| Chapter 1 |

The Theoretical Foundations of Regulation on Public Finances

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ABSTRACT

Financial policy—which is based on macroeconomic policy—can be divided into two parts: fiscal (budgetary) policy, and monetary policy. Fiscal policy essentially covers the area of public revenues and public expenditures, i.e., it deals with public burdens through the obligation of burden-sharing, taxation, and public expenditures, from which public services are financed. The fiscal policy of the modern state is a complex and difficult system in which the individual elements are closely related to each other. Budgetary policy manifests in the regulation of public finances and public charges (taxes). Monetary policy is the other element of financial policy that primarily regulates financial processes indirectly. An important task of the monetary sphere is to ensure the money supply and smooth cash flow of the economy, i.e., to have enough money available for economic processes. Besides the central bank, financial intermediaries participate in the processes at micro level, the regulation of which is also one of the tasks of the central bank as well as the state. The two branches of monetary policy are closely related with each other. They are defined by different sub-goals, but the main goal of fiscal policy is to ensure economic and social stability and development.

The regulation of public finances has two tasks: to regulate the public finance system and related issues, and to regulate the monetary system itself. To make the regulation of the financial system comprehensible, it is necessary to learn about the role and function of the state in public finances, the essential characteristics of money, and the principles of the functioning of the monetary system. This theoretical chapter deals analyses these issues.

KEYWORDS

Public services, public finances, fiscal policy, monetary policy, financial system.

1. The role of the state in public finances

The economy of today's modern states is a mixed one, which means that market mechanisms prevail. There is a market economy, but the state influences and regulates the market conditions. Economic theories approach the role of the state from different sides.

In modern states, therefore, market mechanisms prevail, i.e., there is no person or organization that would be exclusively responsible for solving economic problems; economic activities are coordinated by the market without any central control. The

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market solves the problems of production and distribution, that is called the invisible hand by Adam Smith in his book '*The Wealth of Nations,*' published in 1776. Buyers and sellers, supply and demand, get in contact through the market. During the exchange of goods and services, the market price is determined, which expresses the exchange rate of the goods and the services, and coordinates the decisions of consumers and producers. The equilibrium price is achieved at the market, which realizes the market balance of supply and demand, which means that buyers would buy exactly as much as sellers intend to merchandise. Smith pointed out the balance between the private and the public interest, i.e., private interest leads to public interest through the market mechanism. However, he did not recognize market failures and stated that the government did not have to interfere in the market mechanism.[1] On the other hand, modern economics considers market failures to be the most important reason for state intervention, i.e., market mechanisms do not work perfectly and the state tries to correct these mistakes. This was first pointed out to a significant extent by the economic crisis of 1929. Production fell, unemployment rose, and the banking system broke down. The imperfect functioning of the market has caused serious economic and social problems, and without state intervention, it can cause such problems even nowadays. A good example of this could be the economic crisis of 2008 and the current one related to the pandemic.

What do market failures mean? Economics points out that the market could work effectively only under certain conditions, but there are some conditions that hinder the effective functioning. Such conditions include:[2] the failure of competition; external economic effects; incomplete markets; failures of information; unemployment, inflation, lack of balance; common goods.

The failure of competition means that there is no strong competition in the given segment of the market. Only a few market players dominate the market—in extreme cases, it could be only one market player—so one company might have monopoly in the given sector. These monopolies could be natural ones, created in the frame of market processes—for instance, because of returns to scale when a larger enterprise could produce certain products and services more cost-effectively. The other case is when the state artificially creates monopolies through legislation—for example, in the case of utility services (e.g., electrical and water networks) due either to concession or to ensuring patent rights. With the latter case, the developer is given exclusive rights for the product or the process. In the case of monopolies created through state regulation, strong financial regulation often prevails for the company in a monopoly position, as the state also intervenes in market conditions through price regulation and subsidies.

With external economic effects (externalities), one activity influences the others who do not take part in the economic activities. This effect can be negative, i.e., it imposes costs on the concerned actors (negative externality) and it can be positive

1 Samuelson-Nordhaus, 2012, pp. 23-27.
2 Stiglitz, 2000, pp. 78-140.

(positive externality), when the subjects might receive an unintended advantage from the economic activities of others. The market, however, cannot deal with these effects, nor does it provide compensation, so state intervention and regulation must deal with market failures. The issue of environmental pollution is a particularly significant factor among the negative externalities. In this case, state regulation uses several means to avoid the effects, and direct and indirect tools are applied. In the framework of direct regulation, a pollution limit is set out, and the activity might be subject to permission or prohibition. With indirect tools, economic regulators prevail, such as negative and positive incentives and special economic instruments. Negative incentives (environmental taxes, charges, fines) and positive incentives (both direct and indirect subsidies) are included in financial regulation and fiscal policy.[3]

The issue of incomplete markets also points to the need of government intervention, as there are goods and services whose market supply falls below the required extent. The insurance market and the capital market are considered as such by the economic literature. In the insurance market, certain insurance programs are carried out by state constructions, or by forcing the operation of the private market in certain insurance areas. In the capital market, market constructions prevail even more strongly, providing resources to certain segments of the society. Besides the two examples, the lack of complementary markets is highlighted. Here, it is mainly government coordination that solves the deficiencies of the market, such as with settlement development. In these cases, actors of the private market are not involved in these transactions for various reasons. The state can therefore trigger market failures through financial regulatory means.

In the event of information failures, consumers may be harmed, and private markets alone may not seek to provide detailed information to market players. As a result, the consumer cannot make a reliable decision, nor choose the best alternative. Economic theory approaches the issue from two sides: on one side, consumer protection; on the other side, a concern for the common good. A good example of the information failure is the field of financial markets. The importance of financial consumer protection has significantly increased in recent decades.[4] After the regime change, the market for financial products expanded rapidly.[5] The inadequate disclosure of information for consumers as well as the irresponsible consumer behaviour and the formation of complex financial constructions caused more and more problems.[6] The financial consumer became extremely vulnerable.[7] Consumer protection, the smooth operation of the financial system, the reduction of the asymmetry of information, and ensuring fair conditions of competition have together become the reason for the regulation of the financial markets.[8] The economic crisis pointed out that financial

3 Nagy, 2013, pp. 33-34.
4 Lentner, Szigeti, and Borzán, 2011, pp. 29-48.
5 Nagy, 2017, pp. 391-401.
6 Lentner, 2016, pp. 45-84.
7 Hajnal, 2009, pp. 1-10.
8 Simon, 2007, pp. 292-293.

consumer protection must be treated as a separate area of law and given priority, since the regulatory gap might be the source of significant economic and social damages.[9] Financial consumer protection therefore became an independent regulatory area, within which public financial consumer protection gained more significance, which has become a separate area of law within the regulation of public law.[10] Scientific literature, however, considers information to be a common good. Disclosure of information does not reduce access to information that is available to others. Economic efficiency requires that access to information is provided expansively to the society.

The issue of unemployment, inflation and lack of balance is also an important area of market failures and they cause serious macroeconomic problems. The two market failures, however, touch upon different issues of the regulation of public finances. To handle unemployment, the state grants direct or indirect subsidies to undertakings. A significant amount of direct subsidies are realized through job-creating subsidies, or, with indirect subsidies, the state grants subsidies through tax allowances and exemptions. Besides these, the state supports unemployed people with various supplies: on the one hand, the state grants direct payments to compensate for the loss of earnings and it helps the possibility of finding a job with other services (such as trainings, education, and job searches, etc.). Unemployment is both an economic and a social loss, as those who are unable to work do not contribute to the increase of output, producing neither products nor services. However, their work could increase output and they would also bear public burdens of public services. Controlling inflation is already the main goal of monetary policy; however, fiscal policy must also consider the inflation purpose. Central banks try to keep inflation at a low level with a wide range of monetary policy instruments. Price increase, especially if it has an intense harmful effect on market conditions, confuses market players in terms of market price and devalues nominal wages and assets.

The problem of public goods means that without the state, the market would not be able to produce these goods—or at least not in sufficient quantities. Public goods are goods that serve community consumption and whose consumption does not mean that others may not consume from them. Public goods, therefore, are products that everyone can use, and no one can be excluded from their use.[11] 'Pure' public goods and 'impure' public goods may be distinguished. Pure public goods include those within which the use of the service is possible at no cost for all other users, and it is difficult or impossible to exclude the consumer from the use of it. With impure public goods, these characteristics occur either partly or not at all.[12] Public goods, therefore, are consumed by each individual and the consumed amount is the same for all consumers (e.g., national defence). The consumption of public goods is not competitive, i.e., the consumption of one person does not reduce the benefit of all the

9 Nagy, 2010, pp. 229-243.
10 Nagy, 2020, pp. 90-91.
11 Samuelson-Nordhaus, 2012, pp. 32-34.
12 Stiglitz, 2000, p. 92. and 150.

other individuals.[13] Thus, everyone enjoys the benefit of public goods, even if they do not contribute to the costs personally, therefore, consumers do not feel the need to pay voluntarily for the service. This situation is characterized as the 'free rider' problem, that is, non-payers also enjoy the benefits of the service. That is why the state enforces the contribution through the obligation of public burden-sharing. The state therefore imposes public burdens and taxes to collect the price of public goods and services. Thus, it is everyone's interest to contribute to the financing of public goods through the obligation to pay taxes.[14]

In addition to market failures, scientific literature operates with the notion of government failure, i.e., those cases when the purposes cannot be fulfilled through state intervention. The competence of the state to influence the market is, in some cases, limited. According to the literature, there are four main reasons for this:[15] limited pieces of information; limited control over the responses of the private market; control restrictions over specialized apparatus; and limits arising from political processes.

Intervention in market conditions requires extensive information and analysis, and even in such cases, the mode of action and consequences could not be seen. The complex system of the economy does not provide full information for decision-making and the proper assessment of the consequences; therefore, it is possible that a government decision in one market segment causes disadvantages for other market segments or players. As a result, the control of the responses of the private market is limited for the government.

The preparation and implementation of legislation are the responsibilities of the specialized apparatus within the government. The implementation and the enforcement of the objectives of the legislation depend heavily on the prudent and efficient work of the specialized apparatus. Consequently, the intention and the purpose of the legislation may not be sufficiently realized. The effectiveness of the rules of public finances serving economic intervention may therefore decrease, i.e., a good legislatory concept can become a bad measure due to the work of the specialized apparatus.

Government failures may stem from political processes as well. The main characteristic of political decisions is that the decision is made by a small group of people but its impact occurs in the whole society or in a large group of people. Decision-makers must consider and coordinate the preferences of the voters and choose the most appropriate among them. In many cases, this might fail or it might happen that their decision is in favour of special interest groups. Thus, mistakes arising from the decision result in government failure.

The strengthening of the economic role of the state is related to the welfare state and the development of the mixed economy. Markets control everyday economic life, while the state regulates social and economic conditions. Regarding the economic role

13 Cullis-Jones, 1998, pp. 70-75.
14 Stiglitz, 2000, pp. 143-162.
15 Ibid., pp. 28-45.

of the state, several theoretical economic positions have evolved, some of which agree with such a state role, while other views suggest minimizing the economic role of the state, and according to them, the state itself is the problem and not the solution.[16]

The 21st century brought the strengthening of the welfare state. The role of the state particularly strengthened after the crisis of 2008, as this economic crisis was like the one in 1929, but the consequences were far less devastating, clearly due to effective fiscal and monetary policies. Today, therefore, the role of the state is greater than anytime in economic history. The state deduces one-third to one-half of the national income from the economy, because of which its economic weight is unique compared to the other economic players. The welfare state is based on fundamental rights that are related to basic public services. These public expenditures require a wide range of revenues, as the state can finance its extensive system of public services from these. This can induce another tax increase and a larger tax deduction from the national income. However, according to the literature, its growth stopped and stabilized at the current level in several states.[17] A great challenge of the future is whether the economic growth ensures sufficient additional resources for the ever-higher levels of the operation of public services. If this does not happen, either the quality of the performance of public tasks will deteriorate, or the amount of taxes and the deduction from revenues must be increased for the provision of public services.

2. The provision of public services in the modern state

The provision of public services in the modern state is versatile and complex. Throughout history, the state has undertaken more and more tasks, for which public revenues had to be provided and the obligation of burden-sharing had to be extended. The extent of state involvement is determined by the ratio of state revenues or expenditures to the gross domestic product (GDP). This is the centralization ratio for revenues and the redistribution ratio for expenditures.[18]

The functions of the modern state are characterized based on three aspects in the scientific literature, which shows the complexity of public responsibilities.

Table 1. Classification of public functions[19]

Functional	Nature of the activity	Economic
Public authority; welfare	Economic; regulatory; financing	Allocation; redistribution; stabilization

16 Samuelson-Nordhaus, 2012, pp. 37-38.
17 Piketty, 2013, pp. 493-515.
18 Zsugyel, 2009, p. 39.
19 Ibid., p. 40.

By the functions of public authority, the literature covers tasks of defence, state organization, social organization, and jurisdiction. The purpose of welfare functions is to reproduce and preserve human capital. Depending on economic development and economic policy, welfare states provide welfare services at a different level and extent. The state plays a role in shaping economic policy in several areas. The state has a key role, for instance, in economic development, investment promotion, job creation, or issues arising from handling the economic crisis.

The performance of public tasks requires regulatory, legislative as well as financing activities. The law determines public tasks and the conditions of their provision, and the conditions for the performance of public tasks are created through budgetary management.

The state withdraws resources from the private sector in the framework of its economic functions (allocation), and then reallocates these resources (redistribution). It influences market economy with fiscal and monetary tools and ensures economic equilibrium (stabilization).[20] Public needs are satisfied through performing public tasks.

Public taxes have a conceptually broader meaning than the tasks of the state, since the concept of public tasks covers the tasks of municipalities and public bodies, and tasks aiming at satisfying public needs. A public task is one that is classified as such by a legal act—i.e., the state or the municipality decides which products, goods, or services they want to provide. In the legal sense, public tasks are divided into four groups in the literature:[21] needs that could not be covered otherwise; the range of users of the service could not be defined; constitutional fundamental rights; and economic state intervention.

The state withdraws resources from the private sector in the framework of its economic functions (allocation), and then reallocates these resources (redistribution). It influences market economy with fiscal and monetary tools and ensures economic equilibrium (stabilization).[22] Public needs are satisfied through performing public tasks. Needs that could not be covered otherwise include those that are primarily basic state functions that could only be performed by the state. These include defence functions (national defence, law enforcement) as well as administrative tasks. There are certain public tasks of which the users and the beneficiaries could not be defined precisely. Such areas include environmental protection and flood protection. Most of the public tasks are formulated as constitutional fundamental rights; i.e., its obligatory performance is set out by a law at the highest level, such as healthcare and public education. The role of economic state intervention is significant in modern societies, but it has particularly come to the fore since the economic crisis. Economic intervention may target several areas, but from the point of view of the performance of public tasks, public financial support is of particular importance.

20 Ibid., pp. 39-41.
21 Simon, 2007, pp. 28-29.
22 Ibid., pp. 39-41.

Public tasks can be performed in several forms. The most typical is through budgeting bodies in the framework of public finances. The budgeting bodies carry out public tasks as their core activity, in the framework of public finances.

The performance of public tasks may also be carried out in such a way that the central budget provides financial coverage; that is, public tasks are performed by privately owned enterprises in exchange for compensation from the budget. These include companies providing passenger and public transport. These companies may be completely or partially privately owned, or they can be owned by the state or the municipality. There may also be non-governmental bodies (churches, social organizations, foundations, etc.) that provide public education, social, and child welfare tasks in the framework of the performance of public tasks.

It is clear, therefore, that the performance of public tasks has a complex institutional system. The literature divided the actors of the institutional system in two groups, categorizing them based on their economic function and public policy sector (their area of activity).[23]

Public tasks can be financed from both public and private sources. Private financing can be realized though fee financing, as well as borrowing and raising capital. With fee financing, the 'user pays' principle applies, since the users of public services contribute to the maintenance of the service through access to the service. There are two types of user charges: charges related to actual use, and charges proportionate to use. With user charges, various public policy preferences might be enforced in the form of discounts.

The possibility of borrowing fills the liquidity shortage resulting from the cyclicity of public revenues, and helps to finance developments. Borrowing, however, is limited in several cases to comply with the budget deficit and the government debt rule. Raising capital is a different contractual relationship in which private capital is raised to implement investments in the public sector (concession).

The other sources of financing, which is dominant in the public sector, are the revenues of the public power, which are collected by the state based on public burden-sharing.[24]

3. Financial theory issues

To understand finances, it is necessary to examine general theoretical issues concerning money, such as the question of what is considered 'money' and how new, innovative products fit into this conceptual system. Economic theories approach the concept of money in a unique way. There is a position that defines it as a historical category, because the notion of money must be redefined due to economic and historical changes. The literature points out that before capitalism, a type of 'money' that

23 Zsugyel, 2009, pp. 44-45.
24 Sivák and Vígvári, 2012, pp. 86-90.

included all monetary functions did not exist.[25] The different money constructions have changed during the economic development, they oftentimes evolved simultaneously and they came into the front in accordance with social and economic needs. It can be concluded that these forms are primarily important from the aspect of their functions.[26]

Another scientific point of view approaches the concept of money from the side of its exchange function and points out that money could be anything that serves as a generally accepted mean of exchange. By the 18th century, this was basically gold and silver due to their inner value, and the value stability of money was not ensured by the state but by its inherent value.[27]

According to another scientific point of view, money is considered an innovation that facilitates the reduction of transaction costs. According to this viewpoint, state involvement is not required for something to be approved as a valid currency, but without the approval of the state it cannot become a usual mean of payment.[28] Money could play its full role as commodity money when the state and the society accepted it as a general measure of value and a common currency.[29]

It is clear, therefore, that there are several different concepts in economics related to the notion of money, and there is no such generally accepted notion. The functional approach to money usually prevails, and the general currency nature is separated from the definition of money, thus state recognition is not required for becoming a currency. This economic viewpoint has a broad interpretation of the concept of money.

Theoretical works on money distinguish three basic functions of money: exchange, accounting, and value keeping.[30] Money conveys the exchange of goods as a general exchange tool, thereby facilitating the trade of goods. As a tool of accounting, the value of the things can be measured in monetary units, and their price can thus be expressed. As a value-keeper, the risks of money-keeping are low, and the exchange of goods can be provided even during certain periods. The literature also discusses other monetary functions, such as world money—a tool of asset-keeping and credit functions. In the function of world money, money plays an important role in the field of international finances. Due to the function of asset-keeping, money facilitates the accumulation of wealth, although its extent might differ in historical periods due to the change in the economic situation, and it prevails less in the modern economy, as

25 Botos, 1983, pp. 15-22. The author points out that a peculiar historical evolution took place when different monetary functions were performed by different kinds of money. These primarily served a payment function, and their function was not particularly important in the exchange process. Due to the development of commodity production, the role of money in the exchange increased, and 'commodity money' appeared. With the growth of external trade, commodity money was replaced by 'credit money,' which leads to the formation of modern money.
26 Nagy, 2019, pp. 1-10.
27 Samuelson-Nordhaus, 2012, pp. 414-415.
28 Ábel, Lehmann, and Tapaszti, 2016, pp. 33-38.
29 Gárdos, 2016, p. 19.
30 Samuelson-Nordhaus, 2012, p. 416.

other financial instruments are more suitable for asset holding. The credit function of the money is related to the creation of money—that is to say, the issuer of the money obliges itself to accept the given form of money to repay debt.[31]

The essence of modern money is well illustrated by its appearance. Modern money is transaction money, which consists of two components, cash (currency and coins) and bank account money, that means the positive balance recorded in the account.[32] The latter form does not appear physically, but only as an electronically recorded claim.[33]

In the modern economy, the role of credit money is determinative, and it is created by banks. Moreover, it can perform all the functions of trade, payment, and accumulation. Consequently, a significant part of modern money is passive bank debt.[34] Money-making has several theoretical approaches, of which credit money and endogenous money theory points out the connection of the role of the money and bank system and the central bank. According to this theory, banks can create money independently from the central bank through lending, but the central bank can influence this process through the determination of the conditions of crediting; this does not fall outside the scope of monetary policy. The constraint to money creation is the demand for credit, which is affected by economic processes, state decisions, as well as the regulation of the central bank.[35]

These theories point out that state involvement is not necessary for the creation of modern money in all cases, but regulation of the process is required, i.e., there is fiscal and monetary policy regulation behind economic processes. Therefore, we also need to examine what is meant by 'money' in legal terms. In the creation of money, economic processes and its generally accepted that nature played an important role throughout history; however, it was the regulation that designated money to be the currency of a given state—that is how it became the official currency which is basically

31 Mester and Tóth, 2018, pp. 72-77.

32 Samuelson-Nordhaus, 2012, p. 415.

33 Gárdos, 2016, p. 22. The author points out that payments in modern market economy are processed between bank accounts. The positive balance that appears on the bank account is the debt of the bank towards the client, which allows payments between bank accounts or even the payment of the balance in cash. This bank money does not appear in physical form; rather, the settlement of payments is carried out electronically.

34 Száz,1991, pp. 14-33. Starting from the point of view of the credit money system, the author highlights that the bank account money means bank deposit for the owner, but several forms of bank deposits have evolved, and not all of them can be considered money but rather 'quasi money,' a claim for money. The author includes in this classification deposit accounts, in which no payment transaction is processed, and which serve only as a tool of accumulation.

35 Ábel, Lehmann, and Tapaszti, 2016, pp. 38-46. The study analyses several money-creating theories, including the financial intermediation and financial multiplicator theories. The authors point out that the endogenous money theory became popular and more acknowledged after the crisis, even though the curriculum of macroeconomic textbooks typically covers the money multiplicator theory. This latter theory does not dispute the creation of money by banks, but central bank reserving is an important element of the process.

realized as a public act—therefore, public regulation prevails, without disputing the role of money in private law.[36]

In the Hungarian regulation, for instance, the official currency is established in the Fundamental Law and the Act on the Hungarian National Bank (Magyar Nemzeti Bank, or MNB).[37] The Fundamental Law provides that the official Hungarian currency is the forint, but this certainly does not exclude the official currency nature of foreign currencies. All official currencies must be protected; however, with the national currency, a special national legal protection prevails. The MNB is entitled to issue banknotes and coins in the official currency, i.e., to issue and put forints into circulation. Forints issued by the MNB is therefore the official currency of Hungary, which must be accepted at its nominal value. For the other form of modern money, private law acts are also involved. The creation of account money is realized through a private law act, as the contractual relationship is concluded between two actors under private law.[38] Banks, however, are under strict monetary regulation through public law and are due to the central bank. State regulation and supervision prevails, as it does with cash.[39] It is important to highlight, however, that bank account money is primarily only a form of the manifestation of money; its value lies in its convertibility to cash at any time. Thus, bank account money is rooted in cash, which was created in the sphere of public law. It is worth noting that bank account money created the possibility of excessive money creation and the spread of credit money. Banks have this possibility in the form of association under private law, but public law and monetary regulation strongly prevail.

Crypto instruments belong to digital financial means, which consist not only of cryptocurrencies but also other financial instruments, which operate as decentralized services based on digital technologies. Some crypto instruments have the function of money (e.g., Bitcoin), while others belong to the category of infrastructure-securing instruments (e.g., Ethereum), and a third group are instruments of service provision (e.g., Augur).[40]

Digital technologies are carried out through blockchain technology. Blockchain is a database where data can be stored and moved, but a network is needed for their placement, i.e., the Internet. This technology uses a divided network, which means that there is no hierarchy in this system, and that certain junctions (computers) are

36 Erdős, 2004, p. 10. For the legal definition, see for example: Act XCIII of 1990 on charges. Interpretative provisions: Article 102 (1)(c): *movable property:* currency, securities, deposits in the undertaking as well as everything that does not fall under the scope of immovable property. The author points out that, regarding the notion of money, in legal terms it is movable property, which has the above-listed economic substantive parts (official currency of a country, tool of accumulation, tool of exchange.) Account money is without movable content. Cash does not appear in the legislation as money, but it is defined as a movable thing.

37 Article K) of the Fundamental Law of Hungary: The official currency of Hungary shall be the forint. Article 4 (2) and Article 23 (2) of Act CXXXIX of 2013 on the Hungarian National Bank provides the designation of the official currency in addition to the Fundamental Law.

38 Gárdos, 2016, pp. 29-31.

39 Zeman, Kalmár, and Lentner, 2018, pp. 130-140.

40 Gábor and Kiss, 2018, pp. 31-32.

connected to each other. This differs from the decentralized network in the sense that there we connect others through a service provider. The technology itself serves not only for moving cryptocurrencies.[41] Cryptographic procedures are also required for the functioning of crypto instruments. The gist of the procedure is that the device must be adequately protected with encoding and it should be accessible to those for whom it was intended. Due to the cryptographic procedure, the concluded transactions can be credibly confirmed without an intermediary body.[42]

Digital technology includes the possibility of decentralization, i.e., transactions can be carried out without financial intermediaries due to the direct connection between customers. This is an advantage from the perspective of costs, but it is also a disadvantage, as the system falls outside the scope of state control, which raises issues such as monetary regulation, money laundering, financial consumer protection, and taxation.

The group of crypto instruments covers the category of cryptocurrencies, which include several currencies. Several views have emerged in relation with the concept and characteristics of cryptocurrencies. Regarding the name, the literature mostly uses the term 'cryptocurrencies' but the more accurate name would be 'crypto money.'[43] In a broad interpretation, the concept of cryptocurrency is considered a digital financial instrument that functions as a general value measure, an exchange tool, and an electronic means of payment.[44] In addition, according to one view, crypto money is a decentralized, generally accepted and used money that cannot be considered an official currency, in that is not issued by the central bank but by a development team and that uses cryptography.[45]

41 Győrfi et al., 2019, pp. 57-64. The authors point out that blockchain technology is based on the Internet. Three basic types of networks could be distinguished: centralized, decentralized, and the divided network. All three types of networks connect junctions that are physical computers. As part of a divided network, the junctions store, update, and share the list of transactions of the system—the blockchain—among themselves to increase security.

42 Glavanits and Király, 2018, pp. 174-176. The authors clarify the conceptual framework of the issue in their study. According to them, the blockchain is a shared book or a decentralized database that is public and due to cryptographic procedures, it credibly and unalterably proves the data recorded without any intermediary body or person. Cryptography was originally equivalent to encryption, but today it is an independent mathematical-information technology science that helps information to be transformed and sent so that the message can be accessed by those for whom it was originally intended.

43 Győrfi et al., 2019, p. 37. In accordance with the literature, the name 'crypto money' is more accurate than 'cryptocurrency,' since—as the literature points out—this is not tangible, it has no physical form, and it does not appear in paper form.

44 Győrfi et al., 2019, 37. Varga and Sárdi, 2017, p. 109.

45 Glavanits and Király, 2018, pp. 178-179. According to the authors, cryptocurrencies are decentralized digital currencies that cannot be classified as official currencies, but they are generally accepted and used as means of exchange or payment and they are not issued by a central bank or state authority, but by a development team, which regulates, controls the cryptocurrencies, and uses cryptography for issuing and storing units of cryptocurrencies and for recording transactions. Cryptocurrency is thus considered a digital currency and a virtual currency. According to them, digital currency is a currency that only exists in digital form, it is stored, exchanged, and transferred digitally, but it does not appear physically, in the form of cash.

These definitions are typically not legal concepts, but rather approach the notion from an economic point of view, so the legal concept is still not developed. The reason for this is that in several countries, including Hungary, cryptocurrencies are not acknowledged as official currencies; moreover, the central bank considers them to be alarming from a financial point of view.[46] According to the MNB, cryptocurrencies are much riskier than traditional economic financial solutions, since their issuer is not subject to the supervision of the central bank as there are no appropriate liability, warranty, or indemnity rules. According to MNB analysts, problems might occur when buying these types of financial instruments, as they are obtained directly from the user and may be out of stock, within which case there is no guarantee of availability. Another problem is the digital data storage of money, where money can be stolen by hacking the underlying code. Transactions in the system are not ensured by consumer protection, so there is no authority to turn to when one's rights are infringed. There are no liability or compensation rules behind this money, so there is no possibility of institutional damages; the individual consumer bears all the damage resulting from the transaction. According to the MNB, the risks are further increased by the fact that the exchange rate of cryptocurrencies is extremely variable.

All these counter-arguments touch upon real problems, but it is important to emphasize that a major part of these risks appear in regulated markets as well with financial instruments. Of course, it is a different matter to compare cryptocurrencies to official currencies. From this perspective, MNB's warning is completely relevant; on the other hand, if we consider these monies as financial instruments, then the propositions are partially true. It is a fact that the digital background and the public trust constitute the basis of the functioning of cryptocurrencies, and consensus elevates them into the scope of financial instruments.[47] Investors must be aware that the cryptocurrency market is not regulated, so all law enforcement, consumer protection, and supervisory options that appear with regulated markets, do not provide protection for customers here.

4. The role and regulatory issues of the monetary system

The balanced functioning of today's economy is unimaginable without the instrumental system of monetary policy, where it is regulated by both the state and the central bank. Monetary policy influences the financial system through direct and indirect financial regulators, and is expected to facilitate the implementation of the main goals of fiscal policy in line with budgetary policy, but with an autonomy that is independent from it. The independence of monetary policy is enforced by regulation

46 https://www.mnb.hu/archivum/Felugyelet/root/fooldal/topmenu/sajto/sajtokozlemenyek/bitcoin_kozl

47 Győrfi et al., 2019, p. 27.

through independence from the central bank; the central bank is independent from the government and its organs, and it is accountable to the state's law-making body.

The flexible measures of monetary policy that affect certain economic sectors selectively imply either monetary expansion or monetary restriction. Monetary expansion means a general expansion of money supply and credit, which results in greater output, increase of demand, and growth of employment. Monetary expansion means a general tightening of money supply and credit, which holds back the economic growth.[48]

Monetary policy can influence financial processes and the economy in the short- or medium-term; however, it depends on the tools of monetary policy. These tools can be divided into six groups:[49] reserve rules; refinancing; interest rate regulation; securities operations; exchange rate policy; and other central bank assets.

The financial system maintains the circulatory system of the economy because financial resources flow from savers to investors. Financial intermediaries connect financial resources to their users in national and international markets. Financial operations are thus carried out through the institutions of the financial system. The financial system includes the financial market, the capital market, and the insurance market. These markets are closely connected with each other through financial intermediaries. Financial intermediaries are institutions that provide financial products and services.[50] Each sub-market has its own financial intermediary institutions, so financial institutions operate in financial markets, stocks and investment firms operate in capital markets, and insurers operate in the insurance market. The close relationship between different markets within the financial system is indicated by the fact that large financial intermediaries typically operate as financial conglomerates: a financial intermediary operates on all markets, which poses challenges to legislation and financial supervision. The financial system is regulated by both public law and private law. Public law regulation plays an important role in the regulation of the institutionalization, control, supervision, establishment, termination, and operation of the financial system.

The modern financial system has several functions:[51] reallocation of resources, risk management, fundraising and its distribution, and clearinghouse function.

Over time, resources can be reallocated through sectors and regions as well. Due to the flow of money, the market provides the resources for investments and loans where they can be the best utilized. The international flow of financial resources is provided through the international financial system.

Through risk management, individual risks can be reduced and can be spread among other risk bearers. Through insurance, we can get rid of the significant one-time risk of return of payment, spreading the risk of damage over a wide range

48 Huszti, 2001–2002, pp. 50-52.
49 Ibid., pp. 53-54.
50 Samuelson-Nordhaus, 2012, pp. 410-411.
51 Ibid., p. 412.

of risk-bearers. The significant risk becomes tolerable if it is borne in small parts by many.

The financial system allows funds to be concentrated to huge and risky investments, thus allowing small investors to participate in investments with less risk. Investment funds collect the funds of small investors for a larger investment, dividing the investment opportunity into smaller parts and spreading them among several differentiated investment, offering less risk for the investor.

Under the clearinghouse function, the financial system ensures the money flow through the fast handling of transactions. During the transactions, the bank will debit the account of the one who transferred the money, then the bank indicates the transfer on the account of the one who accepts it. Due to digitalization, these transactions have been significantly shortened and become cheaper on the financial markets.

The financial system deals with a wide range of financial tools. The literature considers the following to be financial tools:[52] money, bank deposits, credit market instruments (government annuities, corporate annuities), shares, units of the financial market and investment funds, pension contributions and the funds managing them, financial derivatives (derivative tools that are based on the value of other assets, that could be derived from these assets, e.g., stock option).

The central institution of the monetary system is the central bank. However, the independence of the monetary policy of the eurozone ceased to exist. The monetary policy of the eurozone countries is conducted by the European System of Central Banks and its central institution, the European Central Bank.[53]

Even though the monetary policy of the central banks supports the fiscal policy, it is independent in terms of the formulation of monetary policy, of which four elements are defined in the literature:[54] operational independence, institutional independence, personal independence, and financial independence.

Operational independence means independence from the government, which is essentially important only with central banks that have joined the eurozone.

Institutional independence is embodied in the formulation of an independent monetary policy. For this end, the central bank may not be instructed by the government or its organs, moreover, the central bank might not ask or accept any instructions from the institutions of the government sphere.

Personal independence means that the decision-making bodies of the central bank might not take instructions during the performance of their duties from EU institutions or organs, nor from the state and the governments of the Member States and their organs.

Financial independence is a separate criterion that indicates that the central bank has the financial resources to carry out its tasks. This is guaranteed by the significant amount of funds, and the fact that it develops and defines its own management.

52 Ibid., p. 413.
53 Kolozsi-Lentner, 2006, pp. 53-55.
54 Ibid, pp. 42-46.

Besides independence, an important feature of central banks is the system of monetary policy objectives that they pursue. In this regard, the literature distinguishes three different forms of central banks:[55] complex system of objectives, inflation target-tracking, and exchange rate target-tracking.

With the complex target system, the central bank is guided by comprehensive objectives, such as maintaining economic stability, which includes several sub-goals (economic growth, low inflation, low unemployment rate, etc.).

Regarding inflation target-tracking, the central bank seeks to maintain low but positive inflation and uses the tools of monetary policy to do so.

If a given country maintains a fixed exchange rate, the central bank must subordinate its monetary policy to achieve the exchange rate target. The fixed exchange rate means that the government determines the conversion rate of its own currency to another currency.

The central bank is a central institution of the banking system, which can be described by several criteria. The central bank is the bank of the state, the bank of the banks,[56] and a body that performs macroprudential functions and, optionally, microprudential functions.

The central bank has the monopoly over issuing coins, i.e., the right to issue the official currency; moreover, it collects foreign currency and gold reserves. The state has full, partial, but in any case majority, stake in the central bank. The central bank, as the bank of the state, supports the economic policy of the government without threatening its primary goal. This regulation does not affect the independent economic policy of the central bank, but it shows that consistency in fiscal and monetary policy is an important condition of financial policy. As the bank of the state, in the framework of expert tasks, it assists the state in borrowing; moreover, it maintains the accounts of state organs and the unified budgetary account, if required by law. In the role of the central bank, the bank of the banks maintains the accounts of credit institutions, influences the lending and liquidity of the banking system, regulates the operation of the banking system, and, as the ultimate lender, it provides exceptional credit to banks struggling with liquidity problems.

Macroprudential supervision became widespread among central banks after the economic crisis of 2008. Within this framework, the central bank explores the risks threatening the financial intermediary system, and reduces or eliminates the emergence and spread of risks.

Besides macroprudential supervision, microprudential supervision is an option. Microprudential supervision is performed either by the central bank or by a separate supervisory body. This type of supervision and control targets specific members of the financial intermediatory system and individual organizations.

A good example of the efficient operation of monetary policy is the economic crisis that resulted from the recent pandemic, where the central banks applied specific

55 Samuelson-Nordhaus, 2012, pp. 431-432.
56 Huszti, 2001–2002, pp. 54-58.

instruments.[57] To implement monetary policy, the central bank has a wide range of tools at its disposal, through which it can influence the supply of money and credit as well as the demand for money and credit.[58] These instruments could be regarded as traditional central bank instruments. However, the previous economic crisis[59] has already brought new trends in the monetary policy of the world's leading central banks. The literature points out that new elements have been added to the toolkit of central banks and their role in managing the economic crisis has significantly increased. The reduction of interest rates, which is a conventional instrument, has no longer had a sufficient effect below zero interest rate. Thus, some central banks have announced purchase programs of securities, thereby increasing financial market liquidity.[60] The European Central Bank applied a new tool with the acceptance of corporate credit claims as coverage in the economic crisis of 2008, which became an important tool in the monetary policy in the eurozone even after the crisis.[61]

The central bank toolkit related to the current crisis has further expanded, and not only in volume. The Federal Reserve System—the central bank of the United States, often referred to as simply 'the Fed'—acted quickly in the economic crisis, announcing the reduction of the interest rate as well as quantitative easement without financial envelope. The Fed has purchased government annuities, real estate-based mortgages, and corporate annuities.[62] The MNB has also changed its monetary policy toolkit to mitigate the effects of the economic crisis. In its summary related to the COVID-19 crisis, the MNB determined the objectives of monetary policy in detail, and the instruments allocated to it.[63]

The Hungarian National Bank divides the tools into three areas based on objectives: ensuring liquidity, more flexible shaping of short-term yields, and assets influencing long-term yields.

To increase liquidity, the central bank applies new tools. The MNB expanded the scope of eligible collaterals with corporate loans, that is, claims against large corporations. As a result, capital debts under the Hungarian regulation of more than one billion forints could be included in the collateral of the central bank. In addition, the

57 Nagy, 2021, pp. 174-193.

58 The instruments of monetary policy include the acceptance of deposits and the granting of credit, open market operations and repurchase agreements, the issue of own securities, the determination of exchange rates and interest, the regulation of securities discounting and rediscounting, and the regulation of obligatory reserves.

59 Nagy, 2020, pp. 85-88.

60 Lentner, 2019, pp. 184-185.

61 The monetary policy toolkit of the Hungarian National Bank during the COVID-19 pandemic: https://www.mnb.hu/letoltes/jegybanki-eszkoztar-2020-covid19-en.pdf (Accessed: 15.12.2020.)

62 Gazdasági válság 2020: A modern monetáris elmélet lesz a megoldás? Elemzésközpont, https://elemzeskozpont.hu/gazdasagi-valsag-2021-modern-monetaris-elmelet-lesz-megoldas (Accessed: 15.12.2020.)

63 The monetary policy toolkit of the Hungarian National Bank in the time of the COVID-19 pandemic: https://www.mnb.hu/letoltes/jegybanki-eszkoztar-2020-covid19-en.pdf (Accessed: 15.12.2020.) The monetary toolkit will be presented primarily according to this in the following section.

resources of the central bank have become available to investment funds, allowing them to borrow from the central bank with the coverage of units (units of denominated securities and real estate funds). A long-term central bank loan facility has also been introduced to reduce tensions of the financial market. Thus, the stability of the financial market must be ensured by a fixed-term, secured loan provided by the MNB, with a maximum validity of five years based on the base rate of the central bank. The provision on the reserve requirements also increased liquidity. The central bank has suspended the obligation of reserves, so legal sanctions are not applied in the case of non-compliance with the regulations.[64]

To ensure the flexibility of short-term yields, the central bank reintroduced the tool of the one-week deposit, and it made the interest rate corridor symmetrical. The middle of the interest rate corridor became the base rate of the central bank, while the two edges of it became the one-day deposit interest rate and the interest rate of the one-day or one-week secured loan interest. This provides the flexibility for monetary transmission.

The introduction of instruments affecting long-term yields also serves the increase of liquidity. The central bank, on one hand, restructured the Funding for Growth Scheme; on the other hand, it launched a new program, Funding for Growth Scheme Go!, with which the domestic business financing can further expand. This can be perceived as advantageous financing, but it is not certain that it will bring a completely new liquidity, as companies can use them to replace their previous loans.[65] With the modification of the Funding for Growth Scheme,[66] the central bank relieved the conditions, thus the exposure to a company group increased to 50 million forints, and the validity of the bonds changed to 20 years. These include the introduction of the abovementioned long-term credit instruments and the asset purchase program. In the framework of the latter, the central bank decided on the purchase of government annuities and mortgage bonds. The frame for the purchase of government annuities is not defined, so the central bank will continue it as long as the economic crisis justifies it. Within the framework of the mortgage bond purchase program, launched in 2018 and re-launched in 2020, the MNB purchases fixed-rate mortgage bonds issued in forints in the primary and secondary market, which have a minimum remaining validity of one year and are publicly traded on the Budapest Stock Exchange. Thus, in addition to traditional monetary policy instruments, the central bank uses other instruments to increase liquidity that are also used by major central banks, and therefore play a key role in the financial market.

64 Act CXXXIX of 2013 on the Hungarian National Bank, Articles 19–20. In a decree, the governor of the MNB may require financial institutions and investment firms to place reserves with the MNB, in proportion to their assets and off-balance sheet items.

65 Palócz and Matheika, 2020, p. 586.

66 The Funding for Growth Scheme was launched in 2019 for the increase of the liquidity of the corporate bond market. In the framework of the program, the MNB purchased bonds issued by non-financial corporations in an allocated budget of 1150 billion forints. https://www.mnb.hu/monetaris-politika/novekedesi-kotvenyprogram-nkp (Accessed: 20.12.2020.)

The crisis does not leave the operation of the banking system intact, as the risk of financial institutions increases with the crisis. The literature emphasizes that the banking system was more prepared for the current crisis, because the 2008 crisis was followed by strong regulation.[67] Risks, however, can occur at both individual institutional and the systemic levels. The operational risk of banks has changed, and new risk factors are emerging due to the pandemic. Ensuring that no (or only small) losses arise from risks is an important task of credit institutions. The scientific analysis points out the risks that became determining due to the pandemic and highlights their importance as follows.[68]

The importance of geopolitical risk has increased; the economic crisis arising from the pandemic has spread throughout the world economy. Resilience is a significant risk element, i.e., the capacity of the enterprise to restore its operation after a possible crisis. In connection with the activity, the risk of outsourcing—whether an external partner can maintain its operation in the event of loss of staff and office conditions—must be highlighted. As a result of the virus, working from home remotely has increased, which carries further risks due to a reduction of discipline and rapid transition. As a result, the number of internal and external frauds and cyber-attacks is increasing. In the latter case, data loss, data theft, or system stoppage might also occur. These risks are closely related to the individual risk of employees and the related institutional risk. These have also increased because of remote work.

The operation of banks is also influenced by the loan repayment moratorium that was ordered by the state, which allows companies and households to prolong their loans, which also increases liquidity and helps the operation of companies. Besides this, the economy of households is also affected by the maximization of the total cost of the credit ratio for consumer loans.[69]

All these risks provide an opportunity for the legislator to re-regulate certain areas based on experience, as this might not be the last pandemic emergency. Drawing the conclusion from the experience provides an excellent opportunity to pursue further scientific research.

67 Terták and Kovács, 2020, pp. 372-373.
68 Tamásné Völneki, 2020, pp. 325-327.
69 The convergency program of Hungary 2020–2024: https://ec.europa.eu/info/sites/default/files/2020-european-semester-convergence-programme-hungary_en.pdf (Accessed: 15.12.2020.)

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