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Márk JOÓB[1]

The Importance of the Monetary System Regarding Sustainability

In my article I will delineate the most important components of my research project relating to the link between the monetary system and sustainability. First, I will present the mistaken traditional monetary theory which recognizes commercial banks as financial intermediaries and I will describe how money is created in reality. Then, I will summarize the problematic aspects of the current money and banking system in ten points all of which concern the issue of sustainability. Finally, as an alternative, I will present a sustainable money and banking system which would assign the task of money creation to the state and transform commercial banks into actual financial intermediaries.

Keywords: sustainability, monetary system, money creation, money theory, sovereign money system
JEL Codes: E40, E50, E60

A pénzrendszer kulcsfontosságú szerepe a fenntarthatóság szempontjából

Cikkemben a pénzrendszer és a fenntarthatóság kapcsolatára irányuló kutatási projektem legfontosabb elemeit kívánom vázlatosan ismertetni. Először bemutatom a téves hagyományos pénzelméletet, amely a kereskedelmi bankokat pénzügyi közvetítő intézményekként írja le, majd ismertetem, hogy hogyan történik a pénzteremtés a valóságban. Ezután tíz pontba összefoglalom a jelenlegi pénz- és bankrendszerből fakadó problémákat, amelyek mind érintik a fenntarthatóság kérdését. Végül röviden bemutatok egy alternatív, fenntartható pénz- és bankrendszert, amely állami kézbe adja a pénzteremtést és a kereskedelmi bankokat valóban pénzügyi közvetítő intézményekké alakítja.

Kulcsszavak: fenntarthatóság, pénzrendszer, pénzteremtés, pénzelmélet, közpénzrendszer
JEL kódok: E40, E50, E60

[1]A szerző a Nyugat-magyarországi Egyetem Közgazdaságtudományi Karának címzetes egyetemi tanára (mark AT joob.org)

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Traditional monetary theory

Generally, neither sustainable development professionals nor economists are aware of the central role the monetary system plays with regard to sustainability.[2] One of the main reasons is that for several decades economics has been dominated by a monetary theory that gives a false description of the monetary system and the role of money in the economy. According to this traditional monetary theory, money on the macroeconomic level is basically neutral and therefore an ignorable factor.[3] A popular English textbook for instance states the following concerning economic growth: "Incorporating money in models of growth would only obscure the analysis" *(Romer, 2006, 3).*

According to the traditional monetary theory, money has three functions: it is a medium of exchange, a store of value and a unit of account.[4]Money however has a more important role in the economy than these three functions suggest. Money is not only a neutral means which boosts economic transactions but money in fact rules the economy. The mechanisms of the monetary system largely determine the whole economy.

The mistaken traditional monetary theory recognizes neither the basic problems existing in the current money and banking system nor the negative impacts of this system on society and the environment. Therefore, it also ignores the key point that sustainable development essentially requires a money and banking system that is consistent with economic, social and environmental sustainability. Mainstream economics not only neglects this point but also rejects system-level criticism implicitly presupposing that there is no better or more efficient money and banking system than the existing one or that, at present, a fundamental transformation of the existing system is not possible.

The theory of financial intermediation

The theory of financial intermediation states that commercial banks are financial intermediaries. According to this theory, commercial banks collect savings as deposits in order to lend them out as loans. This way, they act as intermediaries between savers and borrowers. Depositors receive interest for allowing the bank to temporarily use their money while borrowers pay interest for the temporary use of the money provided by the bank; this money originally is the depositors' money so the actual creditors of the borrowers are the depositors. Commercial banks merely provide financial intermediation services for which they receive as an income the difference between the higher interest on loans and the lower interest on deposits – in addition to the banking fees charged on their customers.

The theory of financial intermediation underlines that money mediation performed by commercial banks is a complex activity since it includes three types of transformation: asset, maturity and risk transformation.[5] Asset transformation stems from the fact that the collected deposits individually are of different – typically lower – amounts than the credits granted. Maturity transformation means that the pace of loan repayment differs from the deadlines within which depositors – with sight or term deposits – can demand the repayment of their deposits. Risk transformation, finally, means that the risk to depositors are significantly lower than the risks related to single loans, which results from the deposit insurance system and the diversification in lending.

From the theory of financial intermediation follows that the households' savings deposited at the commercial banks are necessary prerequisites for funding business

[2]With the exception of the internationally acknowledged Herman E. Daly (1996).
[3]See eg.: Lucas 1972.
[4]See Issing 2007, 1ff.
[5]See Gischer et al. 2012, 7f.; Erdős and Mérő 2010, 19 ff.

investments by loans, in other words: that there cannot be any investments without savings. On the other hand, the theory of financial intermediation suggests that the money stock in the economy is an exogenous factor – independent from the activities of commercial banks – that is fully controlled by the central bank, which means that the amount of money that can be intermediated by the commercial banks is determined exclusively by the central bank. Based on the above it seems that within the existing framework of market-economy and the dual banking system commercial banks only provide assistance for the efficient investment of savings so they do not have an essential role on the macroeconomic level and it is needless to take them into consideration in macroeconomic models. The dominance of this mistaken concept in economics is confirmed by two IMF researchers, according to whom "...for practically the entire post-war period, macroeconomists did not see the private financial system as an important source of vulnerability that required an explicit model of banking. Banks were therefore not incorporated into macroeconomic models." *(Jakab and Kumhof, 2014, 4)*

Almost all textbooks and other reference books on economics published in the last decades describe the banking system based on the theory of financial intermediation. In a recently published Hungarian book for instance the authors write: "Deposits are the banks' major resources, and in the course of intermediation they finance their assets by the funds collected from their depositors, and their most important assets are the loans they grant." *(Erdős and Mérő, 2010, 45)* Richard A. Werner *(2014)* provides a comprehensive overview of the relevant English-language literature and summarizes his findings based on dozens of books that globally determine economic discourse and education, as follows: "Since the 1960s it has become the conventional view not to consider banks as unique and able to create money, but instead as mere financial intermediaries like other financial firms, in line with the financial intermediation theory of banking. Banks have thus been dropped from economics models, and finance models have not suggested that bank action has significant macroeconomic effects. The questions of where money comes from and how the money supply is created and allocated have remained unaddressed." *(Werner, 2014, 12)*

The money multiplication theory

An elaborated version of the financial intermediation theory is the money multiplication theory. The money multiplication theory recognizes that commercial banks create money and describes this process as a multiplication of already existing money by financial intermediation. There are actually two different variants of this theory: one starting with deposits and another starting with reserves.

The variant of the money multiplication theory starting with deposits asserts that a single bank alone cannot create money; it can do so only together with other banks through a chain of lending and borrowing among customers with bank accounts at different banks.[6] The chain starts with a first deposit from which the bank must withhold a fraction as a reserve. If the deposit is 100 euros and the reserve ratio required by the central bank is 1% – as is the case in the Eurozone – then the bank has to withhold one euro. The bank now has loanable funds amounting to 99 euros (100 euros deposit minus 1 euro reserve) and may lend the 99 euros. The chain continues when this amount is deposited in another bank which again withholds the required reserve of 1% and may lend the remainder. If this chain is infinitely continued, then the total amount of newly created deposits could reach 9.900 euros which means that the starting deposit of 100 euros could be multiplied 99 times. The ability of the banking sector to mulitply existing money, that is, to create new money depends on the reserve requirement. A reserve requirement of 100%, for example, would entirely stop the

[6]See: Werner 2014, 6ff.

banking sector's money creation. In the end, this theory assumes that the potential of the banks to collectively create money is a multiple of their reserves.

The other variant of the money multiplication theory starts with reserves instead of deposits and states that banks must have reserves before they can create deposits by lending money. The result of this theory is that commercial banks multiply their reserves when they lend to their customers. The potential and the limits of this multiplication is often described by a money multiplier that takes the reserve requirement and the demand for cash into account.[7] Thus, this theory also claims that the potential of banks to create money is a multiple of reserves and these reserves therefore are only a fraction of the total amount of money in circulation.

The money multiplication theory in both of its variants is founded on the assumption of commercial banks being financial intermediaries since it starts with already existing money – a first deposit or reserves – that comes from outside the banking sector and is channeled and multiplied by the commercial banks in a process of financial intermediation.

Money creation in reality

Neither the intermediation theory nor the money multiplication theory is correct – as confirmed by the Bank of England: "Money creation in practice differs from some popular misconceptions – banks do not act simply as intermediaries, lending out deposits that savers place with them, and nor do they 'multiply up' central bank money to create new loans and deposits." *(McLeay et al., 2014, 14)*

In reality, banks can lend money without any deposits or reserves.[8] This is possible since they can create money out of thin air through simple account entries – something Richard A. Werner *(2014)* has proven with an empirical test. When making loans, commercial banks just expand their balances by adding deposits to their liabilities and adding loans to their assets. The loans consist of newly created money. Only in a second step, commercial banks may have to get reserves (and cash) from the central bank. These reserves (and cash) are granted as loans from the central bank to the commercial banks and, like any other loans, they require collateral. Commercial banks in many cases are allowed to use the loans they have made to customers as collateral for reserves so, in reality, these reserves hardly ever limit their potential to create money. The only limits to their money creation are the creditworthiness of their borrowers and the existing equity rules (Basel I-III).

Negative effects of the present monetary system

Now that the traditional money theory has been disproved and a correct, that is: realistic concept of money creation has been introduced, it is possible to discover the critical effects of the monetary system as it exists in reality today. In the following, I will summarize the problematic aspects of the current monetary system in ten points.[9] These points clearly show how the monetary system affects sustainability and they, consequently, demonstrate the strong link between sustainability and the monetary system. In this context, it is important to see that sustainability in a broad sense includes not only ecological but also economic and social aspects, such as financial stability and social justice.

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[7] See e.g.: Vigvári 2008, 122f.; Sperber 2009, 217f.; Gischer et al. 2012, 72f.
[8] See: Huber 2013, 42-61.
[9] My summary was inspired by: Huber 2013, Binswanger 2009, Robertson 2012, Lietaer et al. 2012.

Money is created as debt

Today, money comes into existence by debt creation when commercial banks borrow from central banks and when governments, producers or consumers borrow from commercial banks. Thus, the money supply of the economy can only be maintained if the private or public economic actors get into debt. Economic growth requires a proportionate increase in the money supply in order to avoid deflation that would paralyze business, but an increase in the quantity of money involves a simultaneous increase in debt. This way, economic actors run into danger of excessive indebtedness and bankruptcy. It is not necessary to say that over-indebtedness causes serious problems to societies and individuals in the face of the ongoing debt crisis. It began as a debt crisis of private homeowners in the United States and then transformed into a debt crisis of commercial banks and insurance companies before being absorbed by national treasuries and so turned into a sovereign debt crisis. Reductions in national expenditure required to pay off public debt often lead to social unrest and are inequitable, because they impose burdens on citizens who did not profit equally from debt creation.

The money supply is under private control

Only a small fraction of the money circulating in public has been created by central banks. Central banks issue coins and banknotes which in most countries account for just between 5 % and 15 % of the money supply. The rest is created by commercial banks in an electronic form as account money when granting loans to customers or buying securities and goods. In fact, all money, whether cash or account money, is brought into circulation by commercial banks. Therefore, commercial banks *de facto* control the money supply. Commercial banks principally bear the credit risk for the loans they grant, which should induce them to carefully examine the creditworthiness of their customers. However, commercial banks decide which customers are granted loans and which investments are made according to their interest in maximizing their own profits. Whether an investment is socially desirable is definitively not the decisive criterion for commercial banks. This way, investments serving the common good but not being profitable enough are not supported by the banking system and have to be financed by government spending that depends on tax revenues and public debt creation. Instead of financing long-term investments in the interest of society as a whole, commercial banks with their credit business support short-term financial speculation and over the last two decades have actually established a gigantic global casino beyond any public control.

Bank deposits are not secure

Bank deposits refer to account money which in contrast to cash is not legal tender although it is handled as if it were legal tender. Account money is a substitute for money, just a promise from the bank to disburse the corresponding amount of money in legal tender if requested by the customer. In the present fractional reserve banking system, usually only a very small proportion of account money is backed by legal tender. Banks hold only a few percent of their deposits as cash and reserves at the central bank. That is the reason why banks are reliant on the trust of their customers. In the case of a bank run, when too many customers demand cash at the same time, they would run out of cash and such a shortage of liquidity can lead to sudden bankruptcy. Hence deposit insurance systems have been established to avoid the loss of bank deposits. In the case of chain reactions and large-scale bankruptcy as in 2008, however, government bailouts of commercial banks may be necessary, eventually with the assistance of the central bank as lender of last resort.

The money supply is pro-cyclical

Commercial banks grant loans by creating account money in order to maximize their interest revenues. The more money they issue, the higher their profits – as long as the debtors are able to pay. In times of economic growth, banks most willingly grant loans so as to profit from the boom, while in times of economic decline they restrict granting of credit in order to reduce their risks. This is how commercial banks induce an oversupply of money in booms and an undersupply of money in recessions, thus amplifying business cycles as well as financial market fluctuations and creating asset bubbles in real estate and commodities. Such asset bubbles may cause heavy damages to society and to the banking system itself when they burst. Again, the 2008 mortgage-triggered banking crisis after the burst of the US real estate bubble is the most illustrative example.

The money supply fosters inflation

Besides its pro-cyclical character in the short term, in the long term the money creation of commercial banks induces an oversupply of money that leads to consumer price inflation as well as asset price inflation. An oversupply of money arises if the increase in the quantity of the money in circulation exceeds the growth of the production of goods and services. The long-term oversupply of money results not only from traditional granting of credit to governments, corporations and individuals but also from credit-leveraged financial speculation of hedge funds and investment banks. Due to inflation, consumers usually face an annual loss of purchasing power, which means that they have to increase their nominal income in order to maintain their level of consumption. Since the ability to gain compensation for the loss of purchasing power by increasing one's nominal income varies among individuals, inflation causes a redistribution of purchasing power to the disadvantage of those individuals who are not in the position to effectively advocate for their own interests.

The privilege of creating money is a subsidy to the banking sector

Since money is debt, it carries interest. Therefore, interest has to be paid on all the money in circulation and virtually nobody can escape paying interest. Interest is primarily paid by customers who take loans from commercial banks and thereby ensure the money supply. Secondly, everybody who pays taxes and buys goods and services makes a contribution to the interest payment of the original borrower, because taxes have to be raised partly in order to finance the interest payments on sovereign debt. Furthermore, corporations and individuals providing goods and services must include the costs of their loans in their prices. This way, by using money, society pays an enormous subsidy to the commercial banks, though the banks pass on a part of this subsidy to their customers as interest payments on deposits. Interest is a subsidy to the banks because the account money they create is handled as legal tender. The magnitude of the subsidy society pays to the banks is reflected in the disproportionately high salaries and premiums of bankers as well as in the disproportionately large banking sector.

Money as debt contributes to growth pressure

Money created as debt carries interest and thereby contributes to a twofold growth pressure on the monetary system and on the real economy. When customers repay their loans to the commercial banks, the banks write off the returned amount of money and the amount of money in circulation correspondingly decreases. However, debtors need more money than they have borrowed because they also have to pay interest on their loans. Even if the debtors replace their old loans by new ones, they need additional income for interest payments and must therefore realize profits. Business on the whole cannot be profitable unless the quantity of money continuously increases. This leads to the dynamics of growth which is a core

characteristic of our economic system. The increase in the quantity of interest-bearing money exerts a monetary growth pressure on the real economy and the growth of the real economy simultaneously exerts an anti-deflationary growth pressure on the money supply. As a consequence of this twofold growth pressure, our economy is a kind of Ponzi scheme, since it cannot work properly without growing and therefore repeatedly falls into crises. Furthermore, the growth of the real economy, which is to a great extent forced by the monetary system, involves an excessive exploitation of natural resources and is a hindrance to sustainable development. Financial indebtedness thus leads to ecological indebtedness towards nature, which impoverishes mankind. Our current monetary system is just not compatible with a finite world.

Interest on newly created money fosters wealth concentration

Interest is commonly seen as a lending charge for using the money of someone else. Not only the customers who borrow money from banks but also the banks which hold customer deposits pay interest. When commercial banks create money by granting loans, they credit customer accounts and thereby expand the total of bank deposits. Since accounts usually carry interest, the banks spend a part of their interest revenues for interest payments to the account holders. Now, bank deposits and loans are not equally distributed among the customers. Some have mainly loans on which they pay interest whereas others mainly have deposits on which they earn interest. Because in general poorer people have more loans than deposits and richer people have more deposits than loans, interest payments are in total a transfer of money from the poorer to the richer people, especially to the few super-rich. Interest thus fosters wealth concentration. This concentration of wealth favours to a great extent the commercial banks which both make investments themselves and also earn the amount resulting from the considerable interest spread between borrowing and lending rates. Moreover, interest is added regularly to the initial investment and thus carries interest itself turning into compound interest and generating an exponential growth of monetary assets. However, monetary assets do not grow in value by themselves since they are per se not productive. Value-increasing interest on monetary assets can only be generated through human labour; and human labour is permanently under monetary pressure to increase its productivity and lower its costs so as to satisfy the demands of exponentially growing compound interest. Interest on newly created money is therefore a value transfer that favours capital investments to the disadvantage of labour income.

The monetary system is unstable

There is clear empirical evidence showing that the monetary system suffers from structural instability arising from the mechanisms described above. The financial crisis that started in 2008 and is still continuing, if not even worsening, is not a unique phenomenon. In the last decades, numerous crises related to the monetary system occurred around the world. Between 1970 and 2010 a total of 425 financial crises affecting member states of the International Monetary Fund was officially recorded: 145 banking crises, 208 monetary crashes and 72 sovereign-debt crises.[10] The multitude of financial crises and their contagious effect on different national economies plainly demonstrate their structural-systemic character. The present monetary system inevitably evokes crises in finance and consequently in the real economy.

[10]See:Lietaer et al. 2012, 51f.

The monetary system violates ethical values

An ethical value is something that is seen as valuable from a general perspective after careful consideration. Ethical values embody the most rational and most important values of society. Hence, society is badly arranged if its monetary values are in an indissoluble conflict with its ethical values and these ethical values are permanently suppressed because of monetary values. Since the monetary system largely shapes the economy and the economy broadly forms society, ethical values not contributing to the profitability of capital are systematically neglected in today's policy making. This way, our current monetary system violates ethical values such as sustainability, including financial stability and social justice – values that are essential for a liveable society. A monetary system that violates these values is quite unreasonable and should be reformed.

The sovereign money system[11]

The negative effects of the present monetary system that I listed above could to a great extent be removed by introducing a sovereign money system. The concept of the sovereign money system (the German term is: Vollgeld) has been elaborated by Joseph Huber *(2013)*. On the political level, the Swiss Association for Monetary Modernization in 2015 has collected enough signatures in order to launch a referendum on the establishment of a sovereign money system in Switzerland by changing the constitution.

A core demand of the sovereign money concept is that electronic money should be declared legal tender and should remain in the possession of the bank customers. Thus a sovereign money reform would strengthen private property.

The concept also wants the central bank to have the exclusive power to issue electronic money as it has the monopoly over the issuance of cash today. This way the monetary system could serve democracy and the common good with the possibility of reducing national debt and financing the social safety net.

In a sovereign money system the unnecessarily complicated two-level banking system would be replaced by a single-level system, in which money is no longer backed by reserves, but money itself is the reserve. This way, a transparent, well ordered monetary framework could be established instead of the existing bad framework that governments attempt to straighten out with evermore complex regulation consisting of the fractional reserve system, deposit insurance and equity rules (Basel I-III).

The sovereign money concept aims to establish the central bank as a sovereign public authority with total control over the money supply, both cash and electronic money on current account holdings. This monetary authority would represent a fourth separate and largely independent section of the state besides the legislature, the executive and the judiciary. The monetary authority would be bound by law to expand the money supply according to the growth potential of the real economy. This would effectively reduce business cycle volatility which today causes severe harms to the economy.

The money created by the monetary authority would be transferred to the Treasury and would come into circulation by public spending; thus, it would benefit the public purse and contribute to the reduction of national debt.[12]

Public revenue would be especially high in the moment of transition to the sovereign money system when the money owed to commercial banks becomes owed to the monetary authority, which would significantly reduce public indebtedness. In the transition period,

[11]For a short discussion of other monetary alternatives see: Joób 2014, 176-189.
[12] This is impressively demonstrated in an IMF working paper by Benesand Kumhof 2012.

commercial banks would be given a bridging loan from the monetary authority so as to avoid a credit crunch.

A great advantage of the sovereign money system is that money would be issued debt-free by the monetary authority and would therefore not carry interest – unless, in a following step after being created, it is lent by its owner as an investment, for example to a commercial bank. Debt-free money issuance would considerably alleviate the current social and ecological problems arising from interest, such as forced economic growth and redistribution in favour of capital. Commercial banks, on the other hand, would not be allowed to create electronic money any more. They would become what they are supposed to be today: financial intermediaries which can only grant loans from money that they have previously collected i.e. borrowed from customers or earned by income.

The sovereign money system faces some problems. The goal of establishing public control over money creation could be thwarted by the emergence of new financial instruments, especially bank-created securities, taking over the function of money. This is a serious danger to a sovereign money system, in particular with regard to the interbank market. Financial regulations would be needed to prevent the emergence of near monies which would impair the monetary authority's control over the money supply, for instance by prescribing a minimal holding period for financial instruments.

Another problem that needs to be resolved in a sovereign money system is how to secure the independence of the monetary authority. Since governments generally seek to increase public revenue in order to enlarge their scope of action, they would be tempted to put pressure on the monetary authority to issue more money than the potential of the real economy and the principle of sustainable development in a given situation allow. In the same way as the independence of the judiciary is guaranteed today, the monetary authority's independence from short-sighted political interests could be secured by an adequate institutional arrangement, which simultaneously warranted transparency in monetary decision-making and democratic accountability of those who rule the monetary system.

Conclusion

Three important conclusions should be drawn from my outline above. First, the textbooks in economics must be revised by replacing the financial intermediation theory and the money multiplication theory with a correct description of the money and banking system as it works in reality today. Second, an empirically correct monetary theory makes it possible to discover the strong link between the monetary system and sustainability which is clearly shown by the numerous deficiencies of the monetary system with regard to economic, ecological and social sustainability. Third, from the perspective of sustainability, the sovereign money system represents a promising alternative to the current money and banking system.

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