns identified in historical financial bubbles. In this context, it becomes imperative to analyze the role of investor behavior, market psychology, and the interplay of speculative dynamics in the evolution of financial bubbles. The examination of such cycles provides valuable insights for policymakers, investors, and market participants seeking to the complexities of asset valuation and market stability in the ever-evolving financial markets.



Source: BofA Merrill LynchGlobal Investment strategy, Global Financial Data, Graber (2000), Frehen (2012), Bloomberg (https://www.bloomberg.com/news/articles/2018-04-09/bitcoin-seen-popping-like-the-greatest-bubbles-by-bofa)

The following seven are recognized as some of history's most significant asset bubbles. **Tulip Mania (1637):** A notorious episode in the Netherlands where the prices of tulip bulbs reached extraordinary levels before abruptly collapsing, resulting in substantial financial losses for investors. **South Sea (1720):** The South Sea Company, founded in 1711, promised a trade monopoly with the Spanish colonies in South America. The speculative fervor around its stocks led to a massive bubble that burst in 1720, causing widespread financial distress. **The Great Crash (1929):** The stock market crash of 1929 marked the beginning of the Great Depression, with stock prices plummeting and triggering a severe economic downturn. **Japan**

(1989): Japan experienced an asset price bubble in the late 1980s, particularly in real estate and stocks. The subsequent burst led to a prolonged period of economic stagnation known as the "Lost Decade." **DotCom (2000):** The late 1990s saw a speculative frenzy in technology stocks, particularly those related to the internet. The DotCom bubble burst in 2000, resulting in substantial losses for investors. **U.S. Housing (2007):** The mid-2000s witnessed a housing bubble in the United States, characterized by inflated home prices and risky mortgage practices. The collapse of the housing market in 2007 triggered the global financial crisis. **Bitcoin (2021):** Bitcoin, a cryptocurrency, experienced significant price volatility, reaching unprecedented levels in 2021 before facing a correction. The speculative nature of Bitcoin investments has drawn parallels to historical asset bubbles.[595]

7 Greatest Asset Bubbles

Bubble	Market Cap Lost	Price Increase	Recovery Time
Tulip Mania (1637)	Considered small	10x-100x	Never
South Sea (1720)	Considered small	10x	100 years
The Great Crash (1929)	$1,350 billion	6x	7 years
Japan (1989)	$32,200 billion (excludes RE)	10x	TBD (going on 33 years)
DotCom (2000)	$5,000 billion	10x	15 years
U.S. Housing (2007)	$6,500 billion	<2x	10 years
BitCoin (2021)	$800 billion	10x (in 1.5 years)	TBD (going on 1.5 years)

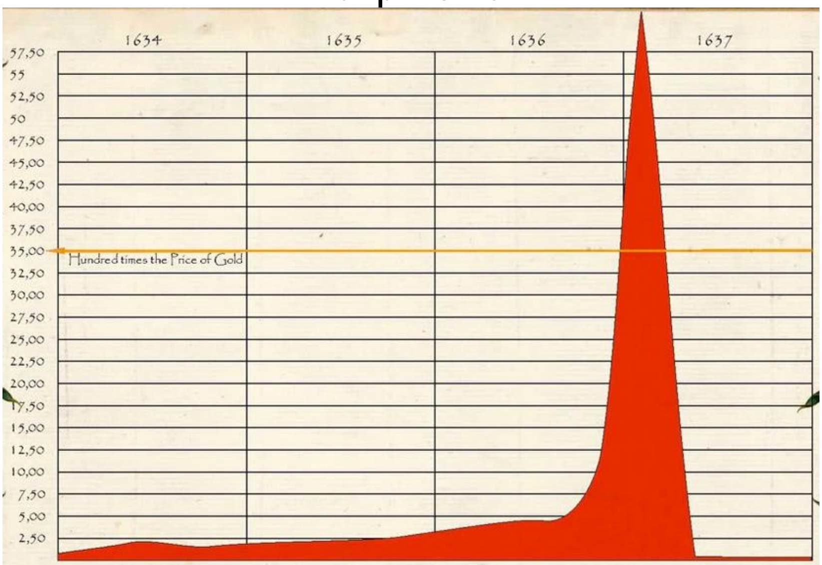
Source: Maggiulli, N. (2023): The 7 Greatest Asset Bubbles of All Time. Of Dollars and Data (https://ofdollarsanddata.com/asset-bubble/) (TBD: to be decided or to be determined)

[595] Maggiulli, N. (2023): The 7 Greatest Asset Bubbles of All Time. of Dollars nad Data (https://ofdollarsanddata.com/asset-bubble/)
Agosto, A., & Cafferata, A. (2020). Financial bubbles: a study of co-explosivity in the cryptocurrency market. *Risks*, *8*(2), 34.

23.1. Tulip Mania – 1637

The **tulip**, originally indigenous to Central Asia, found its way to Europe through Turkish importation in 1593. Its early introduction to Holland, facilitated by a diplomatic gesture in which a dozen tulip bulbs were gifted to the director of the Leiden Botanical Garden by the ambassador of Istanbul, quickly transformed it into a symbol of luxury.[596] The scarcity of tulips, compounded by the complexity of their propagation – requiring 7-12 years for growth from seeds or buds on the mother bulb – contributed to their allure. Broken bulbs, a result of the mosaic virus, even yielded striped, multicolored tulip varieties.

Tulip Mania



Source: Amsterdam Tulip Museum (2017). Price Of Tulips During Tulip Mania? (https://amsterdamtulipmuseum.com/blogs/tulip-facts/how-expensive-were-tulips-during-tulip-mania)

The surge in demand for tulips elevated their market value, prompting their introduction to stock exchanges. The pinnacle of this tulip-centric financial frenzy, known as **Tulip Mania** (*tulpenmanie*), occurred in **1637** in the Netherlands, also known as the Dutch Tulip Fever.[597] From 1634 on-

[596] Segal, S., & Alen, K. (2020). Backgrounds: Historical, Botanical, Cultural and Aesthetic. In *Dutch and Flemish Flower Pieces (2 vols in case)* (pp. 1-24). Brill.
[597] Goldgar, A. (2019). *Tulipmania: money, honor, and knowledge in the Dutch Golden Age*. University of Chicago Press.

wards, an illusion of perpetual price increases pervaded, with individuals engaging in leveraged tulip purchases through margin trading and speculative endeavors to sell at higher prices. This was the world's first modern financial crisis and the inaugural economic bubble in history. On February 7, 1637, the tulip market collapsed due to oversupply and a lack of solvent demand, resulting in a 95% price drop within a single day. The graph shows the average price of tulip bulbs in the Netherlands from 1634 to 1637. The prices skyrocketed in 1636, reaching a peak of over 57.5 guilders per bulb. This was an extraordinary amount of money at the time, and it is estimated that tulip bulbs were worth more than 100 times their weight in gold.

Recent scholarly investigations have cast doubt on the true extent of Tulip Mania, contending that its depiction as a paradigm of greed and excess might have been exaggerated (excess greed is wrong, and chasing prices can be dangerous). It is suggested that this speculative fervor directly affected only a narrow circle of individuals. On February 24, 1637, Dutch flower traders, in a self-regulatory decree later endorsed by the Dutch parliament, stipulated that futures contracts concluded after November 30, 1636, and before the early spring reopening of the money market should be treated as options contracts. Consequently, futures buyers were exempted from the obligation to purchase future tulips, merely compelled to compensate sellers with a small fixed percentage of the contract price. The traders were aware of this, so the final 3.5% contract price was more of a call-option exercise or strike price than a high price with an obligation to pay. The ultimate victims of contractual conversion were investors who had acquired futures contracts prior to November 30, 1636, under the mistaken assumption that the February 1637 decree would favor them. Many investors found themselves in a precarious situation, having essentially engaged in further speculation regarding the eventual prices buyers would have to pay for their options.[598]

In the 1637 catalog Verzameling van een Meenigte Tulipaanen, a tulip known as the Viceroy was sold at a price ranging from 3000 to 4200 guilders, depending on its weight.[599] At the height of the bubble, tulips were sold for around 10,000 guilders, equivalent to the value of a grand canal-side mansion

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Sarna, D. E. (2010). *History of greed: Financial fraud from tulip mania to Bernie Madoff*. John Wiley & Sons.
Wilson, C. (2022). Tulip fever. *New Scientist*, *256*(3412), 49.
598 Öztürk, A. (2022). Dutch Tulip Mania: Tulip Crisis. In *Black Swan: Economic Crises, Volume I* (pp. 13-31). Singapore: Springer Nature Singapore.
599 Basumatary, P., Hatibarua, P., & Hazowary, J. A Virus that Caused the First Financial Bubble:“Tulipmania”.

in Amsterdam. Semper Augustus, the most expensive tulip, fetched approximately 5500 guilders.[600] In 1635, 40 bulbs were sold for 100,000 guilders. At the peak of the bubble, tulips were being traded for approximately 10,000 guilders, equivalent to half the value of a castle along the Grand Canal in Amsterdam. To contextualize these prices, a skilled craftsman of the time earned roughly 150-350 guilders annually. With 1 florin or gulden approximately equaling $244, a single tulip bulb reached a staggering value of about 1 million dollars during the zenith of Tulip Mania.

23.2.Confusión de Confusiones – 1688

José or Joseph Penso de la **Vega** (1650-1692), a Sephardic Jewish diamond trader, financial expert, moral philosopher, and poet, left an indelible mark on Amsterdam's financial realm through his seminal work titled **Confusión de Confusiones** in 1688.[601] This influential piece, presented in a dialogical format among three protagonists – an investor, a trader, and a philosopher – laid the groundwork for contemporary areas of technical analysis and behavioral finance. Within the pages of his work, de la Vega provides a pioneering depiction of stock exchange intricacies, illuminating aspects such as options (both put and call), futures contracts, margin trading (leveraging), bull and bear conspiracies, and various forms of stock index trading. This early exploration into the complexities of speculation and trading marked a foundational contribution to the evolving financial markets.

De la Vega identified three primary distortions in market behavior: (i) herd behavior, (ii) overconfidence, and (iii) regret aversion. These distortions serve as fundamental elements influencing market dynamics and are still integral components of modern behavioral finance. The concept of **herd behavior** pertains to the tendency of individuals to mimic the actions of the larger crowd or market participants, irrespective of their own independent analysis. This phenomenon often leads to the formation of trends and bubbles as investors follow prevailing sentiments without a comprehensive evaluation of underlying fundamentals. Herd behavior can result in exaggerated

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[600] Beckett, F., & Smith, G. D. (2022). Restoring a “Broken” Tulip: Analysis-Informed Conservation Treatment of Ambrosius Bosschaert the Younger’s 17th-century Floral Still-life. *Conservation 360º*, (2).

[601] De La Vega, J. (1688). *Confusión de confusiones: diálogos curiosos entre un philosopho agudo, un mercader discreto, y un accionista erudito descriviendo el negocio de las acciones, su origen, su ethimología, su realidad, su juego y su enredo*.
De La Vega, J. (2021). *Confusion de confusiones*. Aegitas. (English)

market movements, both in bullish and bearish directions, as the collective actions of market participants amplify trends. The **overconfidence** refers to the psychological bias wherein investors exhibit an unwarranted belief in their ability to predict market movements or the success of their investment strategies. This cognitive bias can lead investors to take excessive risks, overestimate their informational advantage, and neglect the inherent uncertainty of financial markets. Overconfident behavior can contribute to speculative bubbles, as investors may underestimate the potential for market corrections or reversals. The **regret aversion** involves the tendency of investors to avoid actions that could potentially lead to regret, even if those actions might be rational from a financial standpoint. Investors influenced by regret aversion may hold on to losing positions for an extended period, fearing the remorse associated with realizing a loss. This behavior can hinder optimal decision-making, as investors may prioritize avoiding regret over maximizing financial gains or minimizing losses. De la Vega outlined **four guiding principles** derived from his astute observations:[602]

> The first rule in speculation is: Never advise anyone to buy or sell shares. Where guessing correctly is a form of witchcraft, counsel cannot be put on airs.
> The second rule: Accept both your profits and regrets. It is best to seize what comes to hand when it comes, and not expect that your good fortune and the favorable circumstances will last.
> The third rule: Profit in the share market is goblin treasure: at one moment, it is carbuncles, the next it is coal; one moment diamonds, and the next pebbles. Sometimes, they are the tears that Aurora leaves on the sweet morning's grass, at other times, they are just tears.
> The fourth rule: He who wishes to become rich from this game must have both money and patience.
>
> José or Joseph Penso de la Vega

[602] Kellenbenz, H. - De la Vega, J. (1957). Confusion de Confusiones [1688]: Portions Descriptive of the Amsterdam Stock Exchange (No. 13). Colchis Books.

23.3. South Sea Bubble – 1720

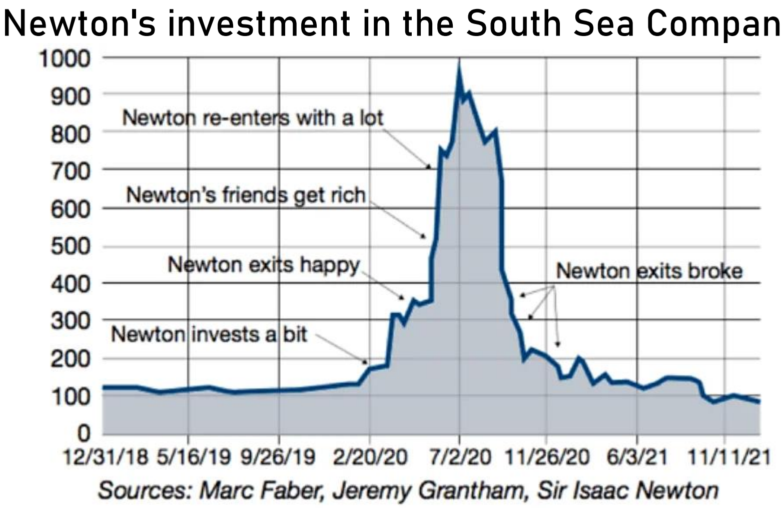
The South Sea is very sick
London Journal, September 17. 1720
The British Lions Crouched to a Nest of Owls
Trenchard, J. and Gordon [603]

Founded in 1711, the **South Sea Company** (SSC) was promised a monopoly by the British government in the trade with the Spanish colonies in South America.[604] Envisioning a replication of the success of the East India Company, investors fervently sought-after SSC shares. Exploiting tales of unimaginable wealth in the southern seas (South America), company directors propagated a narrative that led to a frenzied surge in SSC shares, skyrocketing more than eightfold from £128 in January to £1050 in June 1720. However, the subsequent months witnessed a precipitous collapse, triggering a severe economic crisis. The aftermath saw thousands of investors facing bankruptcy, parliamentary representatives being exposed for accepting bribes, and King George I, the governor of SSC, suffering a tarnished reputation. In the effort to restore the country's finances, Robert Walpole was appointed as the UK's first de facto Prime Minister.[605] In a bid to stabilize the situation and demonstrate the government's solvency, Walpole presented the **world's first budget**, highlighting the imperative need for fiscal responsibility and economic recovery.[606]

The great scientist, Isaac **Newton** (1642-1727) was also affected by the SSC bubble.[607] As the Director of the Royal Mint from 1696, he possessed an annual income surpassing 3000 pounds, placing him within the top 1% of the population, not far from the top 0.1%. Distinguished as one of the early investors who predominantly allocated his wealth into financial instrument – an emerging opportunity at the time – Newton's net worth around 1720

[603] Trenchard, J. and Gordon, T. (1720) 1995. *Cato's Letters*; or, Essays on Liberty, Civil and Religious, and Other Important Subjects, edited by Ronald Hamowy. Vol. 1. Indianapolis: Liberty Fund - As witnessed by the newspaper quote in the title of this article, the ordinarily ourageous and noble English people (lions) had fallen victim to the newly ascendant clever and devious stockjobbers (owls).
[604] Morgan, W. T. (1929). The Origins of the South Sea Company. *Political Science Quarterly, 44*(1), 16-38.
[605] Trow, M. J. (2023). *Scandalous Leadership: Prime Ministers' and Presidents' Scandals and the Press*. Pen and Sword History.
[606] Brisco, N. A. (1907). *The economic policy of Robert Walpole*. Columbia University Press.
[607] Odlyzko, A. (2020). Isaac Newton and the perils of the financial South Sea. *Physics today, 73*(7),30-36.; Odlyzko, A. (2019). Newton's financial misadventures in the South Sea Bubble. *Notes and Records: the Royal Society journal of the history of science, 73*(1),29-59.

amounted to approximately 30,000 pounds. Despite astutely foreseeing the adverse outcome of the mania's early stages, Newton opted to divest his holdings at a substantial profit. However, as the bubble continued to inflate, Newton re-entered near its peak, incurring a loss of around 20,000 pounds. At the time of his demise, his wealth remained at the level of about 30,000 pounds.



Source: Blockchain reporter (2023). The Cautionary Tale of Isaac Newton and the South Sea Market Bubble (https://blockchainreporter.net/the-cautionary-tale-of-isaac-newton-and-the-south-sea-market-bubble/)

Newton's experience serves as an instructive example that even brilliant thinkers can stray off course in an environment where the prevalence of misinformation and disinformation fosters the emergence of collective delusions. His reflection on the incident underscores the challenges individuals face contexts characterized by widespread misinformation, collective irrationality, and the propagation of deceptive narratives.

I can calculate the motions of heavenly bodies,
but I cannot understand the madness of men.
Isaac Newton

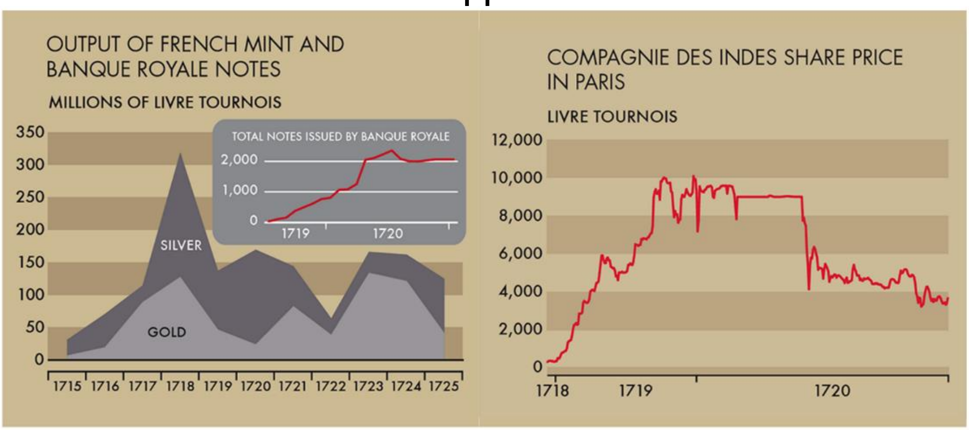
Many of the famous literary figures from that period, such as Daniel **Defoe**, Jonathan Swift, Richard Steele, and Alexander Pope, were involved in the bubble, either as investors or as propagandists. Defoe, for example, appears to have played a role, possibly a very important one, in the creation of the South Sea Company.[608]

[608] Odlyzko, A. (2018). Isaac Newton, Daniel Defoe and the dynamics of financial bubbles. *Financial History*, (124), 18-21.

23.4. Mississippi Bubble – 1720

The Mississippi Bubble of 1720 unfolded against the backdrop of the **Compagnie du Mississippi**'s establishment in 1684, wielding a business monopoly over the North American and West Indian French colonies.[609] Spearheaded by John **Law**, a Scottish financier and economist serving as France's financial controller, the Banque Générale Privée was established in 1716, subsequently transforming into the Banque Royale in 1718, with banknotes guaranteed by King **Louis XV**. The Compagnie du Mississippi was infused with fresh vigor in 1717, evolving into the Compagnie d'Occident, securing an exclusive 25-year privilege for the development of extensive French territories in the Mississippi River valley, notably Louisiana. The renamed Compagnie des Indes swiftly monopolized French tobacco and African slave trading by 1719, assuming complete dominance in France's colonial commerce. Additionally, the company absorbed all of France's debts, undertook tax collection, and assumed control over currency issuance and coinage. Law's strategic use of paper currency aimed to expand the money supply, as outlined in his 1705 work: Money and Trade Considered: with a Proposal for Supplying the Nation with Money.[610]

Mississippi Bubble



Source: Winton (2019). The Mississippi Bubble (https://www.winton.com/news/the-mississippi-bubble)

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[609] Costain, T. B. (2022). *The Mississippi Bubble*. Rare Treasure Editions.
Silvia, J. E., & Silvia, J. E. (2021). The Story of the Original Boom and Bust in Western Finance: The Mississippi Bubble. *Financial Markets and Economic Performance: A Model for Effective Decision Making*, 49-94.
[610] Law, J. (1705, 1750). *Money and Trade consider'd; with a proposal for supplying the nation with money*. R. & A. Foulis.

Law envisioned settling the colossal state debt accrued during the reign of Louis XIV by selling company shares to the public, exchanging them for state-issued bonds known as billets d'état. The company began to turn profitable and remained solvent until the eventual collapse of the bubble. In French financial circles, speculation and the development of regional lands became frenzied, divorcing itself from economic reality. The demand for Compagnie des Indes shares soared disproportionately to earnings, driving prices from 500 to 18,000 livres by 1719. By 1719, the company had issued 625,000 shares and merged Banque Générale with Compagnie des Indes. Law resorted to printing vast amounts of paper currency, detaching French paper money from the gold and silver standard and adopting the Mississippi Company share price standard. He also initiated the sale of French bonds to finance the company's operations and settle France's debts, resulting in rampant inflation as both paper money and billets d'état depreciated in value.

The anticipated profits from the company's colonial ventures materialized slowly, and the intricate entwinement of the company's shares with the state's finances culminated in disaster in 1720. The plummeting value of shares triggered a general stock market collapse in France and other nations. The crisis was more of a monetary and fiscal nature than a speculative bubble. The company and the bank consolidated their massive debts and assumed the state's obligations, necessitating tax hikes. Law was compelled to leave France, his wealth confiscated, and he resided in London and later Venice. The term millionaire was coined for beneficiaries of Law's system.[611]

My shares which on Monday I bought
Were worth millions on Tuesday, I thought.
So on Wednesday I chose my abode,
In my carriage on Thursday I rode
To the ballroom on Friday I went
To the workhouse next day I was sent
Anon, 1720

23.5. Other Crises

The **Thirty Years' War** (1618–1648) was a devastating conflict in Central Europe with significant economic implications. Causes: The war's outbreak led to financial strains as various factions sought resources for military campaigns. The **financial crisis** at the beginning of the Thirty Years' War contributed to economic disruptions, inflation, and financial instability

[611] Ayres, R. U. (2023). Laissez-Faire and John Law's Premature Invention of "Futures". In *The History and Future of Economics* (pp. 73-86). Cham: Springer International Publishing.

in the affected regions.[612] The **Kipper und Wipper** (1619–23) refers to a series of financial manipulations and currency devaluations (poor silver coins) that occurred during the early phase of the Thirty Years' War (1618–1648).[613] The Holy Roman Empire faced economic challenges due to the impact of the war, and various regions engaged in currency debasement and manipulations to finance their military efforts. The financial manipulations led to widespread economic disruption, inflation, and loss of trust in the monetary system. The **General Crisis** of the mid-17th century (1640) is a historical concept used by historians to describe a period of widespread social, political, and economic upheaval in the mid-17th century.[614] Multiple factors contributed, including the Thirty Years' War, political and religious conflicts, famines, and economic challenges. The crisis resulted in social unrest, revolts, and economic hardships across Europe. It is considered one of the largest worldwide crises in history.

The **Financial Crisis of 1763-69** was a significant economic downturn that unfolded in the aftermath of the Seven Years' War (1756-1763).[615] The immense costs incurred during the conflict strained the finances of several European nations, including Britain and France. The post-war period witnessed economic challenges characterized by high levels of public debt, a contraction in trade, and general financial instability. The repercussions of this crisis influenced subsequent economic policies and contributed to discussions on fiscal responsibility and the management of state finances.

The **Great East Indian Bengal Bubble Crash of 1769** was a financial crisis centered around speculative trading in East India Company stock.[616]

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612 Kindleberger, C. P. (1991). The economic crisis of 1619 to 1623. *The Journal of Economic History, 51*(1), 149-175.

613 Paas, Martha White, and John Roger Paas. *The Kipper und Wipper inflation, 1619-23: an economic history with contemporary German broadsheets*. Yale University Press, 2012.
Rosseaux, U. (2021). *Die Kipper und Wipper als publizistisches Ereignis (1620-1626)* (pp. 1-595). Duncker und Humblot.

614 Parker, G., & Smith, L. M. (2005). *The general crisis of the seventeenth century*. Routledge.
Hobsbawm, E. J. (1954). The general crisis of the European economy in the 17th century. *Past & Present*, (5), 33-53.

615 Tecca, L., & Arendt, E. (2021). A Crisis Like Never Before: The Economic and Ideological Divide of the Colonists and Britain, 1763-1769. In *Research, Creativity & Community Involvement Conference* (pp. 1-14). Montana State University Billings.

616 Roy, T. (2021). *An Economic History of India 1707–1857*. Routledge.
Kurtulmuşlar, M., & Kıral, H. (2022). Bengal Bubble (1669–1772) and East India Syndrome (1669—). In *Black Swan: Economic Crises, Volume I* (pp. 33-44). Singapore: Springer Nature Singapore.

The East India Company, chartered in 1600, was at the heart of imperial trade between Britain and India. The surge in speculative interest, driven by high expectations of profits from trade with Bengal, resulted in a speculative bubble. However, when the anticipated profits failed to materialize, the bubble burst in 1769, leading to widespread financial losses and economic disruption. This event underscored the risks associated with speculative fervor and influenced subsequent financial market regulations.

The **Crisis of 1772-1773** was a global economic downturn that affected various regions, including Europe, North America, and Asia.[617] Contributing factors to this crisis included trade imbalances, speculative activities, and financial mismanagement. The collapse of credit markets during this period led to severe economic repercussions, impacting trade, production, and employment. Governments and financial institutions grappled with the challenges posed by the crisis, prompting discussions on economic policy, regulation, and risk management.

The **War of American Independence Financing Crisis of 1776** within the United States in was marked by significant financial challenges during the Revolutionary War (1775-1783).[618] The French Revolution found its roots in this conflict, as France invested a substantial amount of 1.4 billion livres, while Spain contributed 700 million reales towards military efforts in support of the American cause. These investments played a pivotal role in shaping the geopolitics and contributing to the initiation of the French Revolution.

Throughout the 18th century, various European countries experienced **currency and banking crises**. Issues such as currency devaluations, inadequate financial regulations, and banking failures contributed to economic disruptions in nations like Spain, France, and Austria.

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[617] van der Geest, P. (2021). In Search of the First Domino: The Credit Crisis of 1772-1773 in a Global History Perspective.

[618] Bordo, M. D., & Levy, M. D. (2021). Do enlarged fiscal deficits cause inflation? The historical record. *Economic Affairs*, *41*(1), 59-83.

Carpenter, S. D., Delamer, K. J., McIntyre, J. R., & Zwilling, A. T. (2023). *The War of American Independence, 1763-1783: Falling Dominoes*. Taylor & Francis.

24. Panics from the 19th Century

In the 19th century, a series of financial upheavals and panics reverberated across economies, shaping the trajectory of nations and leaving lasting imprints on the fabric of society. This tumultuous period, punctuated by panic and episodes of economic turmoil, underscored emerging market economies' inherent vulnerabilities and complexities. Among the most notable panics of the era were the Panic of 1819, the Panic of 1837, and the Panic of 1873, each characterized by its unique triggers and consequences. Beyond these well-documented crises, the 19th century witnessed numerous other financial upheavals, each contributing to the evolving understanding of economic instability and the mechanisms of financial contagion.[619]

The **panic** means a sudden overpowering fright (acute, extreme anxiety), a sudden unreasoning terror often accompanied by mass flight, or a sudden widespread fright concerning financial affairs that results in a depression of values caused by extreme measures for property protection (such as securities). In economics, panic denotes an acute disturbance in the financial system, characterized by widespread bank failures, frenzied stock speculation culminating in a market crash, or an atmosphere of apprehension stemming from an economic crisis or the anticipation thereof. This term explicitly encompasses the intense phase of financial convulsion and is not inclusive of the period during which the business cycle experiences a decline.[620] A financial crisis is a situation where asset value drops rapidly and is often triggered by a panic or a run on banks.[621]

Several factors can contribute to economic panic, including financial crises, economic recessions, banking failures, and geopolitical events. During times of economic panic, investors may rush to sell their assets, leading to a sharp decline in stock prices and other financial instruments. Businesses may struggle to obtain credit, leading to bankruptcies and layoffs, while consumers may cut back on spending due to fears about their financial well-being. **Panic selling** is characterized by the sudden and extensive divestment of one or multiple stocks, primarily driven by fear rather than meticulous analysis. These occurrences are commonly instigated by news events that

[619] Aliber, R. Z., Kindleberger, C. P., & McCauley, R. N. (2015). *Manias, panics, and crashes: A history of financial crises* (p. 256). Basingstoke: Palgrave Macmillan.
[620] Britannica Money: Panic (https://www.britannica.com/money/panic-economics)
[621] Caballero, R. J., & Simsek, A. (2009). *Complexity and financial panics* (No. w14997). National Bureau of Economic Research.
Gertler, M., Kiyotaki, N., & Prestipino, A. (2020). A macroeconomic model with financial panics. *The Review of Economic Studies, 87*(1), 240-288.

inject trepidation into investors, eroding confidence in specific stocks or industries. Most major stock exchanges enforce protective measures such as trading curbs and halts to mitigate the repercussions of panic selling. Amidst the upheaval in the market, certain traders' endeavor to identify the market's bottom and strategically participate in purchasing activities. Conversely, **panic buying** manifests as a behavioral pattern marked by a rapid surge in purchase volume, typically resulting in an escalation of the price of a commodity or security. It is identifiable through a conspicuous uptick in trading volume, as a majority of investors fervently pursue buy positions. The surge in demand is often exacerbated by the fear of missing out and instances of short squeezes. Panic buying may also materialize among consumers in an economy who harbor concerns that rapid inflation will erode the purchasing power of their currency. In response to such apprehensions, individuals engage in excessive purchasing, further propelling prices upward. This behavior is characterized by a collective rush to secure goods amid uncertainties, contributing to an inflationary spiral.

Before the 19th century, economic fluctuations were predominantly linked to shortages of goods, market expansion, and speculative activities. An illustrative year was 1720, wherein stock speculation escalated to panic levels in both France and England. However, in the industrialized societies of the 19th and 20th centuries, panics have reflected the heightened complexity of advanced economies and the altered nature of their instability.[622] Financial panics have frequently served as precursors to crises extending beyond commercial activities into consumption and capital-goods industries. For instance, the Panic of 1857 in the U.S. resulted from the defaulting of railroads on their bonds, the ensuing devaluation of rail securities, and the entanglement of bank assets in illiquid railroad investments. Its repercussions were multifaceted, encompassing the closure of numerous banks, a substantial surge in unemployment within the United States, and a money-market panic on the European continent. The Panic of 1873, initiated by financial crises in Vienna in June and New York City in September, marked the conclusion of the protracted expansion in the global economy that had commenced in the late 1840s. An even more profound panic unfolded with the stock market crash of 1929, resulting in the bankruptcy of numerous U.S. stock investors and foreshadowing the onset of the Great Depression.[623]

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[622] Goldstein, I. (2012). Empirical literature on financial crises: Fundamentals vs. panic. *The evidence and impact of financial globalization*, 523-34.

[623] Aliber, R. Z., Kindleberger, C. P., & McCauley, R. N. (2015). *Manias, panics, and crashes: A history of financial crises* (p. 256). Basingstoke: Palgrave Macmillan.

24.1. Panic of 1819

The Panic of 1819, also recognized as the First Panic, or the First Great Depression,[624] stands as a pivotal event in the economic history of the United States, heralding the nation's inaugural major financial crisis.[625] Following the culmination of the War of 1812,[626] banks embarked on a spree of liberal lending, engendering speculation in various assets, notably land, and other investment in infrastructure projects like canals and roads. The Second Bank of the United States, chartered in 1816, exacerbated the crisis by tightening credit policies and calling in loans, causing a contraction in the money supply. The crisis was precipitated by the collapse of the Second Bank of the United States in Philadelphia, triggering a domino effect that swiftly spread panic throughout the nation.[627] This speculative fervor inflated a precarious bubble that eventually ruptured. Agricultural commodity prices experienced a precipitous decline due to an oversupply of crops and a reduction in exports, precipitating hardships for farmers and exerting deflationary pressures on the broader economy. Banking institutions, grappling with liquidity concerns, hastened to recall loans, prompting depositors to withdraw funds in a frenzied rush.

The Panic was not just a domestic event; global economic conditions also influenced it. Europe was experiencing post-Napoleonic Wars economic instability, which affected trade and investment. The panic led to widespread bank failures, bankruptcies, foreclosures, and unemployment. It resulted in a severe economic depression that lasted until the mid-1820s, with significant social and political consequences. The government response was limited, as there was a prevailing belief in laissez-faire economic policies. Some states passed relief measures, but there was no coordinated federal intervention. The Panic lasted to 1821, and highlighted the need for better financial regu-

[624] Browning, A. H. (2019). *The Panic of 1819: The First Great Depression*. University of Missouri Press.

[625] Lepler, J. M. (2020). Introduction: The Panic of 1819 by Any Other Name. *Journal of the Early Republic*, *40*(4), 665-670.

[626] The War of 1812, often dubbed America's "Second War of Independence," was a pivotal conflict between the United States and Great Britain that unfolded between 1812 and 1815. It concluded with the signing of the Treaty of Ghent in December 1814, which restored the prewar status quo ante bellum. However, news of the treaty's ratification did not reach North America until February 1815, after the Battle of New Orleans had already been fought.

[627] Trapani, M. (2021). *Panic in the Senate: The Fight Over the Second Bank of the United States and the American Presidency*. Algora Publishing.

lation and paved the way for future debates over banking policy and economic stability in the United States.[628] It also contributed to the rise of populist movements and the call for banking and monetary policy reforms. Moreover, the crisis played a pivotal role in shaping the political situation, contributing to the ascendancy of figures such as Andrew Jackson, whose presidency, beginning in 1828, was marked by fervent opposition to the Second Bank of the United States.

24.2. Panic of 1837

The Panic of 1837 marked a significant financial crisis in the United States, sparking a prolonged depression until the mid-1840s.[629] The economy experienced a period of rapid expansion and speculation, particularly the prices of land, cotton, and slaves rose sharply in previous years 1834-36. Banks were heavily involved in financing speculation, issuing excessive loans and printing paper money without sufficient reserves to back them up. Soon it resulted in widespread economic hardship, with plummeting profits, prices, and wages, halting westward expansion and causing a surge in unemployment. The panic's origins stemmed from domestic and foreign factors, including speculative lending practices, falling cotton prices, a bursting land bubble, and international financial flows. President Andrew Jackson's refusal to renew the Second Bank of the United States charter in 1836 contributed to the lack of centralized regulation.[630] He issued the Specie Circular, which required payment for government land to be made in gold or silver rather than paper money.[631] This policy contributed to a contraction of credit and a decline in land prices. The crisis intensified with a bank run in 1837, leading to widespread bank failures and economic collapse. However, amidst the turmoil, there were positive developments such as the expansion of railroads, advancements in industry and agriculture, and population growth.

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[628] Nelson, S. R. (2020). The Many Panics of 1819. *Journal of the Early Republic*, *40*(4), 721-727.

[629] Lepler, J. M. (2013). *The Many Panics of 1837: People, Politics, and the Creation of a Transatlantic Financial Crisis*. Cambridge University Press.

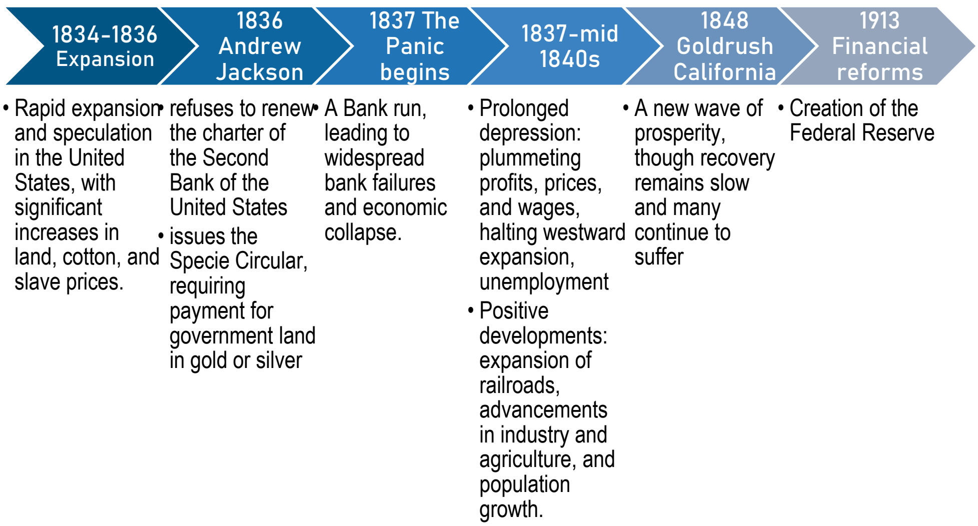
Roberts, A. (2017). *America's first Great Depression: economic crisis and political disorder after the Panic of 1837*. Cornell University Press.

Campbell, S. (2022). Panic of 1837. *The Economic Historian (November 12, 2020) https://economic-historian. com/2020/11/panic-of-1837* (2022).

[630] Hilt, E., & Liang, K. (2020). Andrew Jackson's Bank War and the Panic of 1837. *Harvard University, February, 14*.

[631] Rousseau, P. L. (2002). Jacksonian monetary policy, specie flows, and the panic of 1837. *The Journal of Economic History*, *62*(2), 457-488.

Timeline of the Panic of 1837



Source: own compilation of the author

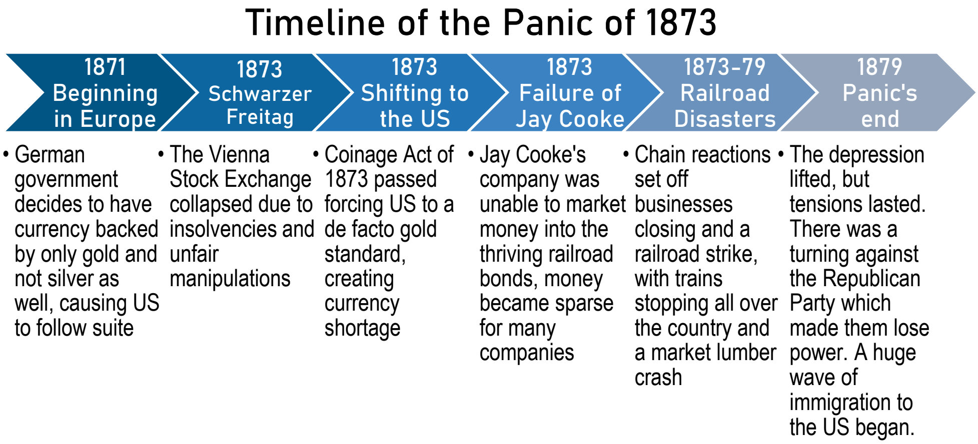
The discovery of gold in California in 1848 and the gold rush eventually spurred a new wave of prosperity, although recovery was slow and many individuals and institutions continued to suffer in the aftermath.[632] The panic led to calls for financial reforms, including the creation of a central bank, which eventually materialized in the form of the Federal Reserve in 1913.

24.3. Panic of 1873

The economic panic of 1873 triggered a financial crisis in both Europe and North America, lasting from 1873 to 1877 and, in some cases, until 1879 in France and the United Kingdom. In the United Kingdom, the panic set off a two-decade-long stagnation known as the **Long Depression**, which weakened the country's economic leadership role.[633] The recovery took more than

[632] Rohrbough, M. J. (1997). *Days of gold: The California gold rush and the American nation*. Univ of California Press.
Rohrbough, M. J. (2013). *Rush to Gold: The French and the California Gold Rush, 1848-1854*. Yale University Press.
Monaghan, J. (2023). *Australians and the gold rush: California and down under 1849-1854*. Univ of California Press..
[633] Earle, P. C. (2023). The Panic of 1873 - Black swan or dragon king?. *Financial History*, (146), 26-29.

two decades (1873-1896).[634] Meanwhile, in the United States, the crisis was termed the Great Depression and persisted until 1879. It was the longest and most severe economic downturn in 19th-century Europe.



Source: own compilation of the author based on Levine, F. (2019). The Panic of 1873.

The origins of the crisis can be traced to Europe, specifically **Germany** and the Austro-Hungarian Empire, where the boom in lending institutions followed the waves of economic disruptions caused by the Franco-Prussian War (1870-71) and the subsequent German unification (1871-73). The euphoria from military victories and capital inflows from war indemnities paid by France fueled stock market speculation. Additionally, the demonetization of silver in Germany and the United States in 1871 led to a decline in demand and value for silver. In 1871, Germany announced the cessation of silver thaler coin minting, introducing the gold mark instead, resulting in reduced demand and depreciation of silver. Liberalized corporate laws facilitated the establishment of new ventures, such as the founding of Deutsche Bank, while easy access to mortgages spurred a construction industry boom. The value of land and properties increased, leading borrowers to accumulate more loans for partially completed or undeveloped buildings. The crisis culminated on May 9, 1873, when the **Vienna** Stock Exchange collapsed due to insolvencies and unfair manipulations. This event, known as the **Schwarzer Freitag** or Black Friday, marked the beginning of a broader economic downturn.[635]

[634] Kaya, M. (2022). 1873–1896 Long Depression. In *Black Swan: Economic Crises, Volume I* (pp. 57-77). Singapore: Springer Nature Singapore.
[635] Burhop, C., & Selgert, F. (2023). 11 Stock exchanges, banks, and the panic of 1873. *An Economic History of the First German Unification: State Formation and Economic Development in a European Perspective*, 183.

The **Hungarian Crisis of 1873** in Austria-Hungary was characterized by the overexpansion of the stock market, speculation, and financial mismanagement, leading to the collapse of the Vienna Stock Exchange, bank failures, and a profound economic depression.[636]

Various factors contributed to the crisis in the U.S., with historians debating their relative significance. These included American inflation, high unemployment due to bankruptcies, unbridled speculative investments, particularly in railways (53,000 km of new tracks laid between 1868 and 1873), and the bankruptcy of Jay Cooke & Company in 1873.[637] The subsequent chain reaction of bank failures forced the closure of the New York Stock Exchange for ten days starting on September 20, 1873, and European investors began divesting their interests. Between 1873 and 1875, 18,000 businesses went bankrupt, and unemployment peaked at 8.25% in 1878. The Coinage Act of 1873 de facto shifted the country to a gold standard, and major fires in Chicago (1871) and Boston (1872) caused substantial wealth losses. Massive reserves burdened banks, with reserves in New York dropping from $50 million to $17 million between September and October 1873.[638]

In **Britain**, the opening of the Suez Canal in 1869 hindered trade for British sailing vessels.[639] During the crisis, the Bank of England raised interest rates to 9%, but the financial turmoil was not as severe as in America and Central Europe. The depression saw stagnant or reduced investment, and in India, the discovery of large amounts of silver in the United States and several European colonies led to the devaluation of the Indian standard currency (the rupiah collapse).

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[636] Rieder, K. (2016). *A Historic (al) Run on Repo? Causes of Bank Distress During the Austro-Hungarian Gründerkrach of 1873*. Working Paper in Economic History 2016. 1–79.
[637] Cotter, C. (2021). Off the Rails: The Real Effects of Railroad Bond Defaults following the Panic of 1873. In *AEA Papers and Proceedings* (Vol. 111, pp. 508-513). 2014 Broadway, Suite 305, Nashville, TN 37203: American Economic Association.
Lubetkin, M. J. (2006). *Jay Cooke's Gamble: The Northern Pacific Railroad, the Sioux, and the Panic of 1873*. University of Oklahoma Press.
[638] Barreyre, N. (2011). The Politics of Economic Crises: The Panic of 1873, the End of Reconstruction, and the Realignment of American Politics1. *The Journal of the Gilded Age and Progressive Era*, *10*(4), 403-423.
[639] Scavino, L. (2022). The Suez Canal and the Italian Sailing Fleet: Expectations, Problems and Alternative Routes (1869–1914). In *Italy and the Suez Canal, from the Mid-nineteenth Century to the Cold War: A Mediterranean History* (pp. 77-92). Cham: Springer International Publishing.

The panic had a profound impact globally, leading to bankruptcies, increased unemployment, suspension of public works, and significant trade declines in South Africa and the Ottoman Empire. The **Latin Monetary Union** (LMU) suspended the conversion of silver coins in 1873 due to the widespread demonetization and devaluation of silver. The LMU, a 19th-century system unifying several European currencies into a single usable currency across member states, operated from 1865 to 1927.[640]

Reactions to the crisis were varied, reflecting a global shift in economic policies and priorities during the period leading up to the Long Depression. Economic internationalism, exemplified by initiatives like the Latin Monetary Union, faced setbacks due to the impacts of economic uncertainty. The significant decline in farm prices prompted protectionist responses in many nations. Departing from the free trade policies of the Second Empire, French President Adolphe Thiers embraced protectionism, eventually resulting in the implementation of the stringent **Méline tariff** in 1892.[641] In Germany, the agrarian Junker aristocracy successfully advocated for a protective tariff in 1879 to counter the threat of cheap imported grain.[642] A bitter tariff war between Italy and France unfolded in 1887, while in the United States, Benjamin Harrison's 1888 presidential election victory was fueled by a protectionist agenda. The protectionist measures enacted by major trading nations resulted in a stagnant global merchant marine fleet from 1870 to 1890. Only the United Kingdom and the Netherlands maintained their commitment to low tariffs during this period.

Monetary responses to the crisis materialized in legislative initiatives. In 1874, a year after the 1873 crash, the United States Congress passed the Inflation Bill of 1874 to address falling prices by injecting additional greenbacks into the money supply. However, under pressure from business interests, President Ulysses S. Grant vetoed the measure. In 1878, Congress successfully overrode President Rutherford B. Hayes's veto to pass the Silver Purchase Act, another attempt to promote easy money.[643] The economic

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[640] Barbaroux, N. (2022). The Latin Monetary Union Experience (1865–1926): French Views on Monetary Union and Lending of Last Resort in Retrospect. *Jahrbuch für Wirtschaftsgeschichte/Economic History Yearbook*, *63*(2), 409-432.
[641] Bignon, V., & Garcia-Penalosa, C. (2021). The toll of tariffs: Protectionism, education and fertility in late 19th century France.
[642] Gourevitch, P. A. (2021). International trade, domestic coalitions and liberty: Comparative responses to the crisis of 1873–1896. In *The Political Economy: Readings in the Politics and Economics of American Public Policy* (pp. 279-299). Routledge.
[643] Weiss, C. (2020). Contractionary Devaluation Risk: Evidence from the Free Silver Movement, 1878–1900. *Review of Economics and Statistics*, *102*(4), 705-720.

downturn also gave rise to significant **labor** unrest. The United States witnessed its **first nationwide strike** in 1877, known as the Great Railroad Strike of 1877.[644] This led to widespread unrest and violence in major cities and industrial hubs.

Moreover, the Long Depression played a pivotal role in the resurgence of **colonialism**, ushering in the New Imperialism period. The Western powers, seeking new markets for their surplus accumulated capital, engaged in the **Scramble for Africa**.[645] This expansion of power followed the preceding unlimited expansion of capital. In the United States, the aftermath of the crisis saw the rebuilding, extending, and refinancing of western railways, accompanied by the exploitation of natural resources in what had formerly been Indian territory. This economic boom characterized a rising market, fostering the expansion of markets and industry. The Gilded Age, marked by the prominence of robber barons and economic prosperity for the wealthy few, ensued.[646] However, this cycle repeated itself with the Panic of 1893, another substantial market crash.

24.4. Other Crises

The **Panic of 1825** in the United Kingdom was driven by speculative investments, particularly in Latin American securities and infrastructure projects, resulting in a financial bubble that led to bank failures and a severe economic downturn.[647] Soon it spread to Europe in 1843 and lasted until 1848. It was triggered by a combination of factors, including (i) the collapse of the railway boom in Britain in 1843, (ii) a decline in agricultural prices due to poor harvests, (iii) the outbreak of the Irish Potato Famine in 1845.[648]

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[644] Brown, J., Hoffman, S. J., Kazin, M., Miller, D., Schneirov, R., & Stromquist, S. (2024). *The Great Strikes of 1877*. University of Illinois Press.
Stanley, M. (2021). The Great Railroad Strike of 1877. In *Oxford Research Encyclopedia of American History*.
[645] Chamberlain, M. E. (2014). *The Scramble for Africa*. Routledge.
Pakenham, T. (2015). *The scramble for Africa*. Hachette UK.
Reid, R. (2021). Africa's Revolutionary Nineteenth Century and the Idea of the "Scramble". *The American Historical Review*, *126*(4), 1424-1447.
[646] White, R. (2020). Gilded ages. *The Journal of the Gilded Age and Progressive Era*, *19*(2), 314-320.
[647] Read, C. (2023). *Calming the storms: the carry trade, the banking school and British financial crises since 1825*. Springer Nature.
[648] Gray, P. (2021). Was the Great Irish Famine a Colonial Famine?. *East/West: Journal of Ukrainian Studies (EWJUS)*, *8*(1), 159-172.

The crisis had a devastating impact on European economies, leading to widespread unemployment, poverty, and social unrest. It also contributed to the outbreak of the revolutions of 1848, which swept across Europe. A widespread **Agricultural Depression** in the late 19th century resulted from declining agricultural prices, competition from overseas markets, and changes in agricultural practices, causing rural economic distress, widespread poverty among farmers, and social unrest across Europe.[649] The **1890s Financial Crisis in France** was marked by financial speculation, banking failures, and an economic downturn, resulting in bankruptcies, unemployment, and economic difficulties in the country.[650] The **Baring Crisis** was a financial crisis that began in Britain in 1890 and had ripple effects across Europe.[651] It was triggered by the collapse of the Barings Bank, a British investment bank that had overextended itself in its investments in South America.[652] The Baring Crisis led to a loss of confidence in the British financial system and a widespread withdrawal of deposits from British banks. This, in turn, led to a general economic downturn in Europe.

The **Panic of 1857** originated in the United States and quickly spread to other parts of the world.[653] It was caused by a combination of factors, including overexpansion of the railroad industry, the decline in commodity prices, and international financial troubles. The panic resulted in a severe economic downturn and widespread unemployment. The **Panic of 1884** was relatively short-lived financial crisis. It was triggered by a collapse in railroad securities, leading to a stock market panic and financial turmoil.[654] However,

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Kennedy, L., & MacRaild, D. M. (2022). *Perspectives on the Great Irish Famine* (No. 2022-04). QUCEH Working Paper Series.

[649] Liebowitz, J. J. (1989). Tenants, sharecroppers, and the French agricultural depression of the late nineteenth century. *The Journal of Interdisciplinary History*, *19*(3), 429-445.

Roberts, J. L. (1997). *'The ruin of rural England': an interpretation of late nineteenth century agricultural depression, 1879-1914* (Doctoral dissertation, Loughborough University).

[650] Bordo, M., & James, H. (2014). The European crisis in the context of the history of previous financial crises. *Journal of macroeconomics*, *39*, 275-284.

[651] White, E. N. (2016). How to Prevent a Banking Panic: the Barings Crisis of 1890. In *Annual Meeting of the Economic History Association*.

[652] Mitchener, K. J., & Weidenmier, M. D. (2008). The Baring crisis and the great Latin American meltdown of the 1890s. *The Journal of Economic History*, *68*(2), 462-500.

[653] Rapp, W. V. (2023). Panic of 1857. In *Elgar Encyclopedia of Financial Crises* (pp. 256-259). Edward Elgar Publishing.

Sears, E. M. (2020). "What the present crisis will show": the Panic of 1857 as a crisis of American labor. *American Nineteenth Century History*, *21*(2), 129-147.

[654] Anderson, H. P., & Bluedorn, J. C. (2017). Stopping contagion with bailouts: Micro-evidence from Pennsylvania bank networks during the panic of 1884. *Journal of Banking & Finance*, *76*, 139-149.

the panic was less severe compared to some earlier economic downturns. The **Panic of 1893** was a severe economic depression, marked by widespread business failures, bank closures, and high unemployment. It was caused by a variety of factors, including the collapse of railroad overbuilding, agricultural problems, and the failure of banks.[655] The panic had a profound impact on the U.S. economy and lasted for several years. The **Panic of 1896**, also known as the **Great Panic**, occurred during the second term of President Grover Cleveland.[656] It was triggered by various factors, including the failure of banks and businesses, the decline in agricultural prices, and uncertainty about the gold standard. The panic contributed to the economic hardships of the late 19th century.

Prominent Crises

	Cause	Consequences
Panic of 1819	The collapse of the cotton mills, the crunch of credit, and excessive speculation in land, commodities, and stocks.	America's first Great Depression ended in 1821.
Panic of 1837	Housing bubble and unpredictable US banking policy.	Andrew Jackson refused to extend the charter of the Second Bank of the United States, allowing state banks to issue banknotes recklessly. This led to a six-year economic crisis.
Panic of 1857	Failure of the Ohio Life Insurance and Trust Company.	New York bankers imposed restrictions on transactions that resulted in panic selling. Bank closures and a depression followed, the latter lasting three years.
Panic of 1873	Franco-Prussian War (1870-71) German unification (1871-73); demonetization of silver in Germany and the United States	The panic lasts to 1877, 1879, known as the "Long Depression," and "Great Depression" and persisted until 1879. Changes in monetary systems, labor market, and colonization.

Gorton, G., & Tallman, E. W. (2016). Too big to fail before the Fed. *American Economic Review*, *106*(5), 528-532.

[655] Steinle, J. F. (2021). *Colorado and the Silver Crash: The Panic of 1893*. Arcadia Publishing.

Calomiris, C. W., & Carlson, M. (2022). Bank examiners' information and expertise and their role in monitoring and disciplining banks before and during the panic of 1893. *Journal of Money, Credit and Banking*, *54*(2-3), 381-423.

Silva, E. M. (2013). Lessons from the Past: The Panic of 1893.

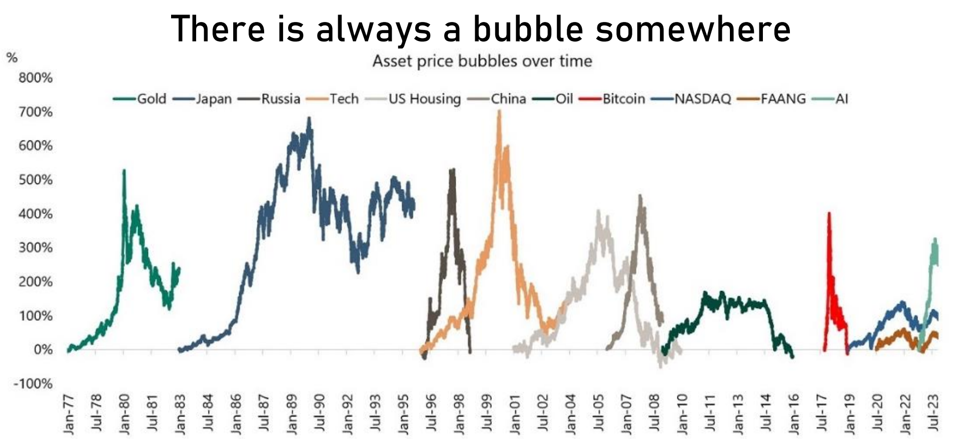
[656] Senik, T. (2022). *A Man of Iron: The Turbulent Life and Improbable Presidency of Grover Cleveland*. Simon and Schuster.

Panic of 1884	Bankruptcy of a small number of financial firms in New York, primarily the Metropolitan National Bank.	The closure of the institution raised public concerns about the banks in its network. But the crisis was largely confined to New York and quickly ended.
Panic of 1893	In the US Treasury, the loss of gold and the slowdown in economic activity.	Unemployment soared, asset prices plummeted, and panic selling ensued, causing one of the worst depressions in US history.
Panic of 1896	Continuation of the Panic of 1893.	There was a brief lull after the last panic before the US economy fell into another recession in late 1895. It was fully restored only in the middle of 1897.
Panic of 1901	The result of a fight between Jacob Schiff, JP Morgan, James J. Hill and EH Harriman over the Northern Pacific Railway.	Short sellers went into a frenzy as the North Pacific skyrocketed, causing stocks and bonds to fall dramatically. The panic ended with a ruse among financial titans.
Panic of 1907	F. Augustus Heinze and Charles W. Morse's failed attempt to corner United Copper stock.	The first financial crisis of the 20th century. This spurred the monetary reform movement that led to the creation of the Federal Reserve System. Several banks associated with the two men succumbed to the run of depositors. This led to a run from many trust companies, resulting in a severe reduction in market liquidity. If not for the intervention of JP Morgan, the New York Stock Exchange could have closed.

Source: own compilation of the author

25. Deep Crises, Black Days from the 20th Century

The 20th century stands as a testament to the turbulent nature of global financial markets, marred by a series of deep crises and dark days that shook economies and reshaped the course of history. From the Panic of 1907, which rattled the foundations of the American financial system, to the protracted agony of the Great Depression that engulfed the world from 1929 to 1939, and the seismic shifts precipitated by the oil crises of 1973 and 1979, the century bore witness to a litany of tumultuous events that tested the resilience of nations and institutions. Beyond these seminal crises, the 20th century also witnessed a cascade of financial convulsions that reverberated across continents, from the Latin American Debt Crisis of 1982-1983 to the sudden crash of Black Monday in 1987, and the turmoil of Black Wednesday in 1992, which saw the unraveling of the sterling and the British economy. The Asian Financial Crisis of 1997-1998 sent shockwaves through the global economy, exposing vulnerabilities in emerging markets and triggering a contagion effect that rippled across the world. Meanwhile, the Argentine Great Depression of 1998-2002 laid bare the perils of unsustainable debt and fiscal mismanagement. Throughout these crises, economies grappled with a myriad of challenges, from financial instability and currency crises to sovereign debt defaults and economic recessions. By shining a light on the dark days of the past, we seek to foster a deeper understanding of the forces that shape our economic realities and forge a path toward resilience and prosperity in the face of uncertainty.



Source: Bloomberg, Apollo Chief Economist. Note: Nikkei for Japan's real estate crisis of 1989; 1998 Moscow large-cap index; NVIDIA as a proxy for AI; 2005-07 China property bubble; and stock price of US homebuilders.

25.1. Panic of 1907

The financial upheaval known as the Panic of 1907 transpired as a brief yet impactful banking and financial crisis in the United States during the early 20th century.[657] Rooted in a culmination of excessive speculative investments spurred by a lax monetary policy, the Panic unfolded against the backdrop of the nascent 1900s. In the absence of a government central bank, the U.S. financial markets handle the crisis through the infusion of personal funds, guarantees, and the pivotal involvement of eminent financiers and investors, notably figures such as J.P. **Morgan** and John D. **Rockefeller**.[658] The aftermath of the Panic of 1907 fueled initiatives to instill greater government oversight and enhance public responsibility for stabilizing financial markets. This momentum eventually culminated in the establishment of the **Federal Reserve System** a few years later. Upon its inception, it was designed with three primary objectives: (i) serving as a lender of last resort, (ii) functioning as a fiscal agent for the U.S. government, and (iii) acting as a clearinghouse for financial transactions. The Panic of 1907 brought to light various deficiencies in the **National Banking Act** of 1864, with a notable shortcoming being its inadequate coverage of all banks operating within the United States. Later also these experiences led to the establishment of the **Federal Reserve System** (1913) and the **Glass-Steagall Banking Acts** (1932, 1933).

25.2. Great Depression – 1929-39

The Great Depression, spanning from 1929 to 1939, marked a critical period of overproduction crisis within the global capitalist framework.[659] Following World War I, the United States assumed a leadership role in the world economy without a full awareness of its altered economic responsibilities.

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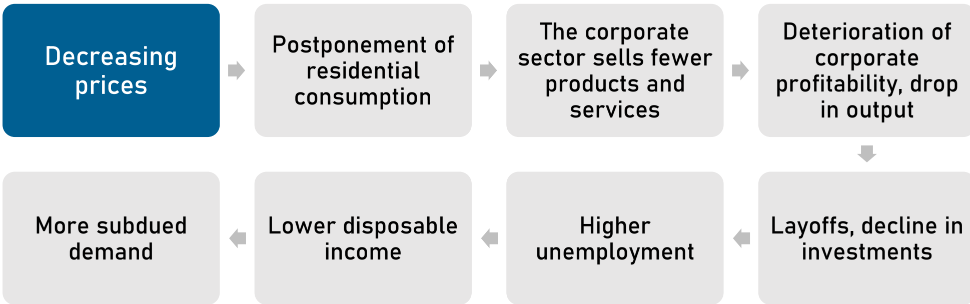
657 Bruner, R. F., & Carr, S. D. (2023). *The Panic of 1907: Heralding a New Era of Finance, Capitalism, and Democracy*. John Wiley & Sons.

658 Moen, J. R., & Rodgers, M. T. (2022). How JP Morgan Picked the Winners and Losers in the Panic of 1907: An Exploration of the Individual over the Institution as Lender of Last Resort. *Essays in Economic & Business History, 40*, 156-187.

659 Crafts, N., & Fearon, P. (Eds.). (2013). *The great depression of the 1930s: lessons for today*. Oxford University Press (UK).

Deflationary spiral



Source: own compilation of the author

In the backdrop of a minor crisis in the U.S. in 1920-21 and subsequent Federal Reserve monetary easing from 1921 to 1928, characterized by a substantial 61.8% monetary expansion, the 1920s witnessed the **Roaring Twenties**. During this period, the American public enthusiastically embraced the stock market, resulting in a speculative bubble. The Dow Jones Industrial Average surged by 500% within five years. By 1928, the FED recognized the **overvaluation** of stock market prices and excessive speculation, prompting an increase in the base interest rate from 3.2% to 5%.[660] Consequently, capital inflows into the U.S. led to corresponding increases in base interest rates in other countries, precipitating a **deflationary spiral**.

What Happened During the Great Depression?

	Unemployment Rate	Real GNP	Consumption	Investment	Gov. Purchases	Nom. Interest Rate	Money Supply	Price Level	Inflation
1929	3.2	203.6	139.6	40.4	22.0	5.9	26.6	50.6	—
1930	8.9	183.5	130.4	27.4	24.3	3.6	25.8	49.3	-2.6
1931	16.3	169.5	126.1	16.8	25.4	2.6	24.1	44.8	-10.1
1932	24.1	144.2	114.8	4.7	24.2	2.7	21.1	40.2	-9.3
1933	25.2	141.5	112.8	5.3	23.3	1.7	19.9	39.3	-2.2
1934	22.0	154.3	118.1	9.4	26.6	1.0	21.9	42.2	7.4
1935	20.3	169.5	125.5	18.0	27.0	0.8	25.9	42.6	0.9
1936	17.0	193.2	138.4	24.0	31.8	0.8	29.6	42.7	0.2
1937	14.3	203.2	143.1	29.9	30.8	0.9	30.9	44.5	4.2
1938	19.1	192.9	140.2	17.0	33.9	0.8	30.5	43.9	-1.3
1939	17.2	209.4	148.2	24.7	35.2	0.6	34.2	43.2	-1.6
1940	14.6	227.2	155.7	33.0	36.4	0.6	39.7	43.9	1.6

Source: Mankiw, N. G. (2019). *Macroeconomics*, 10th edition. Worth Publishers. 12-3. 401. Historical Statistics of the United States, Colonial Times to 1970, Parts I and II (Washington, DC: U.S. Department of Commerce, Bureau of Census, 1975).

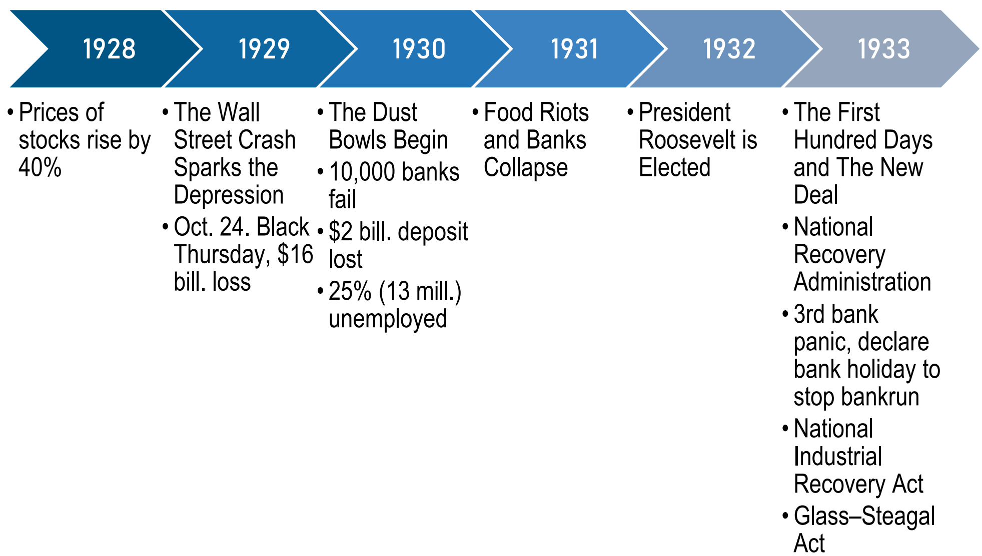
[660] Mazumder, S., & Wood, J. H. (2021). The Cause of the Great Depression. *The Independent Review*, *26*(1), 133-151.

October. This is one of the peculiarly dangerous months to speculate in stocks in. The others are July, January, September, April, November, May, March, June, December, August and February.

Mark Twain

The Stock Market Crash of 1929, also known as **Black Thursday** on October 24, witnessed – for reasons still unclear – an unprecedented selling frenzy on the New York Stock Exchange, causing share prices to plummet.[661] The market opened 11% lower than the previous day's close. By October 28, 1929, **Black Monday**, a staggering 19% decrease had occurred, resulting in a loss of approximately US$ 50 billion. Many investors lost substantial amounts of money. Numerous banks failed due to a combination of factors, including the collapse of the stock market and a lack of deposit insurance.

Timeline of the Great Depression I. 1929-33



Source: own compilation of the author

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[661] Cadorel, J. L. (2023). *The 1929 Crash of the New York Stock Exchange as a Liquidity Crisis [Le Krach de 1929 du New York Stock Exchange comme crise de liquidité]* (No. hal-04347097). HAL.
Klein, M. (2003). *Rainbow's end: The crash of 1929*. Oxford University Press.
Bierman, H. (2013). The 1929 stock market crash. In *Routledge Handbook of Major Events in Economic History* (pp. 119-126). Routledge.

The depression was exacerbated by a worldwide economic downturn, with factors such as protectionist trade policies and a decline in international trade. Unemployment rates soared during the Great Depression. Many businesses closed, industrial production declined, and millions of people lost their jobs.The economic hardships led to widespread poverty, homelessness, and hunger. Many families struggled to make ends meet, and shantytowns, known as "Hoovervilles," emerged.In the United States, particularly in the Midwest, severe drought conditions and poor agricultural practices led to the Dust Bowl.

Three generations of streetwalkers were sitting around a table one night...
The daughter complains,"This year has been rough. I'm only getting $20 to be with a guy!"
The mother pipes up and says, "Back in my day we only got $10 bucks!"
Then the grandmother speaks up and says, "During the Great Depression we were happy to just have something warm in our bellies."

In 1933, U.S. President Franklin D. Roosevelt introduced the **New Deal**, a new economic and social direction aimed at addressing the severe economic challenges.[662] Upon taking office in 1933, within the first 100 days, Roosevelt promptly implemented reforms designed to stabilize the economy and alleviate unemployment and financial distress among the American populace. He enacted a suite of substantial legislative measures, such as the Glass-Steagall Act and the Homeowners Loan Act. Furthermore, he instituted various employment creation initiatives, exemplified by the **Federal Emergency Relief Act** (FERA) and the **Civilian Conservation Corps** (CCC). The apex of these legislative efforts was embodied in the **National Industrial Recovery Act** (NIRA).[663] The economic recovery necessitated collaboration over competition; the NIRA was meticulously crafted to curtail competition while simultaneously facilitating the escalation of prices and wages. Under the provisions, industries were permitted to establish cartels, contingent upon their commitment to augmenting wages and engaging in collective bargaining agreements with their workforce. The NIRA remained operative until 1935 when the Supreme Court rendered a verdict declaring its constitutionality untenable.

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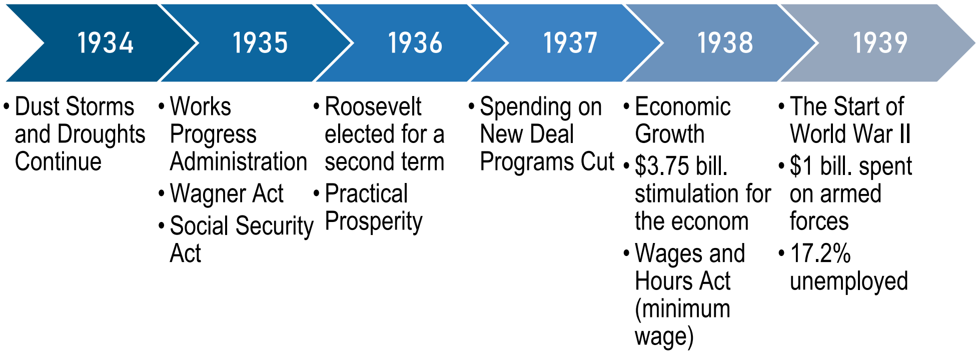
[662] Bindas, K. J. (2021). *The New Deal and American Society, 1933–1941*. Routledge.
[663] Taylor, J. E. (2019). *Deconstructing the monolith: The microeconomics of the national industrial recovery act*. University of Chicago Press.
Bernstein, I. (2022). *The New Deal collective bargaining policy*. Univ of California Press.

Timeline of the Great Depression II. 1934-39



Source: own compilation of the author

In 1934, amidst ongoing dust storms and droughts, the United States continued to grapple with the challenges of the Great Depression. The environmental disasters exacerbated the economic hardships faced by many Americans. 1935 marked significant legislative milestones with the establishment of the **Works Progress Administration** (WPA), which aimed to provide employment opportunities through public works projects.[664] The **Wagner Act**, also known as the National Labor Relations Act, was passed to protect workers' rights to organize and collectively bargain. The **Social Security Act** was another landmark piece of legislation enacted in 1935, creating a social insurance program to provide financial support for the elderly, unemployed, and disadvantaged.[665] President Franklin D. Roosevelt secured a second term in 1936, reflecting the public's endorsement of his New Deal policies to combat the effects of the Great Depression. This period saw Practical Prosperity as the nation gradually recovered from the economic downturn. In 1937, amidst ongoing recovery efforts, spending on New Deal programs was reduced as policymakers sought to address concerns about budget deficits and government intervention in the economy. By 1938, the economy showed signs of growth with the implementation of a $3.75 billion stimulus package aimed at further stimulating economic activity. Additionally, the

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[664] Goldberg, C. A. (2005). Contesting the status of relief workers during the New Deal: The Workers Alliance of America and the Works Progress Administration, 1935–1941. *Social Science History*, *29*(3), 337-371.

[665] Douglas, P. H. (2000). *Social Security in the United States: An analysis and appraisal of the federal Social Security Act*. Beard Books.

passage of the **Wages and Hours Act** or Fair Labor Standards Act established a federal minimum wage and regulated working hours.[666] However, the outbreak of World War II in 1939 brought new challenges as the United States prepared for war. The government allocated significant funds to strengthen the armed forces, amounting to $1 billion. Despite these efforts, unemployment remained high at 17.2%, reflecting the lingering effects of the Great Depression on the labor market.

Economists often credit the New Deal with shortening the length and depth of the depression, while others question its impact on an otherwise weak recovery. However, this marked the ascendancy of **Keynesian economics** as a response to the Great Depression. Economists often credit the New Deal with shortening the length and depth of the depression.[667]

Great Depression in some countries

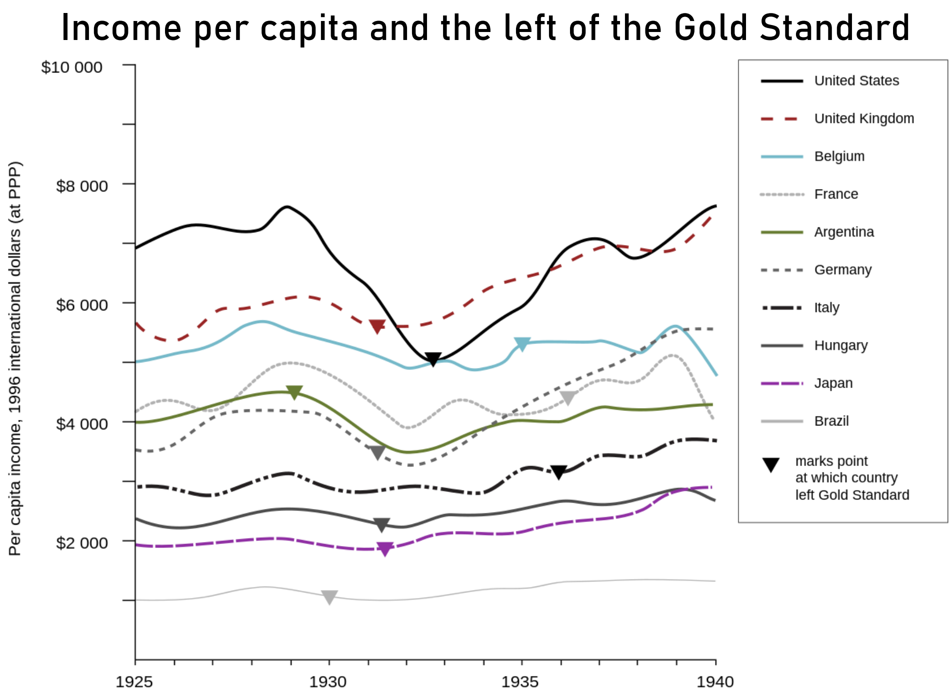
Change in economic indicators 1929–1932				
	USA	UK	FR	DE
Industrial production	−46%	−23%	−24%	−41%
Wholesale prices	−32%	−33%	−34%	−29%
Foreign trade	−70%	−60%	−54%	−61%
Unemployment	+607%	+129%	+214%	+232%

Source: own compilation of the author

The chart shows that the Great Depression severely impacted the economies of all four countries. In the United States, industrial production fell by 46%, wholesale prices fell by 32%, foreign trade fell by 70%, and unemployment rose by 607%. The other countries experienced similar declines, though not as severe as those in the United States.

[666] Lambert, S. J. (2020). Fair work schedules for the US economy and society: What's reasonable, feasible, and effective. *Vision 2020: Evidence for a stronger economy*, 101-110.; Williams, P. N. (2008). Historical Overview of the Fair Labor Standards Act. *Fla. Coastal L. Rev.*, *10*, 657.
Andrias, K. (2019). An American Approach to Social Democracy: The Forgotten Promise of the Fair Labor Standards Act. *The Yale Law Journal*, 616-709.
[667] Keynes. J.M. (1936). *The General Theory of Employment, Interest and Money*. Palgrave Macmillan; Pigou, A. C. (1936). Mr. JM Keynes' General theory of employment, interest and money. *Economica*, *3*(10), 115-132.; Schumpeter, J. A. (1936). The General Theory of Employment, Interest and Money.

Throughout the Great Depression, all major currencies temporarily abandoned the gold standard, primarily attributable to the inflexibilities inherent in the **gold standard**.[668] Suspending gold convertibility, or devaluing currencies in gold terms, emerged as a pivotal measure facilitating economic recovery. The United Kingdom assumed a pioneering role in this regard, being the first to depart from the gold standard. Faced with speculative assaults on the pound and the depletion of gold reserves, the Bank of England, in September 1931, ceased exchanging pound notes for gold, allowing the pound to float on foreign exchange markets. The earliness with which a country left the gold standard reliably predicted its economic recovery. Later, they returned to again, but after World War II, the Bretton system changed the concept of the Gold Standard, prioritizing the US dollar.



Source: O'Neil (2011). The Great Depression in an international perspective. Triangles mark points at which nations suspended gold convertibility and/or devalued their currency against gold.

[668] Glasner, D., & Glasner, D. (2021). Debt, Deflation, the Great Depression and the Gold Standard (with Ronald W. Batchelder). *Studies in the History of Monetary Theory: Controversies and Clarifications*, 331-365.

25.3. Oil Crises – 1973, 1979

The oil crises reflect to the **two oil price shocks** in 1973 and 1979.[669] Aftermath of the 1967 Six-Day War, where Israel achieved victory in the Arab-Israeli conflict, the Arab members of the Organization of the Petroleum Exporting Countries (OPEC) established in 1967 the Organization of Arab Petroleum Exporting Countries (OAPEC).[670] The OAPEC played a pivotal role in the emergence and deepening of the two oil crises, respectively, which constituted transformative events in the global energy sector. The two oil crises are examples of **stagflation**: inflation with higher unemployment.

The **oil crisis if 1973**, commonly known as the **First Oil Shock**, was triggered by the OAPEC imposing an oil embargo in response to the support extended by certain Western nations to Israel during the **Yom Kippur War**, which led to another Israeli victory.[671] The OAPEC members suspended oil exports to nations supporting Israel in its conflict against Syria and Egypt. The embargo resulted in skyrocketing oil prices and economic disruptions worldwide. This action included an immediate 70% increase in the price of oil shipments to the USA per barrel (1 barrel = 159 liters), escalating from approximately $3 to $5 and subsequently quadrupling.[672]

Year	Change in Oil Prices	Inflation Rate (CPI)	Unemployment Rate
1973	11.0%	6.2%	4.9%
1974	68.0	11.0	5.6
1975	16.0	9.1	8.5
1976	3.3	5.8	7.7
1977	8.1	6.5	7.1

Source: Mankiw, N. G. (2019). *Macroeconomics*. 10th edition. Worth Publishers. 10-5. 355.

[669] Venn, F. (2016). *The Oil Crisis*. Routledge.
Campbell, C. J. (2005). *Oil crisis*. Multi-science publishing.
[670] Wagner, H. L. (2009). *The Organization of the Petroleum Exporting Countries*. Infobase Publishing.
[671] Cohen, J. (2021). The First Oil Shock? Nixon, Congress, and the 1973 Petroleum Crisis. *The Journal of the Middle East and Africa*, *12*(1), 49-68.
Arihan, C. (2021). Oil Crisis (Oil Price Revolution) of 1973 and the United States' Response to the Crisis: The International Energy Agency. *Journal of Management Policy & Practice*, *22*(1).
[672] Basosi, D. (2020). Oil, dollars, and US power in the 1970s: re-viewing the connections. *environment*, *19*, 20th.

The curtailed oil supply resulted in almost doubling the global oil price. This surge in oil prices precipitated stagflation across numerous industrialized nations. The substantial 68% uptick in oil prices in 1974 constituted a significant adverse supply shock. As anticipated, this shock manifested in elevated levels of inflation and unemployment. The statistical data provides insights into the repercussions experienced in the United States.

Subsequently, the **oil crisis of 1979**, often referred to as the **Second Oil Shock**, was catalyzed by the Iranian Revolution and the subsequent **Iran-Iraq War**. The crisis was followed by the ousting of the pro-American Shah in Iran and the ascension of the anti-American Ayatollah Khomeini to power. Concurrently, the Iran-Iraq War further strained global oil supplies, contributing to a renewed surge in oil prices. This event significantly disrupted oil deliveries to the USA, contributing to a substantial increase in oil prices. The oil cost, around $15 in 1980, surged close to $40, representing a remarkable 250% escalation.

Once more, the conflict opted to raise oil prices, instigating another episode of stagflation. The elevations in oil prices during 1979, 1980, and 1981 resulted in a recurrence of **stagflation**: double-digit inflation and increased unemployment. Statistical data of the United States elucidates these developments.

Year	Change in Oil Prices	Inflation Rate (CPI)	Unemployment Rate
1978	9.4%	7.7%	6.1%
1979	25.4	11.3	5.8
1980	47.8	13.5	7.0
1981	44.4	10.3	7.5
1982	-8.7	6.1	9.5

Source: Mankiw, N. G. (2019). *Macroeconomics*. 10th edition. Worth Publishers. 10-5. 356.

Later, specifically in the mid-1980s, internal discord among Arab nations undermined OPEC's capacity to constrain oil supplies. This led to a decline in oil prices, effectively reversing the **stagflationary trends** observed in the 1970s and early 1980s.

Year	Change in Oil Prices	Inflation Rate (CPI)	Unemployment Rate
1983	-7.1%	3.2%	9.5%
1984	-1.7	4.3	7.4
1985	-7.5	3.6	7.1
1986	-44.5	1.9	6.9
1987	18.3	3.6	6.1

Source: Mankiw, N. G. (2019). *Macroeconomics*. 10th edition. Worth Publishers. 10-5. 356.

In 1986, oil prices witnessed a nearly 50% decrease. This propitious supply shock not only resulted in one of the lowest inflation rates experienced during that period but also contributed to a decline in unemployment. More recently, OPEC has played a diminished role in precipitating economic fluctuations. Implementing conservation initiatives and technological advancements, including downsizing for enhanced energy efficiency, has rendered the U.S. economy less susceptible to oil shocks. Furthermore, the contemporary economic structure is more service-oriented, requiring comparatively less energy for production. Over the period from 1980 to 2016, there was a 55% reduction in the amount of oil consumed per unit of real GDP. Consequently, fluctuations in oil prices now exert a diminished impact on the economy. It is noteworthy that these observations are reflective of trends until 2022/23…

The **Petrodollar system**, established in the 1960s and 1970s when Saudi Arabia priced oil in U.S. dollars and received security guarantees from the USA, spread to other oil-exporting nations. They conducted oil transactions in dollars, invested export revenues in U.S. Treasury bonds. In the 1980s, some nations accrued dollar-denominated debt due to cheap dollar loans. Despite this, the Petrodollar system persists, albeit with the emergence of Indian and Chinese imports in the market.[673]

The oil crises had far-reaching **consequences**, including stagflation in many Western economies, heightened inflation, increased economic uncertainty, and a reevaluation of energy policies.[674] They underscored the vulnerability of nations heavily reliant on oil imports and prompted efforts to diversify energy sources and enhance energy security strategies on a global scale. This economic shift prompted repercussions such as downsizing in the automotive industry. Additionally, they reshaped geopolitical alliances and emphasized the strategic significance of the Middle East in the global energy market.

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[673] Wagdi, O., Elnahrawy, A., & Habib, A. F. (2023, November). Petrodollar and De-dollarization: A Survey from OAPEC Countries. In *Wagdi O., Elnahrawy A., Fathi A.,(2023), Petrodollar and De-dollarization: A Survey from OAPEC Countries, International Scientific and Practical Conference "Priority Directions of Complex Socio-Economic Development of the Region"(PDSED 2023), Section: Foreign Experience of Integrated Socio-econom*.
Wagdi, O., & Habib, A. F. (2022). The Petrodollar after February 2022: A Survey from AOPEC Countries. *Journal of Management Research*, *41*(4).

[674] Arihan, C. (2021). Oil Crisis (Oil Price Revolution) of 1973 and the United States' Response to the Crisis: The International Energy Agency. *Journal of Management Policy & Practice*, *22*(1).

25.4. Latin American Debt Crisis – 1982-83

The unsustainable growth of foreign currency-denominated bank debt precipitated the Latin American debt crisis of 1982-83.[675] This period, commonly referred to as "La Década Perdida" or the Lost Decade, marked the point at which Latin American countries exceeded the threshold where their governments' foreign debt surpassed their income-generating capacity, leading to an inability to meet repayment obligations (**debt trap**), especially in **Mexico**, **Argentina**, **Brazil**.

The origins of the crisis can be traced back to the expansion of the current account deficit, primarily funded by loans from banks in developed countries. Financial institutions eagerly extended large-scale loans, benefiting from low demand for credit in their domestic markets and variable interest rate revolving credit availability. The significant increase in borrowing, reaching monumental proportions by the late 1970s, would not have posed a problem in isolation.[676] However, a shift in U.S. monetary policy led to a substantial rise in short-term dollar interest rates. This shift immediately impacted variable interest rate loans, causing a dramatic escalation in the ratio of interest payments to exports. Capital outflows commenced, reaching half of the net foreign borrowing undertaken by governments. The crisis erupted in Mexico during the summer of 1982, spreading to Latin American countries such as Argentina and Brazil. Over the ensuing decade, real wages experienced a decline ranging from 20% to 40%.

The entire banking system faced peril due to the substantial exposure of American, European, and Japanese banks in Latin America. Ultimately, the Bank for International Settlements (BIS) and the International Monetary Fund (IMF) provided conditional, large-scale bridge loans to debtor countries.[677]

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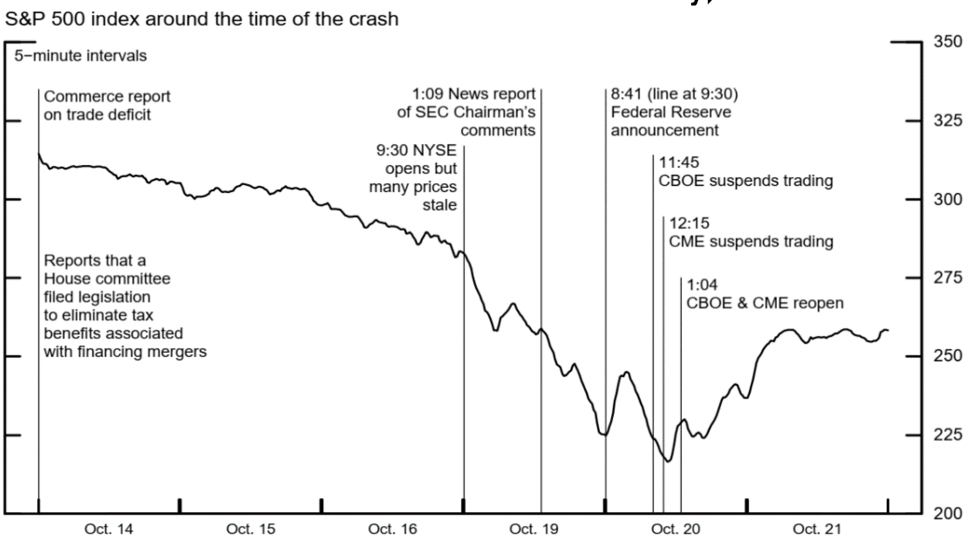
[675] Scire, J. A. (1995). *Realism and power: the Latin American debt crisis of 1982*. University of Nevada, Reno.
Diaz-Alejandro, C. F., Krugman, P. R., & Sachs, J. D. (1984). Latin American debt: I don't think we are in Kansas anymore. *Brookings papers on economic activity*, *1984*(2), 335-403.
[676] Devlin, R., & Ffrench-Davis, R. (2023). The great Latin America debt crisis: a decade of asymmetric adjustment. *Brazilian Journal of Political Economy*, *15*, 418-445.
[677] Anderson, J. B. (2023). *Economic Policy Alternatives for the Latin American Crisis*. Taylor & Francis.

25.5. Black Monday – 1987

Why did the stock market need therapy after the Black Monday?
Because it had a serious case of "stock"holm syndrome!

On October 19, 1987, the Black Monday witnessed the Dow Jones Industrial Average (DJIA) plummeting by nearly 22% daily.[678] This event marked the inception of a global descent in stock markets and subsequently became synonymous with one of the most infamous days in financial history. By the month's end, most major exchanges had experienced declines exceeding 20%.

S&P 500 index on Black Monday, 1987



Source: Carlson, M. (2007): A Brief History of the 1987 Stock Market Crash with a Discussion of the Federal Reserve Response. 6. (http://www.federalreserve.gov/Pubs/feds/2007/200713/200713pap.pdf)

Economists attribute the crash to a confluence of geopolitical events and the introduction of computerized program trading, which exacerbated the rapid sell-off. The U.S. markets recorded a more than 20% decline in a single day during the Black Monday stock market crash, following a bearish week

[678] Gautier Morin, J. (2021). Black Monday: the acid test for global financial deregulation: a socio-history of the October 1987 Crash. Geneva, Graduate Institute of International and Development Studies
Akata, D. (2023). Stock Market Crash of 1987: Black Monday. In *Black Swan: Economic Crises, Volume II* (pp. 69-80). Singapore: Springer Nature Singapore.

where headline indexes relinquished around 10%. The crash is believed to have been instigated by program-driven trading models employing a portfolio insurance strategy coupled with heightened investor panic. The antecedents of the 1987 crash can be discerned in a sequence of monetary and foreign trade agreements, such as the Plaza Accord, which devalued the U.S. dollar to address trade deficits, followed by efforts in the Louvre Accord to stabilize the dollar at its recalibrated, lower value.

In response to such market turbulence, the Securities and Exchange Commission (SEC) has implemented protective mechanisms, including trading curbs and circuit breakers, aimed at averting panic-induced selling. Investors are advised to adopt preemptive measures to manage potential stock market crashes. Black Monday led to a number of changes in the structure of the OTC market. In particular, there was a push to increase the market's transparency and improve the liquidity of OTC stocks. One of the most significant changes was the introduction of the electronic National Market System (NMS) in 1996. The NMS created a more centralized and efficient market for OTC stocks, which helped to reduce the spread between bid and ask prices.

This stock-exchange crash became famous and well-known among lay people thanks to the exciting film: Wolf of Wall Street.[679]

N.B. While the label "Black Monday" is most frequently associated with the stock market crash of 1987, it can also be used to characterize any sudden, significant decline in prices occurring on the first day of the week. The inaugural occurrence of Black Monday transpired on **October 28, 1929**, shortly after the commencement of the crash that ultimately led to the Great Depression. On that particular day, stocks plummeted by 12.8%. The crash was ascribed to factors such as meager wages, escalating debt, and an excess of substantial bank loans that were difficult to liquidate. The term is also applicable to the flash crash of **August 24, 2015**, during which the DJIA experienced a precipitous drop of 1,089 points shortly after the market opened. Following another sharp fall the preceding Friday, this decline was

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[679] Belfort, J. (2011). *The Wolf of Wall Street*. Hachette UK.

Moloney, C. (2023). “Why Don't You Go Down to Wall Street and Get Some Real Crooks?”: Capitalism and Masculinity in GoodFellas, Casino, and The Wolf of Wall Street. *Journal of Film & Video*, *75*(2), 30-44.

Fabre, A. (2023). Wall Street on Screen or How American Movies Impact the Representation of Finance. *Translation Studies: Theory and Practice*, (1), 119-135.

The two other film with similar titles Wall Street (1987) and Wall Street: Money Never Sleeps (2010) show the practice of corporate raiding, trading by inside information with a fictional predator, Wall Street shark Gordon Gekko. Gekko is said to be based loosely on several real-life financiers, including Olivier Stone's own father Louis Stone, Wall Street broker Owen Morrisey, an old friend of Stone's who was involved in a $20 million insider trading scandal in 1985, investment banker Dennis Levine, arbitrageur Ivan Boesky, corporate raider Carl Icahn, investor and art collector Asher Edelman, agent Michael Ovitz.

linked to economic concerns regarding China. The market partially recovered and concluded 533 points below the opening figure. The designation is less commonly employed to characterize the **March 9, 2020** crash, when the DJIA tumbled by nearly 8% due to the uncertainties surrounding the COVID-19 pandemic. Subsequently, on the following Thursday, the market experienced another crash, resulting in a 10% decline.

25.6. Black Wednesday – 1992, the Sterling crisis

Black Wednesday refers to September 16, 1992, a day on which the British Conservative government was compelled to withdraw the pound sterling from the European Exchange Rate Mechanism (ERM) when they were unable to maintain its value above the agreed lower limit. The ERM was a system from 1979, designed to stabilize exchange rates between European Union member countries, it was an introductory measure toward the euro.

The United Kingdom, the GB pound (£, GBP) had joined the ERM in 1990, with a **fixed exchange rate** at DEM 2.95 per GBP, with the explicit goal of keeping its currency above 2.7 DEM (Deutsche Mark).[680] However, this proved challenging as Britain's inflation rate was significantly higher than Germany's due to various economic factors. The reunification of Germany in 1990 added pressure on the DEM as the core currency for the ERM. This led to a period of German austerity measures and higher interest rates, initially causing the DEM to weaken before subsequently strengthening.

The year 1992 marked significant developments with the signing of the Maastricht Treaty and the subsequent rejection of the treaty by Denmark. These events exerted pressure on the ERM, exposing underlying weaknesses in the exchange rate mechanism. Comparatively, the macroeconomic indicators of the UK were notably poorer than those of Germany, particularly in terms of inflation and other fundamental economic factors. These disparities undermined the support for the existing exchange rate arrangement. It became obvious that the GBP was **overrated**, and to support the pound exchange rate, Britain raised its interest rates to 12%, but speculators engaged in heavy **shorting** and short selling of the currency.[681] These speculators borrowed money in pounds and promptly exchanged it for Deutsche Marks. Notably, George **Soros** realized this and successfully exploited weaknesses in

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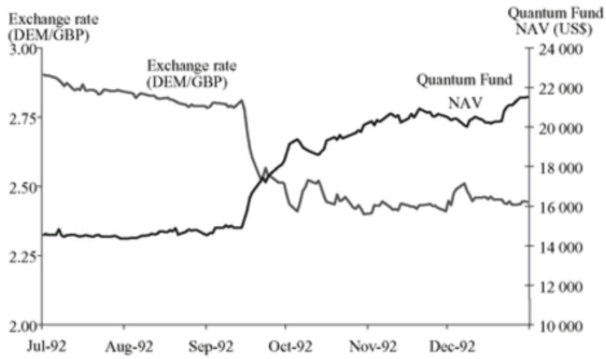
[680] Naef, A. (2022). *An Exchange Rate History of the United Kingdom: 1945–1992*. Cambridge University Press.
[681] D'Alvia, D. (2023). Short Selling: The Bears of the Market. In *The Speculator of Financial Markets: How Financial Innovation and Supervision Made the Modern World* (pp. 237-278). Cham: Springer International Publishing.

the GBP through the **Quantum Fund**. With only $1 billion as collateral, Soros initiated a massive short position on the GBP valued at $7 billion, causing a 10% drop in its value. Additionally, he took long positions on the DEM and, to a lesser extent, the French Franc, amounting to $6 billion, both of which gained 7% in value. Soros also invested $500 million in British equities, anticipating a rise following the devaluation of the currency, resulting in another 7% gain. This means consistently converting large amounts of borrowed pounds into German marks. Furthermore, Soros took long positions on German and French bonds while simultaneously shorting equities in those countries. This strategy was based on the expectation of a decline in the stock market and a consequent increase in bond yields, leading to a 3% increase in bond values.

As a result of these actions, the market sentiment shifted, prompting the Bank of England to intervene in an attempt to maintain the exchange rate band. This involved purchasing GBP and raising the base interest rate. With the high interest rate, the Bank of England became unable to sustain the artificially strong pound. This constituted the financial attack, after which Soros was able to repay the loans by keeping his funds denominated in the strong DEM while the debt remained in the weak GBP. Consequently, the significant exchange rate differential between the pound and the mark generated a substantial profit.



Source: https://etzq49yfnmd.exactdn.com/wp-content/uploads/2022/03/QuantumFundReturnsVsGBP.png?strip=all&lossy=1&resize=511%2C311&ssl=1

Eventually, the Bank of England raised interest rates to 15% in a last-ditch attempt to attract investors and support the pound. Despite this, the pressure on the currency persisted. Later it sold its own reserves of sterling to try to prop up the currency, but it was unable to prevent its value from falling below the ERM's lower limit of DEM 2.95. As the pound continued to weaken, on **September 16, 1992 (Black Wednesday)** the British government announced its withdrawal from the ERM, allowing the pound to float freely. The exit from the ERM was a humiliating defeat for the government of Prime Minister John Major, and the UK, thus at that time, they held the

Presidency of the Council of the European Union.[682] The pound devalued sharply in the aftermath of the crisis, and the British economy suffered a recession. However, these efforts proved futile, and the Sterling ultimately broke free from the ERM. By the withdrawal, the UK also rejected the later introduction of the euro.

Several factors contributed to Black Wednesday. High interest rates: The UK government had been forced to keep interest rates high in order to maintain the pound's value within the ERM. This made it difficult for British businesses to borrow money and invest. Economic weakness: The UK economy was already showing signs of weakness in the early 1990s. This made it more vulnerable to speculation. Speculator psychology: Speculators believed that the UK government would be unwilling to defend the pound at all costs. This led to a self-fulfilling prophecy, as their bets against the pound pushed the pound lower.

Why did George Soros bring an umbrella on Black Wednesday in 1992?
Because he knew it was going to rain pounds!

In terms of financial impact, Soros famously broke the Bank of England,[683] closing his positions over £1 billion in profit through short selling the pound.[684] His strategy revolved around the realization that by continuously converting his substantial GBP loans into DEM and taking short positions on GBP while holding long positions on DEM, he could undermine the Bank of England's ability to artificially maintain a strong pound. This financial attack enabled Soros to repay his loans with the stronger DEM, while his liabilities remained denominated in the weaker GBP, resulting in significant profits due to the considerable disparity in the GBP-DEM exchange rate.

The overall cost of Black Wednesday was estimated at £3.14 billion, with the GB Treasury spending £27 billion of reserves in an attempt to prop up the pound. Subsequently, the United Kingdom withdrew from the euro, marking a significant episode in the country's economic and monetary history.[685] The ERM itself was eventually abandoned in 1999, when the euro was introduced.

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[682] Bean, C. (2023). The ERM crisis and the UK: Black or White Wednesday?. *The Making of the European Monetary Union 30 Years Since the ERM Crisis*, 5.
[683] Ward, D. (2022). Black Wednesday 30 Years On. Mile End Institute
Williams, B. (2022). Black Wednesday: thirty years on. *Political Insight*, *13*(3), 22-25.
[684] Osnos, P. L. (Ed.). (2022). *George Soros: A Life in Full*. Harvard Business Press.
[685] Gottschalk, S. (2023). From black Wednesday to Brexit: Macroeconomic shocks and correlations of equity returns in France, Germany, Italy, Spain, and the United Kingdom. *International Journal of Finance & Economics*, *28*(3), 2843-2873.

25.7. Asian Financial Crisis – 1997-98

The East Asian financial crisis of 1997-98, known as the Asian Contagion, primarily affecting **Thailand**, **South Korea**, **Indonesia**, and **Malaysia**, was rooted in the inevitably heightened growth expectations resulting from over 15 years of sustained economic expansion.[686] This led to excessive accumulation of real capital and the significant accrual of foreign currency debt in the 1990s. Notably, private sector and corporate financing heavily relied on credit during this period.

The continuously increasing foreign currency-denominated debt in the banking sectors of East Asian countries juxtaposed with domestic currency-denominated assets, revealing, retrospectively, an uncovered exposure. The fixation of East Asian currencies to the U.S. dollar created a misconception among market participants that there was no exchange rate risk. Export-led growth strategies, government guarantees, and currency pegs contributed to a moral hazard, encouraging risky investments.[687]

The crisis erupted in Thailand in 1997 and subsequently spread to other East Asian countries. Investors became attentive to the substantial current account deficit and poor export performance. The Thai **currency appeared overvalued**, leading to an oversupply of real estate and subsequent declines in stock prices.[688] In response, capital outflows were observed. The crisis stemmed from the termination of Thailand's currency (baht) peg to the U.S. dollar after depleting foreign exchange reserves in an attempt to defend it against speculative pressure. The impact of the crisis was profound, resulting in significant currency depreciations and economic contractions across affected countries. The contagion rapidly spread to Malaysia, the Philippines, Indonesia, and eventually South Korea, triggering a balance-of-payments crisis.

Why did the Thai currency go to therapy after the Asian Financial Crisis?
Because it was feeling bahtly devalued!

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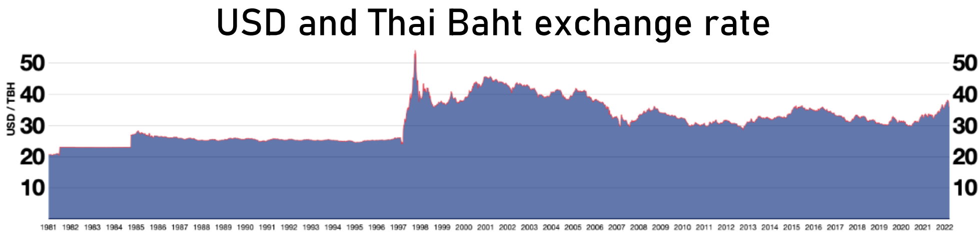
[686] Sufian, F. (2010). The impact of the Asian financial crisis on bank efficiency: The 1997 experience of Malaysia and Thailand. *Journal of International Development*, *22*(7), 866-889.
[687] King, M. R. (2001). Who triggered the Asian financial crisis?. *Review of International Political Economy*, *8*(3), 438-466.
[688] Jang, H., & Sul, W. (2002). The Asian financial crisis and the co-movement of Asian stock markets. *Journal of Asian Economics*, *13*(1), 94-104.



Source: Investing: USD/THB - US Dollar Thai Baht. (https://www.investing.com/currencies/usd-thb-historical-data)

Over a few months, the central bank of Thailand depleted its foreign exchange reserves and was compelled to initiate the floating of the Thai baht. This resulted in a significant depreciation and devaluation of the currency. Ultimately, assistance provided by the Bank for International Settlements, the International Monetary Fund, the International Bank for Reconstruction and Development, and the Asian Development Bank facilitated the coverage of capital outflows.[689] However, the currencies were unable to fully recover to pre-crisis levels.

The Asian Financial Crisis serves as a valuable case study for economists, highlighting the **interconnectedness** of markets and the consequences of poorly supervised economic policies. Lessons learned emphasize the need to (i) beware of asset bubbles, (ii) control spending, and (iii) pursue prudent economic development policies to prevent future financial crises. It also (iv) underscores the significance of exchange rate management and the impact of government spending and monetary policies on currency values.[690]

[689] Mumtaz, T., Akbar, G., Shahzadi, R., Farooq, U., & Khan, R. A. (2023). Role of IMF encountering asian financial crisis: a comparative analysis of the South Korean and Malaysian economy. *Russian Law Journal*, *11*(3), 1996-2004.

[690] Chung, K. H. (2020). Institutional Change and Economic Growth in East Asia after the Asian Financial Crisis, 1997-98. *Journal of Policy Studies*, *35*(1), 29-51.

Nolan, P. (2020). *Finance and the real economy: China and the West since the Asian financial crisis*. Routledge.

25.8. Argentine Great Depression – 1998-2002

Argentina faced significant economic challenges leading up to the 2001 crisis, rooted in years of military dictatorship, alternating with weak democratic governments. The National Reorganization Process from 1976 to 1983 introduced neoliberal economic policies, causing economic turmoil.[691] The country adopted anti-labor, monetarist measures leading to budget deficits, foreign debt escalation, and economic decline. The return to democracy in 1983 aimed to stabilize the economy, but austerity measures and a new currency, the Argentine austral, proved insufficient. By 1987, confidence in the plan collapsed, and inflation soared out of control. President Raúl Alfonsín resigned, and Carlos Menem took office in 1989.

In the 1990s, The government implemented measures to curb hyperinflation by introducing a **fixed exchange rate** between the Argentine austral's value to the US dollar.[692] Later they maintain this fixation with the peso also. This reduced inflation but resulted in a flight of dollars, loss of industrial infrastructure, and high unemployment. However, the artificially high value of the peso relative to the dollar led to an influx of dollars, resulting in a significant increase in foreign debt. Some segments of the population held their savings in dollars, leading to the consumption of imported luxury goods, which, in turn, adversely affected domestic industries and resulted in high unemployment. Despite external debt and corruption, the IMF continued lending to Argentina. Tax evasion and money laundering added to economic woes.[693]

The initiative proved successful, characterized by stable prices and robust economic growth in the early 1990s, driven by domestic consumption and substantial foreign capital inflows. However, the artificially high value of the peso relative to the dollar led to an influx of dollars, resulting in a significant increase in foreign debt. Some segments of the population held their savings in dollars, leading to the consumption of imported luxury goods,

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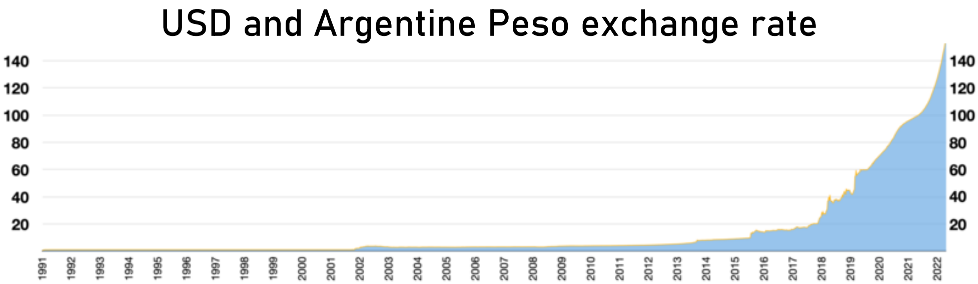
[691] Schenquer, L. (2020). The Uses of Culture in the Last Argentine Dictatorship (1976–1983): From Studies of Repression to Analyses of the Construction of Consensus. *Latin American Perspectives*, *47*(3), 186-201.
Hopenhayn, H. A., & Neumeyer, P. A. (2005). Explaining Argentina's Great Depression of 1975-90. *Eduardo Fernandez-Arias, Rodolfo Manuelli and Juan S. Blyde Sources of Growth in Latin America. What is Missing*, 119-156.

[692] The *austral* was the currency of Argentina between 1985, and 1991.

[693] Kehoe, T. J. (2007). What can we learn from the 1998-2002 depression in Argentina?. *Great depressions of the twentieth century*, 373-402.

which, in turn, adversely affected domestic industries and resulted in high unemployment.

By 1998, Argentina experienced a severe economic downturn marked by high trade and budget deficits, causing capital flight from the economy. This culminated in the freezing of a portion of bank deposits in 2001.[694] Those with savings in dollars received their funds back at a forced exchange rate, with weekly withdrawal limits imposed. In 2002, the peso was devalued, and its exchange rate was allowed to float, causing the peso to lose over 70% of its value against the dollar. The primary victims were the banks, as a substantial portion of loans had been disbursed in dollars.



Source: Investing: USD to Argentina Peso exchange rate. (https://www.investing.com/currencies/usd-thb-historical-data)

Inflation skyrocketed, and unemployment surpassed 20%, with over half of the society living below the poverty line. The ultimate solution arose from the devalued peso, as the competitive position of agricultural products significantly improved. Thanks to the cheap peso, trade balance showed a substantial surplus as early as 2002.[695]

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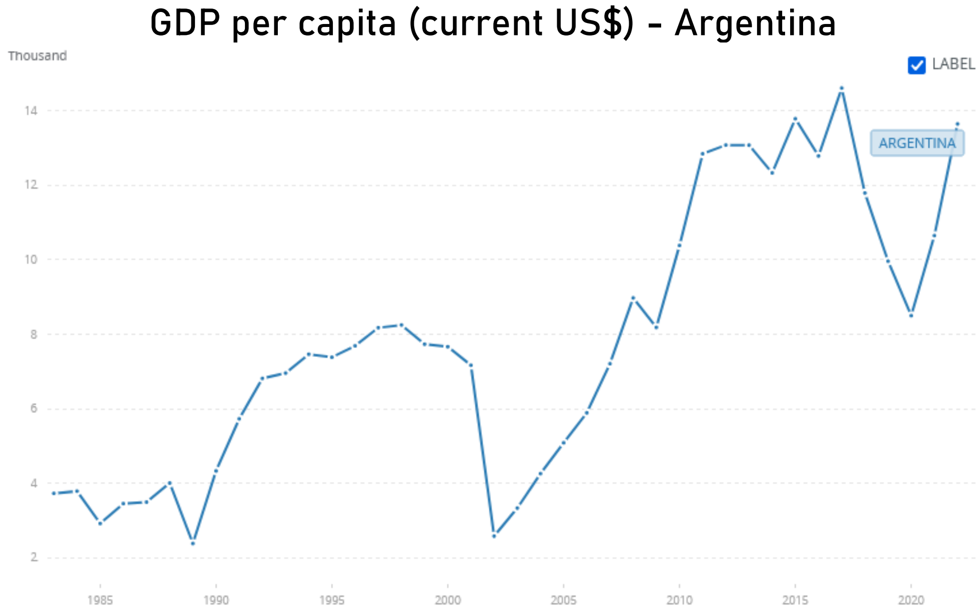
[694] Ren, H., Zheng, W., & Zhou, Z. (2021, December). Review on 2001 Argentina Debt Crisis. In *2021 4th International Conference on Humanities Education and Social Sciences (ICHESS 2021)* (pp. 1620-1627). Atlantis Press.
[695] Weisbrot, M., Ray, R., Montecino, J. A., & Kozameh, S. (2011). The Argentine success story and its implications. *Washington, DC: Center for Economic and Policy Research*. Halevi, J. (2002). The Argentine Crisis. *Monthly Review*, *53*(11), 15-24.



Source: World Bank: GDP per capita (current US$) – Argentina. World Bank national accounts data, and OECD National Accounts (https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?end=2022&locations=AR&start=1983&view=chart)

25.9. Other Crises

The **Panic of 1901** was a U.S. economic recession, the first stock market crash on the New York Stock Exchange triggered by a struggle for financial control over the Northern Pacific Railway. This conflict over the railway's financial direction among E. H. Harriman, Jacob Schiff, and J. P. Morgan/James J. Hil led to widespread economic repercussions.[696] After World War I. the **Depression of 1920–21** was a U.S. economic recession.[697] A decline in industrial production and employment characterized the post-war economic downturn.

The **Secondary Banking Crisis of 1973–1975** in the **UK** marked a period of economic turmoil in the United Kingdom's banking sector.[698] Secondary banks faced significant challenges, and the crisis had broader implications for the overall economy.

[696] Morris, E. (2021). Morgan and Schiff America's Indispensable Bankers. *Financial History*, (137), 28-31.
[697] Newman, P. (2016). The depression of 1920–1921: a credit induced boom and a market based recovery?. *The Review of Austrian Economics*, *29*, 387-414.
[698] Reid, M. (1982). *The secondary banking crisis, 1973–75: its causes and course*. Springer.

The **Japanese Asset Price Bubble** from **1986** to 1992 was a speculative boom in Japan's real estate and stock markets.[699] The subsequent burst of this bubble resulted in a prolonged period of economic stagnation known as the Lost Decade.

The **Indian Economic Crisis of 1991** was a severe economic downturn in India, marked by a balance of payments crisis, high inflation, and a sharp decline in foreign exchange reserves.[700] Economic reforms were subsequently initiated to address the crisis.

The **Russian Financial Crisis of 1998** was a significant economic downturn triggered by a combination of factors, including the devaluation of the ruble, a decline in oil prices, and a financial crisis in the Asian markets.[701] The crisis had widespread economic and social implications for Russia and led to reforms in its financial system.

Schenk, C. R. (2014). Summer in the City: Banking failures of 1974 and the development of international banking supervision. *The English Historical Review*, *129*(540), 1129-1156.

[699] Hu, Y., & Oxley, L. (2018). Bubble contagion: Evidence from Japan's asset price bubble of the 1980-90s. *Journal of the Japanese and International Economies*, *50*, 89-95.

Barsky, R. (2011). The Japanese asset price bubble: A heterogeneous approach. *Japan's Bubble, Deflation, and Long-term Stagnation*, *17*.

[700] Kolte, A., & Simonetti, B. (2018). A contrary view on Indian Economic Crisis of 1991. *International Journal of Creative Research Thoughts (IJCRT)*, *6*(1), 54-64.

Patil, A., Pahurkar, R., Varma, M., & Pawar, A. (2020). Deterring The Future Economic Crisis For Developing Nations: Lessons From 1991 And 2013 Balance Of Payment Crisis Of India.

[701] Akata, D. (2023). 1998 Russian Financial Crisis. In *Black Swan: Economic Crises, Volume II* (pp. 145-156). Singapore: Springer Nature Singapore.

Feridun, M. (2004). Russian financial crisis of 1998: an econometric investigation. *International Journal of Applied Econometrics and Quantitative Studies*, *1*(4), 113-122.

26. Financial Crises in the 21st Century

A series of significant financial crises reshaped the global economy of the 21st century and tested the resilience of financial systems worldwide. The Dotcom Bubble, fueled by speculative excesses in the technology sector, reached its climax in the early years of the new millennium, leading to the collapse of numerous internet companies and wiping out billions of dollars in market value. However, the Great Recession of 2008 cast the longest shadow till our days. Stemming from the collapse of the subprime mortgage market in the United States, the crisis triggered a domino effect that reverberated across the globe, resulting in widespread bank failures, plummeting stock markets, and soaring unemployment rates. The aftershocks of the recession were felt for years, prompting unprecedented government interventions and reshaping the regulatory framework of financial systems. In the wake of the Great Recession, the European Union grappled with its debt crisis as sovereign debt levels soared in several member states, most notably Greece, Portugal, Ireland, Italy, and Spain. The crisis exposed deep-seated structural flaws within the Eurozone and strained the cohesion of the European project, leading to austerity measures, bailouts, and political upheaval. Beyond these headline-grabbing crises, the 21st century has witnessed a plethora of other financial shocks and disruptions, each with its own unique triggers and consequences.

26.1. Dotcom Bubble – 2000

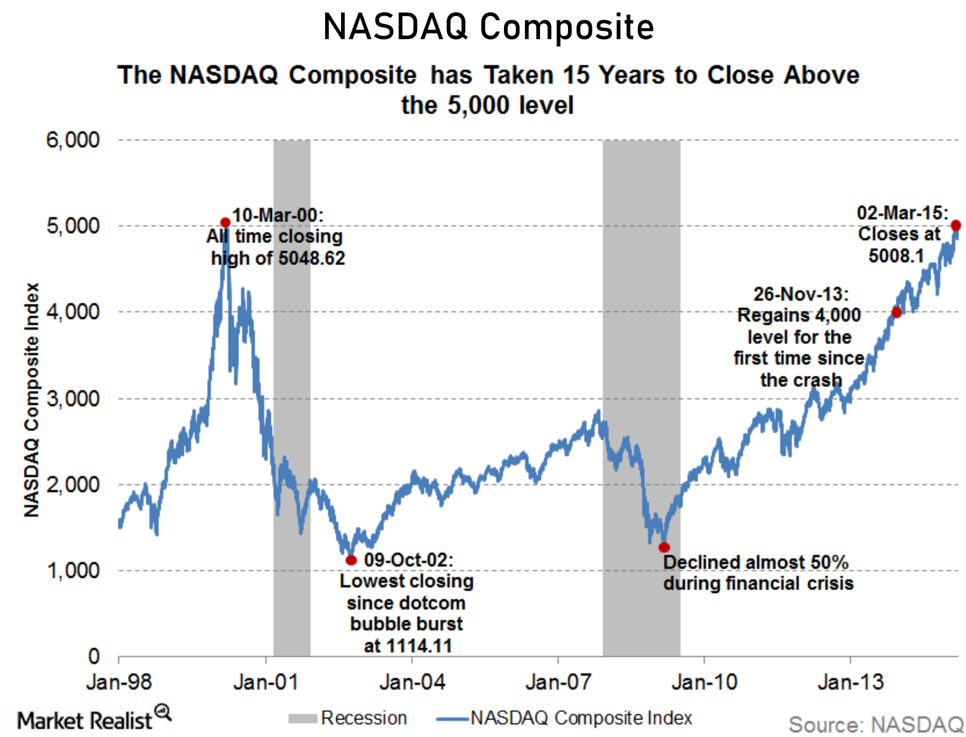
The Dotcom Bubble emerged from the rapid growth of U.S. **technology stocks**, driven by speculation, easy capital, and the failure of dotcoms to turn profits.[702] The subsequent crash, triggered by a drying up of capital, led to steep losses for investors and the collapse of numerous Internet companies.

The Dotcom Bubble originated from a confluence of speculative investing, ample venture capital for startups, and the failure of dotcom companies to generate profits. Following the **herd effect**,[703] – investors poured substantial funds into **Internet startups** during the 1990s, driven by aspirations

[702] Oral, C., & Akkaya, G. C. (2020). Dot. com Price Bubble for the Venture Capital Growth of Digital Companies. In *Digital Innovations for Customer Engagement, Management, and Organizational Improvement* (pp. 200-220). IGI Global.

[703] Xu, Y. (2023, May). Behavioral Finance: An Introduction of Herd Effect - Take the Dotcom Bubble in 2000s as an Example. In *8th International Conference on Financial Innovation and Economic Development (ICFIED 2023)* (pp. 216-224). Atlantis Press.

of future profitability. The prevailing sentiment led to a departure from cautious investment strategies, as venture capitalists sought to capitalize on the burgeoning use of the Internet.



Source: Richardson H. (2021). Why the NASDAQ's 5,000 Level Is Not Like the Dot Com Bubble. Market Realist (https://marketrealist.com/2015/03/nasdaq-5000-dot-com-bubble/)

As capital inundated the NASDAQ[704] from 1997 onwards, 39% of venture capital investments in 1999 were directed toward Internet companies. The year 1999 witnessed a surge in initial public offerings (IPOs), with 457 IPOs related to Internet companies, including 91 in the first quarter of 2000 alone. The AOL Time Warner megamerger in 2000 marked the zenith of this period but ultimately became the largest merger failure in history.[705] The equity markets experienced exponential growth, exemplified by the NASDAQ

[704] The NASDAQ Composite Index is an index of more than 2,500 stocks that trade on the National Association of Securities Dealers Automated Quotations (NADAQ). The index is weighted by market capitalization and includes both domestic and international companies. It is heavily weighted in technology stocks, followed by consumer discretionary and healthcare companies.
[705] Rayakwar, Y., Gaur, S., & Kumar, A. (2022). Mergers and Acquisitions: Why Do Big Mergers Fail to Achieve Their Purpose?. *Jus Corpus LJ*, *3*, 13.

index, predominantly composed of technology stocks, surging from under 1,000 to over 5,000 between 1995 and 2000. The bubble burst when capital began to dry up, with record-low interest rates and a surge in interest in technology companies allowing capital to flow freely to startups lacking a track record of success. The subsequent collapse of these companies, many without a business plan or product, resulted in the market crash.

Why did the Dotcom Bubble get lost?
Because it followed the wrong URL!
Warren Miller

The ensuing crash witnessed the NASDAQ index, which had seen a fivefold increase from 1995 to 2000, plummeting from its peak of 5,048.62 on March 10, 2000, to 1,139.90 on October 4, 2002, representing a staggering 76.81% decline. By the conclusion of 2001, a majority of dotcom stocks had become insolvent, and even established technology stocks such as Cisco, Intel, and Oracle suffered losses exceeding 80% in value. The NASDAQ took 15 years to recover its peak, achieving this milestone on April 24, 2015.

The bubble burst due to factors such as cheap money, easy capital, overconfidence in the market, and rampant speculation.[706] Eager to identify lucrative opportunities, venture capitalists invested freely in companies merely appending ".com" to their names. Valuations were based on future earnings and profits, often overlooking traditional fundamentals. IPOs of companies without revenue or profits saw their stock prices skyrocket, creating a frenzied environment for investors.

Kumar, B. R., Kumar, & Amboy. (2019). *Wealth Creation in the World's Largest Mergers and Acquisitions*. Springer International Publishing.
Rubinfeld, D. L., & Singer, H. J. (2001). Open access to broadband networks: a case study of the AOL/Time Warner merger. *Berk. Tech. LJ*, *16*, 631.
[706] Callahan, G., & Garrison, R. (2003). Does Austrian business cycle theory help explain the dot-com boom and bust?. *The Quarterly Journal of Austrian Economics*, *6*(2), 67-98.

26.2. Great Recession – 2008

The Great Recession's origins stem from a convergence of vulnerabilities within the financial system, coupled with a sequence of triggering events initiated by the collapse of the United States **housing bubble** from 2005 to 2012.[707] As housing prices declined and homeowners defaulted on their mortgages, the value of mortgage-backed securities held by investment banks dwindled in 2007–2008, leading to the collapse or bailout of several banks in September 2008. This period, known as the **subprime mortgage crisis**, marked the onset of the broader economic downturn.[708] The combined factors of banks facing challenges in providing funds to businesses and homeowners prioritizing debt repayment over borrowing and spending culminated in the official commencement of the Great Recession in the U.S. in December 2007. The recession persisted until June 2009, lasting over 19 months.[709] Parallelly, the effects of the Icelandic Financial Crisis of 2008–2012,[710] and the Irish Banking Crisis of 2008–2010 can also be mentioned.[711]

The foundation of trust in the financial intermediation system was fundamentally shaken by the **global financial crisis** (GFC) of 2008. The immediate trigger was associated with the originate-to-distribute banking model, specifically the widespread use of a concrete financial market construction, the so-called **subprime mortgage loans**, and the **securitized derivatives** based on them.[712] Subprime lending refers to the practice of extending loans to borrowers with less-than-ideal credit histories. Financial institutions, seeking higher returns, provided mortgages to individuals who would traditionally be considered high-risk.[713] As these subprime mortgages were bundled together with other types of debt, they formed complex financial instruments known as mortgage-backed securities (MBS; residential: RMBS, commercial: CMBS), or asset -backed securities (ABS), collateralized debit obligation (CDO).[714] Illustrating the essence of subprime products with a literary

[707] Levitin, A. J., & Wachter, S. M. (2020). *The great American housing bubble: what went wrong and how we can protect ourselves in the future*. Harvard University Press.

[708] Tori, D., Caverzasi, E., & Gallegati, M. (2023). Financial production and the subprime mortgage crisis. *Journal of Evolutionary Economics*, 1-31.

[709] Garriga, C., & Hedlund, A. (2020). Mortgage debt, consumption, and illiquid housing markets in the great recession. *American Economic Review*, *110*(6), 1603-1634.

[710] Bryant, M., & Sigurjonsson, O. (2022). Iceland's Financial Crisis 2008: Not a Normal Accident. *Journal of Governance and Regulation*, *11*(4 (Special issue)), 354-364.

[711] Baudino, P., Murphy, D., & Svoronos, J. P. (2020). The banking crisis in Ireland.

[712] Lastra, R.M. - Wood, G. (2010). The Crisis of 2007-09: Nature, Causes, and Reactions. Journal of International Economic Law, Vol. 13. No. 3. 531-550.

[713] Vértesy, L. (2020). *Jog és pénzügyek a bankszektorban*. Akadémiai Kiadó.

[714] CDO^2: CDOs backed by CDOs

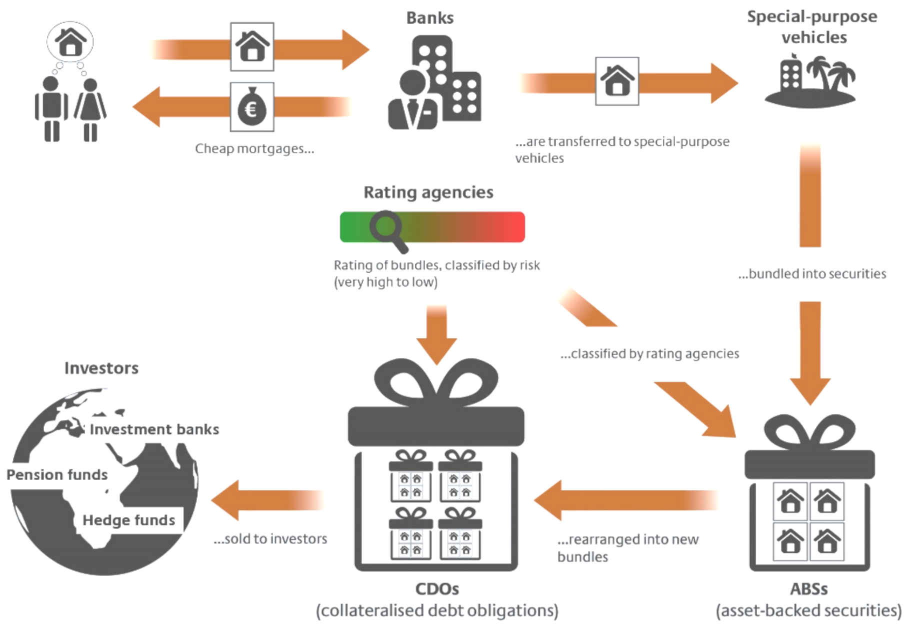
example, Julia Király references a complaint in which a waiter justifies the delivery of "second freshness" with the analogy of a rotten fish.[715]

- How do you mean, nothing to do with it, when it's spoiled!
- They supplied sturgeon of the second freshness, - the barman said.
- My dear heart, that is nonsense!
- What is nonsense?
- Second freshness - that’s what is nonsense! There is only one freshness - the first - and it is also the last. And if sturgeon is of the second freshness, that means it is simply rotten.

Bulgakov, Mikhail (1928-40, 1966): Master and Margarita.
Chapter 18 Hapless Visitors

Similar to second-rate freshness, a second-rate, subprime debtor is one who does not adhere to contractual obligations and is unable or unwilling to pay, i.e., insolvent. Despite this, subprime loans became popular, with their proportion in the USA relative to all mortgage-backed loans increasing from 10% in the period 1993–2003 to 26% in 2004, reaching 40% by 2007.[716]

The emergence of the financial crisis



Source: Federal Ministry of Finance

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715 Király Júlia – Nagy Márton – Szabó E. Viktor. (2008). Egy különleges eseménysorozat elemzése – a másodrendű jelzáloghitel-piaci válság és (hazai) következményei. Közgazdasági Szemle, LV. évf., 2008. július–augusztus. 573–621.

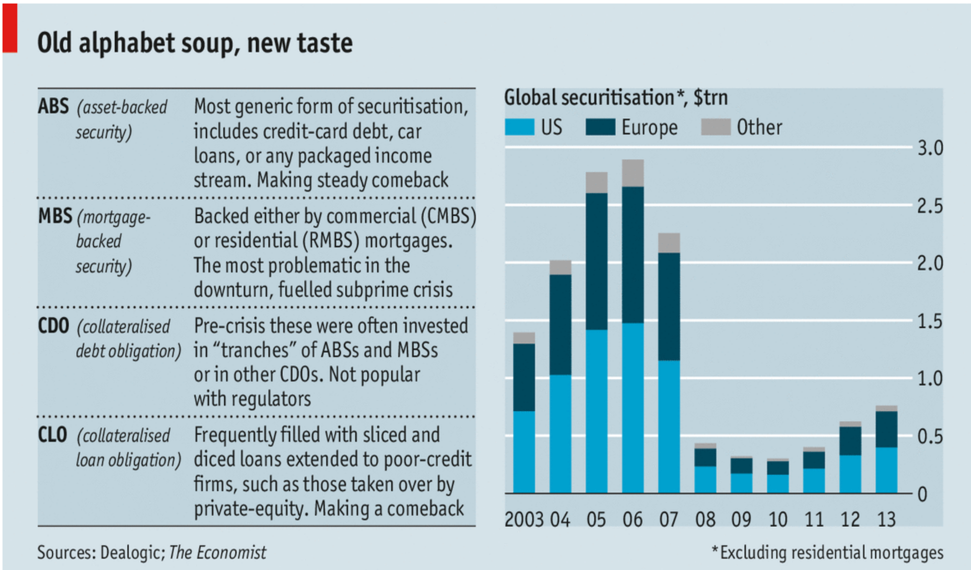
716 Wallin, P. (2008): Cause and Effect : Government Policies and the Financial Crisis. Washington, DC: American Enterprise Institute, 2008 November

Securitization, a financial process designed to mitigate risk, involved the packaging and sale of these MBS to investors through a special-purpose vehicle (SPV) or securitisation special purpose entity (SSPE, or SPE).[717] The idea was to distribute the risk associated with individual mortgages across a broader spectrum of investors. However, the complexity of these financial products and the lack of transparency regarding the underlying risks led to a situation where investors were often unaware of the true nature of the assets they held.[718] The credit rating agencies (CRA) played a crucial role in this process by assigning credit ratings to the MBS.[719] These agencies, such as Moody's, Standard & Poor's, and Fitch, assigned high ratings to many MBS, indicating a perception of low risk. Unfortunately, these ratings proved to be overly optimistic, as the underlying mortgages began to default at alarming rates. The widespread realization of the toxic nature of these assets triggered a cascade of financial distress, leading to the collapse of major financial institutions, freezing credit markets, and causing a severe global economic

[717] securitisation: a transaction or scheme, whereby the credit risk associated with an exposure or a pool of exposures is tranched, having all of the following characteristics: (i) payments in the transaction or scheme are dependent upon the performance of the exposure or of the pool of exposures; (ii) the subordination of tranches determines the distribution of losses during the ongoing life of the transaction or scheme; (iii) the transaction or scheme does not create exposures which possess all of the characteristics listed in Regulation (EU) No 575/2013.
securitisation special purpose entity (SSPE): a corporation, trust or other entity, other than an originator or sponsor, established for the purpose of carrying out one or more securitisations, the activities of which are limited to those appropriate to accomplishing that objective, the structure of which is intended to isolate the obligations of the SSPE from those of the originator;
originator means an entity which: (i) itself or through related entities, directly or indirectly, was involved in the original agreement which created the obligations or potential obligations of the debtor or potential debtor giving rise to the exposures being securitised; or (ii) purchases a third party's exposures on its own account and then securitises them.
Regulation (EU) 2017/2402 laying down a general framework for securitisation and creating a specific framework for simple, transparent and standardised securitisation
[718] Van Rythoven, E. (2020). The securitization dilemma. *Journal of Global Security Studies, 5*(3), 478-493.
Fligstein, N. (2021). *The banks did it: An anatomy of the financial crisis*. Harvard University Press.
[719] Mullard, M. (2012). The credit rating agencies and their contribution to the financial crisis. *The Political Quarterly, 83*(1), 77-95.
White, L. J. (2009). The credit-rating agencies and the subprime debacle. *Critical Review, 21*(2-3), 389-399.

downturn. Governments around the world responded with unprecedented intervention measures, including bank bailouts and stimulus packages, to stabilize financial systems and mitigate the economic fallout.

Global Securitization



Source: The Economist 2013

Another significant aspect of the crisis was the widespread use and misuse of financial instruments, including **Credit Default Swap** (CDS). The CDS is a financial derivative that allows an investor to "swap" or offset their credit risk with that of another investor. In the context of the 2008 crisis, CDS were often used to hedge against the risk of default on mortgage-backed securities (MBS) and other complex financial products. Financial institutions, including banks and insurance companies, used CDS to protect themselves against potential losses from the subprime mortgage market.[720] The complexity of financial instruments and the lack of transparency in the mortgage market led to a mispricing of risk.[721] Investors and financial institutions underestimated the actual risk associated with subprime mortgages and related securities. The reliance on CDS and other forms of insurance contributed to this mispricing, as these instruments were often seen as a way to transfer risk

[720] Stulz, R. M. (2010). Credit default swaps and the credit crisis. *Journal of Economic Perspectives*, *24*(1), 73-92.
[721] Fu, X., Li, M. C., & Molyneux, P. (2021). Credit default swap spreads: market conditions, firm performance, and the impact of the 2007–2009 financial crisis. *Empirical Economics*, *60*, 2203-2225.

rather than accurately assess and manage it. When the housing market collapsed and mortgage defaults surged, the interconnectedness of financial institutions and the reliance on CDS amplified the impact.[722] A significant difference between insurance and CDS, is the prohibition of over insurance. It is derived from the ancient legal principle, that the compensation cannot be more the the value of previous situation. The insurance amount (sum insured) cannot exceed the value of the insured property. In the part that exceeds the value of the insured interest, the agreement on the sum insured is void, and the premium must be delivered accordingly. Despite this provision, an insurance contract can be concluded up to the expected value of an asset, as well as the value of its restoration or acquisition in new condition. Upon the occurrence of the insured event, the upper limit of the insurer's obligation to provide services is the sum insured. The CDS can exceed – even multiple times – the insured value.

Insurance vs. Credit Default Swaps

Aspect	Insurance	Credit Default Swaps (CDS)
Protection Against Default	In traditional insurance, coverage is for specific risks (e.g., property damage or health issues).	In CDS, protection is against the default of a borrower on its debt obligations.
Premium Payments	Policyholders pay regular premiums for coverage, regardless of claims during the policy term.	CDS buyers pay regular premiums to the seller for the duration of the contract, even if no credit event occurs.
Credit Events	Payouts are triggered by specific covered events, such as an accident or a health issue.	Payouts are triggered by credit events, primarily the default of the referenced entity on its debt obligations.
Notional Amount	The coverage amount or maximum payout specified in the insurance policy.	The notional amount represents the total value of the referenced debt in a CDS.
Counterparty Risk	Policyholders face the risk of the insurance company not fulfilling obligations.	CDS buyers assess counterparty risk, depending on the creditworthiness of the CDS seller.

Source: own compilation of the author

[722] Eichengreen, B., Mody, A., Nedeljkovic, M., & Sarno, L. (2012). How the subprime crisis went global: Evidence from bank credit default swap spreads. *Journal of International Money and Finance*, *31*(5), 1299-1318.

Finally, in the fall of 2008, the United States adopted the Troubled Asset Relief Program (TARP), initiated by the Department of the Treasury, stabilized the financial system by purchasing mortgage-backed securities and bank stocks. Between 2008 and 2010, TARP invested $426.4 billion in companies and received $441.7 billion in return. Despite this, its evaluation remains contentious. Originally providing $700 billion in purchasing power to the Treasury, the Dodd-Frank Wall Street Reform and Consumer Protection Act reduced this amount to $475 billion. The Protecting American Taxpayers and Homeowners Act (PATH) of 2013 proposed a non-profit housing finance system, intending to eliminate Fannie Mae and Freddie Mac. The European Union implemented approximately €1 trillion in total public-funded bank rescue programs.

The Actors of Subprime Lending and Their Mistakes

Legislator	Accepting the proposals of the financial sector, it introduced CDS derivatives to reduce the credit risk, but in the end these stock exchange products, integrated into new investment packages, were only good for spreading the crisis around the world as part of untraceable (toxic, toxic) constructions.
Government	Imposed subprime loans on the banking system for social reasons, but at the same time transferred the risk of non-payment of the loan to the banks; and then, when bank failures occurred, it bailed out the banks with huge capital injections - which were paid for with taxpayers' money.
Banks	To transfer the risk by issuing mortgage bonds, and by involving shadow banks they got rid of the higher capital requirements, as a result the examination of the borrower's risk-bearing capacity disappeared from the entire process.
Bank intermediaries, agents, brokers	They participated in everyday lending guided by their personal financial interests, because the bonus system rewarded short-term profit maximization and taking on as much risk as possible.
Credit rating agencies	In many cases colluding with the banking sector, they far overestimated the reliability of mortgage bonds, deceiving investors.
Consumers	They made unreasonable decisions, they did not care about the size of loans and installments, their income situation.

Source: own compilation of the author based on Yandle, Bruce. 2009. Lost trust: the real cause of the financial meltdown. *Journal of politics economy*. Vol. 14.2009/10, 3, 341-361.

According to Yandle, every institution and actor involved in the process of subprime lending made errors, undermining people's trust, leading to the collapse of market processes and, consequently, an economic crisis.[723] In the words of Sándor Lámfalussy, echoing a "bon mot," there is "no excessive borrowing, no excessive lending" without emphasizing the responsibility of lenders in the context of excessive (foreign currency) indebtedness.[724]

In this regard, during her visit to the London School of Economics in 2008, Queen Elizabeth II posed the following question to the distinguished economists present: "*If economists couldn't predict the biggest financial crisis in decades, what are they good for?*" Klára Katona aptly summarizes possible answers to this question.[725]

Representatives of regulated macroeconomics, including Világi, Gorton, and Rajan, advocate for stricter regulations and reasonable market constraints (large banks, shadow banking system) as adequate measures to mitigate such uncertainties.[726] Within the neoclassical perspective, as per Hayek, this implies that *the market can operate efficiently with defined institutions and a clear regulatory framework, where the problems attributed to the market are, in fact, deficiencies in regulation*.[727] Zingales contends that legislation alone is insufficient, highlighting a regulatory cyclical nature. He draws attention to the fact that although new institutions and regulations emerge after every crisis, crises repeatedly occur, indicating that regulation alone is inadequate in eliminating the risks of crises. One reason for this lies in the significant influence of the banking and capital sectors on legal regulations, allowing them to lobby for terms favorable to them. Nevertheless, widespread abuse in the banking sector is more of a systemic characteristic than a systemic error.[728] In this context, Sanders emphasizes the principle of subsidiarity and suggests delegating certain control functions to professional

[723] Yandle, B. (2009). Lost trust : the real cause of the financial meltdown. in Journal of politics economy. Vol. 14.2009/10, 3. 341-361.
[724] Lamfalussy, A. (2008). Financial Crises in Emerging Markets. An Essay on Financial Globalization and Fragility. Yale University Press and Academic Publishers. 74.
[725] Katona Klára (ed.) (2018). A pénzügyi közvetítőrendszer funkciói. Wolters Kluwer, I. 3. A válság lehetséges okai, kezelési terápiák a szakirodalomban
[726] Világi Balázs – Gorton, Gary B. (2012). Misunderstanding Financial Crises – Why We Don't See Them Coming. Oxford University Press; and Rajan, R. M. (2010): Fault Lines. Touchstone Books, New York
[727] Hayek, F. A. (1973). Law, Legislation and Liberty. Rules and Orders, University of Chicago Press, Volume 1.
[728] Zingales, L. (2015). Does Finance benefit society? Harvard University, NBER, and CEPR

bodies in addition to governmental regulations reflecting community expectations.[729]

Beyond the legal dimension, according to Shelton, avoiding further financial crises requires the free-market-based international financial system's renewal, coupled with moral rejuvenation. This involves limiting both governmental and central bank machinations.[730] McCormick attributes the inadequacy of regulations to the moral responsibility of financial intermediaries in the financial intermediation system, asserting that regulations and prescriptions dealt with bankers who were steeped in the traditions of the old school, inherently aware of proper conduct.[731] However, research by Long and colleagues demonstrates that students in the new school of economics are significantly more selfish than students in other disciplines.[732] From a responsibility perspective, Célérié–Boris asserts that the more complex a financial product (e.g., ABS, MBS, CDO), the less experienced investor it was sold to, reflecting a complete lack of risk solidarity.[733]

Behavioral economics points to the limitations of regulatory and macroeconomic models. Financial markets operate based on models relying on rational expectations when the market is consistently profitable for a long time. According to Lo, the emergence of market instability invokes fears, greed, and cultural behavioral norm differences, causing the breakdown of the model's logic. Thaler and Sunstein highlight that *humans are not homo œconomicus but homo sapiens*. While greed and corruption may have contributed to the crisis, the key role was played by simple human weaknesses: (i) limited rationality; (ii) lack of self-control; (iii) the power of social influence.[734]

[729] Sanders, D. (2014). Reinventing regulations. Law and Financial Markets Review, June

[730] Shelton, J. (2015). Fix what broken: building an orderly and ethical international monetary system. Cato Journal, Vol. 35. No. 2.

[731] McCormick, R. (2012). Towards a more sustainable finance system - part2: Creating an effective civil society response lake the Crisis. Law and Financial Markets Review. 200-209.

[732] Long, W. – Malhotra, D. – Mumighan, J. K. (2011). Economics education and greed. Academy of Management: Leading Education, 10 (4). 643-657.

[733] Celery, C. – Boris Vallée (2012). What drives financial complexity? The look into the retail market for structured products, A Look into the Retail Market for Structured Products. Paris, December 2012, Finance Meeting EUROFIDAI-AFFI Paper (July 1, 2013)

[734] Thaler, R.H. - Sunstein, C. R. (2011). Nudge, Better decisions about health, money and happiness. Manager Book Publisher

World GDP (% change on year earlier)

Source: WEF. (2018). Could the 2008 financial crisis have been predicted and avoided?.WEForum (https://www.weforum.org/agenda/2018/11/should-economists-have-foreseen-the-financial-crisis/) The Economist 2013

Business policy errors evolved into **systemic risk problems** as bank managers focused solely on short-term volume increase targets in their performance reports, neglecting the inclusion of risk aspects such as the associated costs. (1) Only the short-term volume increase targets appeared in the performance reports of the bank managers, the risk aspects of the products (the risk costs) were not taken into account. (2) Lenders used all means to solve the population's liquidity constraint, which also meant significant subprime lending. (3) The lending targets have expanded significantly, contributing to the expansion of risks. (4) The transferring the excess risks to the customers was only successful in the short term, and in the long term it led to a significant increase in credit risks. (5) Despite the short-term interest rate advantage, the use of the Swiss franc proved much riskier than euro-based lending. (6) The bank unilaterally changed the method of determining interest rates for foreign currency loans. This product feature carried the possibility of unfair, unilateral interest rate increases. (7) Banks basically refinanced their long-term foreign currency mortgages with short and synthetic sources. This technique involved a non-negligible renewal risk. (8) Due to the excessive pursuit of growth, the liquidity risk of credit institutions increased, the effect of which also appeared in the funding and therefore customer costs. (9) The applied risk management methodologies and results only gave false security; they were not suitable for real measurement of risks. (10) In addition to the possibility of a unilateral interest rate increase, the products also used other unfair product features, terms and conditions for the sake of profit - subsequently determined by the court or by law.

Subsequently, the **Dodd-Frank Act** was enacted in 2010, which specifically regulated the over-the-counter (OTC) market for derivative products. According to estimates, market participants would need to provide an additional $1 trillion in collateral to restore derivative trading volumes to the peak seen in the pivotal year of 2008.[735] The onset of the Great Recession in 2008 initiated a prolonged period of economic stagnation, followed by slow expansion from 2009 to the onset of the 2020 COVID-19 pandemic. The average GDP growth during this period was 2.3%.[736]

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[735] In more detail, Yankova, G. (2019). Examining risk in the financial industry services and the impact of Dodd-Frank Law on risk. Buffalo State College, State University of New York and Acharya, V. V. - Cooley, T. F. - Richardson, M. - Walter, Ingo ed. (2010): Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance. John Wiley and Sons, Inc., Hoboken, New Jersey

[736] Felipe, J., & Estrada, G. (2020). What happened to the world's potential growth after the 2008–2009 global financial crisis?. *Journal of the Japanese and International Economies*, *56*, 101072.

Great Depression vs. Great Recession

	Great Depression	Great Recession
Time period	From August 1929 to March 1933, which is more than 3.5 years. The effects continued till the late 1930s.	From December 2007 to June 2009, which is more than 1.5 years.
Origination Event	Started with the major fall in stock prices witnessed during September 1929.	Resulted from the bursting of the US housing bubble during 2005–06.
Economic impact (GDP)	US GDP ~30% decline global GDP ~27% decline	US GDP ~4% decline global GDP ~5% decline
Changes in prices	-25%	+0.5%
Unemployment Rate	in the US peaked at ~25% in 1933.	in the US peaked at ~8.5% in October 2009.
Bank failures	9.096 (50% of banks)	57 (0.6 of banks)
Emergency speding programs	1.5% of the GDP for 1 year	2.5% of the GDP for 2 year
Fed's Response	The Fed increased the interest rates to restrict speculation in the securities market.	The Fed slashed the interest rates and pumped a significant amount of liquidity into the system.
Both Roosevelt and Obama have used Wall Street bankers as scapegoats		

Source: Wallstreetmojo. (2022). Great Recession vs Great Depression (https://www.wallstreetmojo.com/great-recession-vs-great-depression/)

26.3.EU Debt Crisis – 2008-2012

The European sovereign debt crisis, originating in 2008 with the collapse of Iceland's banking system, affected several European countries, including **Portugal**, **Italy**, **Ireland**, **Greece**, and **Spain** (often referred to as PIIGS). It was characterized by financial institution collapses, high government debt, and escalating bond yield spreads in government securities.[737] The crisis was influenced by contributing factors such as the (i) financial crisis of 2007-2008 and the Great Recession of 2008-2012, with its peak occurring between 2010 and 2012. We can also mention the (ii) the eurozone's fixed exchange rate system, which made it difficult for countries to devalue their currencies in order to make their exports more competitive; and (iii) high levels of government debt in some eurozone countries, which made it difficult for them to borrow money at affordable rates.[738]

The crisis prompted financial guarantees from the European Central Bank,[739] the European Financial Stability Facility, other European countries and interventions by the International Monetary Fund to prevent the collapse of the euro and financial contagion. Greece, at one point, had its debt downgraded to junk status. Countries receiving bailout funds were required to implement austerity measures to address public-sector debt. Causes included the real estate market crisis, property bubbles, and fiscal policies of peripheral Eurozone states.

The **European Financial Stability Facility** (EFSF) was established in 2010 as a temporary crisis resolution measure during the eurozone financial and sovereign debt crisis.[740] It provided financial assistance to countries like Ireland, Portugal, and Greece, contingent on their commitment to implementing specified reforms aimed at preventing similar crises. Funded through the issuance of bonds and capital market instruments, the EFSF had a maximum

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[737] Burda, M. C. (2013). *The European Debt Crisis*. Humboldt-Universität zu Berlin, Wirtschaftswissenschaftliche Fakultät.
Constancio, V. (2012). Contagion and the European debt crisis. *Financial Stability Review*, *16*, 109-121.
Ruffert, M. (2011). The European debt crisis and European Union law. *Common Market Law Review*, *48*(6).

[738] Beker, V. A. (2014). The European debt crisis: Causes and consequences. *Journal of Stock & Forex Trading*, *3*(2), 1-9.

[739] Heldt, E. C., & Mueller, T. (2021). The (self-) empowerment of the European Central Bank during the sovereign debt crisis. *Journal of European Integration*, *43*(1), 83-98.

[740] Horvath, B. L., & Huizinga, H. (2015). Does the European Financial Stability Facility bail out sovereigns or banks? An event study. *Journal of Money, Credit and Banking*, *47*(1), 177-206.

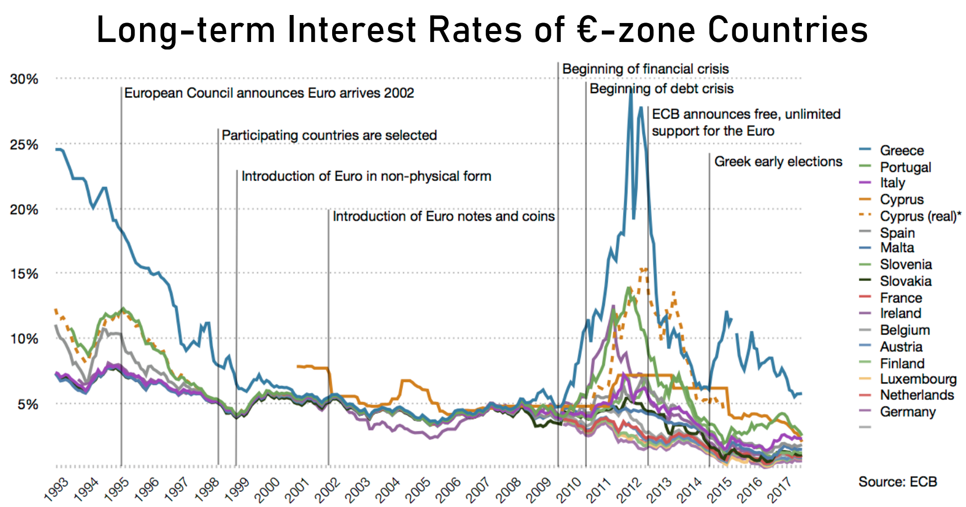
authorization of €440 billion, backed by guarantees from eurozone member countries. The securities, conversely, receive support through assurances from eurozone member nations, allocated based on their respective capital shares in the European Central Bank (ECB). The overall guaranteed amount is €780 billion. In essence, these assurances enticed investors who were hesitant to directly lend to the nations in crisis, and the EFSF extended loans to these countries contingent upon their commitment to implementing reforms.

EFSF and ESM

	European Financial Stability Facility (EFSF)	European Stability Mechanism (ESM)
Establishment year	2010	2012
Nature	Temporary crisis resolution mechanism	Permanent crisis resolution mechanism
Creation context	Response to the financial and sovereign debt crisis in the eurozone	Established to succeed the EFSF and serve as a permanent entity
Financial assistance period	Initially provided assistance until July 1, 2013	Ongoing, as it is the successor and permanent mechanism
Funding mechanism	Issuance of bonds and capital market instruments	Issuance of bonds and capital market instruments
Maximum authorization	€440 billion	€500 billion
Guarantees backing bonds	Backed by guarantees from eurozone member countries	Backed by guarantees from eurozone member countries
Guarantee line	Total guarantee line of €780 billion	€700 billion
Mission and Activities	Safeguard financial stability through financial assistance	Safeguard financial stability through financial assistance
Current Status and Activities	Continues to exist to fulfill obligations on previously agreed programs; receiving loan repayments, making principal and interest payments, and rolling over existing bonds	Ongoing, actively providing financial assistance and fulfilling its mission to maintain financial stability in the eurozone

Source: own compilation of the author

While the EFSF ceased offering new financing after 2013, being succeeded by the **European Stability Mechanism** (ESM), it continues to exist to fulfill obligations related to previously agreed programs.[741] The EFSF's ongoing activities include receiving loan repayments, making principal and interest payments on issued bonds, and rolling over existing bonds. Despite having distinct governance structures, the EFSF and ESM share the same staff and offices, aiming to safeguard European financial stability by providing financial assistance to euro area countries. Together, they have disbursed €250 billion, assisting countries like Spain and Cyprus in addition to the original beneficiaries. As of August 2018, all assisted countries have successfully reformed and improved, allowing them to exit their EFSF/ESM programs without requiring further arrangements.The debt crisis profoundly affected **long-term interest rates** in the affected countries. Investors became increasingly concerned about the creditworthiness of these nations, leading to higher perceived risks. As a result, long-term interest rates in many of the crisis-hit countries surged. Investors demanded higher yields to compensate for the perceived risk of holding government bonds from these nations. The crisis led to the widening of risk premiums and spreads between the government bonds of the affected countries and those of financially stable nations like Germany.

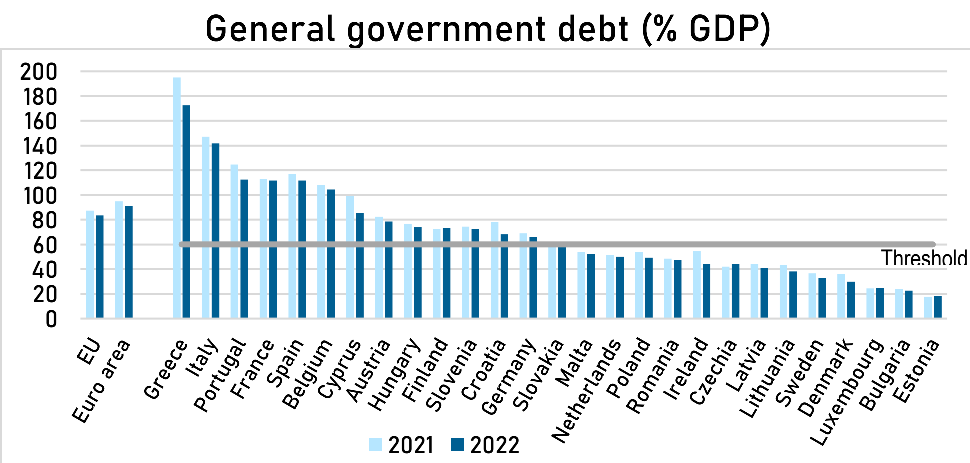


Source: ECB. (2017). Long-term interest rates of eurozone countries since 1993 (https://www.ecb.europa.eu/stats/money/long/html/index.en.html)

[741] Micossi, S., Carmassi, J., & Peirce, F. (2011). *On the tasks of the European Stability Mechanism*. Ceps.
Aerts, J., & Bizarro, P. (2020). The reform of the European Stability Mechanism. *Capital Markets Law Journal*, *15*(2), 159-174.

Greece, as an example, faced severe economic challenges, receiving multiple bailouts in exchange for adopting EU-mandated austerity measures. The country experienced economic recession, social unrest, and the possibility of sovereign default in 2015. Ultimately, Greece retained its membership in the Economic and Monetary Union (EMU) and gradually displayed indications of economic recovery in the years that followed. Unemployment witnessed a decline from its peak of more than 27% to 16% within five years, and the annual Gross Domestic Product (GDP) transitioned from negative figures to a projected growth rate of over two percent during the same period. Greece has one of the highest government debt-to-GDP ratios in the world, currently standing at around 195%.

The "**Brexit**" referendum in 2016, where the UK voted to leave the EU, fueled speculation about other countries leaving the Eurozone but did not lead to a mass departure. Italy faced challenges in mid-2016, with Italian banks requiring a significant bailout due to market volatility triggered by Brexit and a poorly managed financial system. The EU introduced "bail-in" rules, preventing taxpayer-funded bailouts for financial institutions. **Ireland**, **Portugal**, and **Spain** also required bailouts in subsequent years. While they showed improvement by 2014 due to fiscal reforms and austerity measures, challenges such as an emerging banking crisis in **Italy**, uncertainties from Brexit, and the economic impact of COVID-19 pose ongoing difficulties for the European economy. The crisis highlighted the need for financial stability measures and sparked debates about the future of the EU.



Source: Eurostat. (2024). Government finance statistics (https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Government_finance_statistics)

The Eurozone crisis's **controversy** includes concerns about shifting exposure from banks to taxpayers through European bailouts. The EU's Maastricht Treaty, with a no bail-out or the prohibiton of monetary financing clause, aimed to keep responsibility for repaying public debt national, discouraging unsound fiscal policies.

Article 123 Overdraft facilities or any other type of credit facility with the European Central Bank or with the central banks of the Member States (hereinafter referred to as "national central banks") in favour of Union institutions, bodies, offices or agencies, central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of Member States shall be prohibited, as shall the purchase directly from them by the European Central Bank or national central banks of debt instruments

Article 125 The Union shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of any Member State, without prejudice to mutual financial guarantees for the joint execution of a specific project. A Member State shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of another Member State, without prejudice to mutual financial guarantees for the joint execution of a specific project.

Treaty on the Functioning of the European Union

Violations of convergence criteria (government debt 60% of the GDP, budget deficit 3% of the GDP) and the role of credit rating agencies also sparked debate. Some accused agencies of fueling eurozone indebtedness, while regulatory reliance on their ratings faced criticism. Speculation about the eurozone's break-up, opposition to deeper integration, and challenges in addressing the crisis highlighted complex political and economic decisions. The idea of odious debt and manipulated debt statistics added further dimensions, questioning the validity of debt. The use of collateral, particularly Finland's demand for it, contributed to tensions among eurozone countries. The controversies reflected the multifaceted challenges and debates surrounding the Eurozone crisis. There is currently no official European Debt Agency,[742] but there have been proposals to create one.

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26.4. Other Crises

The **Turkish Economic Crisis of 2001** stands out as a pivotal moment in Turkey's economic history, unfolding as a multifaceted challenge with enduring consequences.[743] High inflation rates and a significant increase in unemployment further compounded the economic turmoil, while the loss of investor confidence added an additional layer of complexity. The government responded with a series of measures aimed at stabilizing the economy, implementing fiscal policies, and instituting financial reforms.

What have an Icelandic bank and an Icelandic streaker got in common?
They both have frozen assets.

The **Icelandic Financial Crisis of 2008–2012** brought Iceland to the forefront of global economic discussions, with the collapse of its banking system sending shockwaves through the nation.[744] Fueled by excessive borrowing and risky financial practices, the crisis led to severe repercussions, including a deep recession, soaring unemployment rates, and profound challenges for the country's financial sector. The experience prompted a reevaluation of financial policies and regulations, underscoring the importance of prudence and oversight in preventing future crises.

The **Irish Banking Crisis of 2008–2010** unfolded against the backdrop of a collapsing property market and the subsequent bailout of major Irish banks.[745] This crisis left an indelible mark on Ireland's economy, precipitating a profound recession and necessitating austerity measures to stabilize the nation's finances. Post-crisis, Ireland embarked on a path of financial reforms, reevaluating its regulatory framework and fiscal policies to prevent a recurrence of such a crisis and foster sustainable economic growth.

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The **Brazilian Economic Crisis of 2014-2017** marked by high inflation, rising unemployment, and political instability.[746] Triggered by a combination of factors, including a decline in commodity prices and a large-scale corruption scandal involving prominent figures and businesses. The reforms addressed structural issues, restored investor confidence, and stimulated a robust and sustainable recovery.

The **Black Monday and Thursday** on 9 and 12 March in **2020** were critical junctures in the global financial market, reflecting the heightened uncertainty triggered by the COVID-19 pandemic.[747] The heightened volatility and substantial declines in stock prices prompted governments and central banks globally to respond with unprecedented fiscal and monetary measures. The subsequent measures aimed to stabilize financial markets, restore investor confidence, and address the economic challenges posed by the unprecedented global crisis. The events underscored the interconnected nature of the global economy and the importance of adaptive strategies and coordinated efforts to mitigate the economic impact of unforeseen crises in the complexities of a rapidly evolving economic environment.

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