

Mises' Monetary Theory



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Mises developed a new theory of money and banking that he fit into the subjectivist value theory developed by Carl Menger. He also provided numerous suggestions and clarifications to specific theoretical questions. Thus he placed the general theory of subjective value on the foundation of the logic of choice; he developed a subjectivist classification system of money as well as a systematic theory of the causes and effects of monetary prices; he researched the international impact of the changing supply of and demand for money and became a pioneer in international monetary economics; he studied the principles of price formation in unorganized markets; and he criticized mechanistic approaches to the quantity theory of money and to value theory, index number theory, as well as the theories of the Currency School and the Banking School. Last but not the least, he developed a famous crisis theory, arguing that the artificial expansion of the money supply has a tendency to lead to intertemporal imbalances within the production structure.

The present chapter builds on and extends the studies of Pallas (2004) and Hülsmann (2007, 2012). We will present the historical context of Mises' monetary thought and then give an outline of his *The Theory of Money and Credit*.

The present chapter is a revised translation of “Mises' Geldtheorie” in T. Polleit (ed.), *Mises für Einsteiger* (Munich: Finanzbuch-Verlag, 2013), pp. 40–82.

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1 Historical Background

The importance of Mises' monetary theory can be stated in one phrase: it rebuilds classical monetary theory on a completely new and more solid foundation, thus awakening it out of the slumber into which it had sunken after 1844 and making it relevant again for political decision-making. We shall therefore start off by considering the peculiarities of classical monetary policy and the causes for its decline. For simplicity's sake, we will begin with Adam Smith.

1.1 *The Classical Revolution*

Smith is the founding father of classical economics. His fame derives from the fact that in *The Wealth of Nations*, he had convincingly argued that aggregate wealth is not dependent on the *level* of monetary expenditure. While he considered the use of money to be an indispensable precondition for a widespread division of labor, he saw the amount and extent of monetary expenditure as irrelevant. Aggregate wealth could only grow as a result of an increase in the division of labor and of a higher rate of savings for the purposes of capital formation. In his view, wealth does not increase through the availability of a larger supply of money or by more extensive monetary expenditure. Therefore, all measures and policy interventions aimed at increasing either of these variables were effectively pointless.

With this perspective, Adam Smith opposed what he called "mercantilism," a doctrine that had been dominant for centuries. According to mercantilism, the level of monetary expenditure was the central driving force behind economic development. Governmental authorities tried to increase monetary expenditure by using a variety of measures, such as providing as much support as possible to banks for the purposes of creating money. Above all, government spending was seen as one of the most important causes of national wealth. Supporters of this doctrine rejected any demands for a more frugal government and for greater limitations on state activities. In their eyes, such demands were the outgrowth of stubbornness, unworthy of Her Majesty's subjects.

Adam Smith and his followers, the classical economists, reduced mercantilism to ashes. This was not an overnight revolution. It was the result of a long-winding battle of ideas, stretching out over several decades. Eventually there was a political breakthrough for classical liberalism in the period between 1840 and 1870. In monetary policy, too, the classical approach came to be applied. Since the quantity of money was seen as irrelevant, the primary goal in monetary policy was to provide the market with *unadulterated* silver and gold coins. The role of the state should be limited to that of an overseer, or rather, a guarantor of the coinage. Essentially, the money stock should be regulated through a competitive mining industry with minimal influence by the state.

In the decades following 1840, the classical approach received opposition before being completely discarded. This decline was only made worse by theoretical shortcomings, and, in turn, practical failures.

Adam Smith's intellectual edifice suffered from two weaknesses related to price theory. First and fundamentally, he believed that the price of goods was determined primarily by the production costs and only indirectly by supply and demand. Using this incorrect assumption as his basis, Smith made a second and fatal error when analyzing the particular case of convertible paper money (promissory notes).

According to Smith (1994 [1776], Bk. II, chap. II, pp. 318f), the issuance of such paper money could not lead to a lasting increase in the total money stock and in the price level. Smith believed that convertibility should ensure that paper money has the same purchasing power as the corresponding specie or precious metal, and these values would be objectively fixed by the production costs. *Since the purchasing power does not change, the overall demand for money would also remain unchanged.* If, for some reason, the banks began to increase the total amount of money by putting more paper money into circulation, then there would not be any domestic demand for this new money. The superfluous money units would then be exported. The problem is that promissory notes do not enjoy the same trust abroad as they do domestically. Therefore, it would not be possible to export these notes. Instead, the corresponding amount would have to be exported in the form of precious metals. The issuance of additional promissory notes is thus accompanied by a reduced use of precious metals. One medium of exchange (specie) is displaced by the other medium of exchange (paper money). According to Smith, this would not have a lasting impact domestically on the overall money supply and demand. For this reason, he saw the introduction of convertible paper money as desirable. An expensive good (gold) could be replaced with a cheap good (paper), and the resources saved in this process would be diverted elsewhere to increase the overall wealth of the nation (*ibid.*, pp. 320–322).

The influence and authority of Adam Smith was so great that it took two major debates before economists began to liberate themselves from his errors. However, as we shall see in the following section, his misconceptions were compounded by additional errors that arose in the wake of those debates. Ultimately, the reputation of classical monetary theory declined, and the old theory of mercantilism, the one Smith fought against, made a resurgence, first in economic policy before finding its way to academia.

1.2 *The Bullion Controversy*

The first of these debates—the so-called Bullion controversy—took place in the first decade of the nineteenth century in the British House of Commons (Cannan 1925; Hollander 1910–1911). During the Napoleonic Wars, the Bank of England suspended gold payments and increased the issuance of notes considerably as a way to finance the wars. The natural consequence was an increase in the price of

goods and the emergence of a premium on gold. Bank representatives did not want to admit this relationship, though. They thought that it was not possible to put so many notes into circulation that it exceeded public demand. This dispute, which involved David Ricardo and Henry Thornton (see Thornton (1939 [1802])), ended with the publication of a report by an appointed parliamentary committee. The *Bullion Report of 1810* found the Bank's issuance of notes caused the prices of goods to rise. The Bank was able to put more notes into circulation than the public needed because it had suspended the redemption of issued notes. It was, therefore, recommended to restore the convertibility to gold back to the prewar level as soon as possible. This recommendation was implemented in 1821.

The question remained whether the issuance of *convertible* notes might also lead to an increase in the overall money supply and its potential resulting consequences. This was especially applicable to notes, which were backed either not at all or only partially by the corresponding gold stocks in the vaults of the issuers (fractional-reserve principle). Were these notes *added* to the circulation of money (increasing the quantity of money), or did they simply *displace* the gold that would have been used in their place (leaving the overall quantity of money unchanged)?

During the period between 1820 and 1870, these questions became the focus of intense debates on monetary and banking policy going on throughout the Western world. These debates included the opposing schools of thought of the Currency School and the Banking School (overview in Claassen 1970, pp. 7–21).

1.3 *Ricardo and the Currency School*

The ideas of Ricardo and Say were the origin of the Currency School. Their doctrines dealt much more thoroughly with monetary theory than those of their teacher Adam Smith. They included two especially important insights. First, they emphasized much more clearly that changes in the money supply do not lead to lasting advantages and disadvantages to the *overall economy* but do affect *specific sectors* within the economy. The increase in the money supply was associated with an income and wealth gain for certain economic actors, which was counterbalanced by the corresponding losses of other actors. In particular, Ricardo (1992 [1817], p. 247) rejected the notion that the Bank of England had provided aid to commerce in general by lending “money below the market rate of interest.” Rather, in his eyes, the overall effect of such lending was that “a part of the traders of the country are unfairly, and for the country, unprofitably benefited, by being enabled to supply themselves with an instrument of trade at a lesser charge than those who must be influenced only by a market price.”

In the public lectures given in the 1820s at the Collège de France, Jean-Baptiste Say explained that the issuance of uncovered promissory notes was the true cause of the first modern banking crisis in Europe, the British “Panic of 1825.” According to Say, the additional notes had entailed an excessive easing of financial terms for firms: “The directors of many firms have been able [...] to extend the size of their

firms in disproportion to their capital.”¹ The extension of the money supply led to a discount of the notes as compared to specie, and thus the owners of the notes rushed to the banks for redemption. This forced the banks to scramble for cash. They no longer extended the credits as they had routinely done before, and this ruined the successful operation of all those business extensions that had been initiated thanks to cheap credit and which depended on ongoing credit to keep going. Thus the banking crisis turned into an economic crisis, forcing firms to panic sell the products they had on stock, spurring unemployment and entailing widespread bankruptcy (see Say 1852, p. 475).

Ricardo died in 1823 and Say 9 years later. At this point, the pernicious effects of the fractional-reserve principle were barely visible. In the subsequent decades, there were numerous banking crises, and the teachings of Ricardo and Say attracted more and more followers, who assembled themselves into the Currency School.² These economists drew practical conclusions from Ricardo's doctrine. They emphasized that variations “in the amount of currency [i.e. promissory notes, JGH] are seldom, if ever; the original and exciting cause of fluctuations in prices and in the state of trade” (Jones-Loyd 1857, p. 167). Anticipating hereby the twentieth-century analyses by Irving Fisher, Maurice Allais, and many other economists, they argued that, even though the issue of uncovered promissory notes usually was not the initial cause of such fluctuations, it did nevertheless “exert a considerable influence in restraining or augmenting the violence of commercial oscillations” (ibid.). They frequently suggested a strict level of proportionality between the money supply and the price level. Their political ambitions primarily focused on reducing the issuance of unsecured notes. In the words of Samuel Jones-Loyd (Lord Overstone), “not only must that paper be convertible into metallic money, but the whole of its oscillations must be made to correspond exactly, both in time and amount, with what would be the oscillations of a metallic currency, as indicated by the state of bullion” (ibid., p. 138). This principle is known as the “currency principle.”

They did, however, believe that they would also be able to do without the same restrictions on unsecured demand deposits and bank overdrafts since their use was more as credit than money. These belonged to “the ordinary banking business of deposit and discount” (ibid., p. 122).

¹The full passage reads as follows: “La crise commerciale qui a eu lieu en Angleterre est propre à faire sentir les inconvénients qui peuvent naître de cette faculté illimitée de multiplier l'argent de la circulation. Les banques ont abusé de cette facilité et se sont servies de leurs billets pour escompter une trop grande quantité d'effets de commerce. Les chefs de beaucoup d'entreprises ont pu, au moyen de ces escomptes, donner à leurs entreprises une extension disproportionnée avec leurs capitaux” Say (1852, pp. 474f).

²In Great Britain, members included among others Thomas Joplin, James McCulloch, Mountifort Longfield, Richard Torrens, and Samuel Jones-Loyd; in Germany, Wilhelm Tellkampf, Philipp Geyer, Carl Knies, Otto Hübner, and Otto Michaelis; and in France u.a. Henri Cernuschi and Léon Wolowski (see Smith 1990 [1936], p. 145).

1.4 *The Banking School*

The members of the Banking School³ responded that the Currency School was greatly mistaken in postulating a fundamental difference between banknotes and demand deposits. The fallacy of this idea became obvious when considering that demand deposits, too, can be used (via checks) as a means of payment. The only difference here was the *form* of money: demand deposits were scriptural money or accounting money. But there was no *material* difference as compared to banknotes.

They also emphasized that there was no mechanical connection between the money supply and the price level, an assumption frequently held by economists of the Currency School. A 10% increase in the money supply would by no means entail a rise of the price level by exactly 10%. It was not even certain that they would rise at all. The reason was that the price of goods was not singularly influenced by the money supply, or the quantity of money, but also by the demand for money (by the hoarding of notes and demand deposits). If, for example, the supply and the demand of money rose simultaneously and at the same rate, then the overall price level would remain unchanged.

With these considerations in mind, the economists of the Banking School developed their central thesis. They argued that *uncovered* (but convertible) bank money—whether in the form of notes or of demand deposits—could play an indispensable role in the economy and, therefore, that it should play such a role. It was precisely *because* such money could be created for free and so to say out of nothing that the available amount of money could be constantly adapted to meet the demand for money. Quite in the spirit of Adam Smith, they pointed out that, in a competitive environment, the supply of money could never deviate permanently from the demand for money. Unwanted bank money—meaning money that no one would want to hold on to—would eventually be returned to the issuers who would redeem it for gold (law of reflux). On the other hand, any additional money demand would be reflected in additional loan requests, and the banks could then fulfill these requests through an increase in the money supply without affecting the price level. Hence, it was precisely the creation of uncovered bank money that would make the money supply “elastic” and closely match the money demand, while adhering to money rigidly backed by metals would have led to a rollercoaster of rising and falling prices for goods.

Additionally, the Banking School advocates argued there were two other consequences that were highly desirable from the classical perspective. The first was that expensive precious metals would be replaced by low-cost bank money. The second was that the creation of money would lead to an increase in the savings rate. Indeed, each unit of money that was kept in circulation (rather than flowing back to the

³In Great Britain, members included among others Thomas Tooke, John Fullarton, James Wilson, and H.D. Macleod; in Germany Adolph Wagner and Leopold Lasker; and in France Charles Coquelin, Jean-Gustave Courcelle-Seneuil, Michel Chevalier, and J.E. Horn (see Smith 1990 [1936], p. 145).

issuer) was after all held by someone, and this someone thereby demonstrated his desire to save rather than consume this part of his wealth.

1.5 *Peel's Act and the Consequences*

The dispute between the two schools of thought ended with the provisional victory of the Currency School, which put its stamp on the Bank Charter Act of 1844, otherwise known as Peel's Act after the prime minister at the time Robert Peel. The law sought to cap the circulation of banknotes while leaving deposit banking largely unregulated. To put a lid on banknote production, the Bank of England's banknote monopoly was strengthened, and the other banks were press-ganged into managing demand deposits rather than issuing their own notes. No special arrangements were made for the creation of deposits out of thin air, however. Here the commercial banks were able to go and act as they pleased.

What happened next is only too clear in retrospect. Deposit banking continued to experience exponential growth through the creation of uncovered accounting money, which was handed out to its beneficiaries in the form of credit (see Fig. 1). This in turn implied a weakening of the liquidity of the banks. The less prudent banks defaulted periodically, resulting in repeated crises of the entire banking system. The first of these large crises, in the years following 1844, occurred in 1848 and was initially attributed to the year's unique historical circumstances. In the following years, however, events repeated outside of a revolutionary atmosphere. There were banking crises in Great Britain and several other countries in 1857, 1866, 1873, 1882, 1893, and 1897.

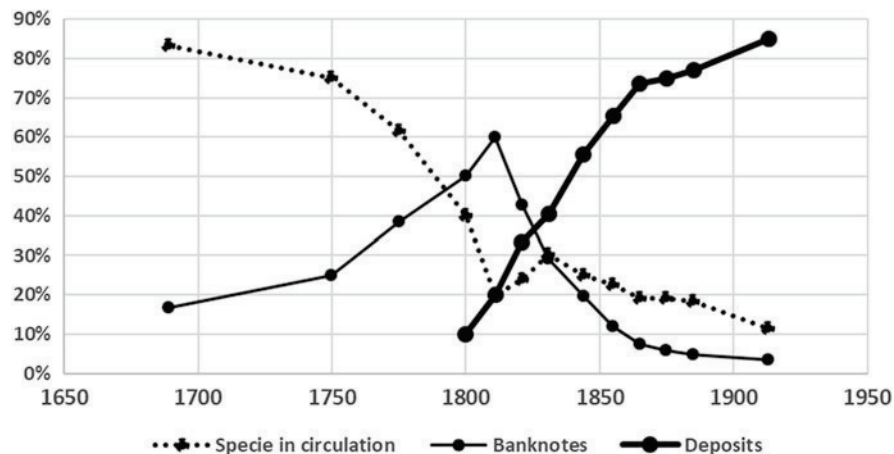


Fig. 1 M1 components in England and Wales, 1689–1913. Data source: R.E. Cameron et al. (1967, p. 42), quoted from Mathias (1983, p. 460, Table 39)

Peel's Act did not meet its high level of expectation. In spite of the capping of note circulation, there was still a cycle of bull and bear markets. Banking crises continued and actually became more volatile. The failure of the Currency School's theory in practice undermined its reputation, as well as that of Ricardo, and ultimately led to the decline of classical economics as a whole.

1.6 A New Orthodoxy

The lessons of the Banking School were now on the upswing, especially theories related to elastic currency and the expediency of stable prices. In the course of the nineteenth century, there was growing evidence that banking crises were embedded in price fluctuations (Juglar 1862; Fisher 1963 [1911]). This led to the idea that a crisis could be avoided by stabilizing the price level as much as possible. To achieve this end, an elastic bank money was essential, since gold production followed the demand for money only slowly and indirectly. Without bank money, the money supply would constantly lag behind its demand, especially in a dynamically growing economy, leading to a tendency for the price of goods to fall. This was precisely the tendency that prevailed throughout the nineteenth century on the British Isles (see Fig. 2). In the aftermath of the international banking crisis of 1873, this price-deflationary tendency became equally dominant on the continent.

During the last quarter of the nineteenth century, the ideas of the Banking School became dominant in Western monetary thought. Their outstanding representatives up to World War II include John Stuart Mill, Alfred Marshall, and D.H. Robertson.



Fig. 2 Evolution of UK CPI, 1800–2013. Data source: ONS, dataset MM23, long-term indicator of prices of consumer goods and services; Jan 1974=100

Even up until today, this doctrine is the basis for the practice of central banks and is fairly unchallenged in most university curricula.

And also another idea with origins in the Banking School now became ever more popular. We have already pointed out that the economists of the Banking School interpreted the increased holding of money that resulted from the *ex nihilo* creation of money as increased saving. In the eyes of their opponents, this was one of the most serious errors of the Banking School. If this view were correct, then any increase in the amount of money would almost automatically entail an increase in the savings rate. After all, there was always someone who was holding each unit of money in circulation. Thus there could be “savers” who had not in fact saved any part of their income but simply received a bank loan created from nothing. That is the exact opposite of Adam Smith’s doctrine. The overall wealth of society could then improve not only by a frugal lifestyle and restrained consumption but also by the more comfortable way of money creation.

In response to this objection, the economists of the Banking School, just as Adam Smith before them, brought up the real bills doctrine. The creation of money, they claimed, is not baseless or “from nothing.” It is by no means an arbitrary action by commercial banks. On the contrary, the creation of credit is simply a reflection of simultaneous events in the real economy. Banks grant credit only if an appropriate collateral is provided. For example, if a hat manufacturer finishes 100 hats and sells them to retailers for the total price of 1000 thalers, then on the basis of this exchange, the bank can create a sum of 1000 thalers (e.g., in the form of scriptural money) and issue a loan. The newly created money “represents” the real value of the 100 new hats and is therefore ultimately a real economic variable. This, the champions of the Banking School claimed, would also be in line with classical economics. A real good, in the form of a subsistence fund, has been established first, and, as a result, its monetary equivalent could then be lent out.

1.7 Departure from Classical Economics

The aforementioned objection from the Currency School was also handled in a completely different way. The Scottish jurist and economist Henry Dunning Macleod agreed with the central element of that objection. He argued that the Currency School was right in claiming that money creation ultimately springs from the initiative of the banks. It was *not* a mere reflection of any previous or simultaneous events happening in the real economy. Bank loans do not “passively” follow any occurrences within the real economy. The banks were not simply middlemen who facilitated the flow of one person’s savings to another person’s project. Banks *created* loans that were *not* based in prior savings.

While Macleod and the Currency School agreed on this point, they radically differed when it came to assessing its economic significance. The economists of the Currency School believed that loans without savings were some sort of foul play. In a natural economy, loans depended on savings. True savings were made out of

revenue earned, in the context of a given overall money stock. A portion of that money stock was saved in cash, and a portion of these cash savings would then be used for loans. Clearly, things were quite different when loans were made by creating money out of thin air. In this case there were not any true savings involved. For the Currency School, this was not an advantage but a major shortcoming. Such loans were not a stroke of genius to dispense with the necessity of savings before granting loans. They were a questionable banking practice that was likely to lead straight to payment defaults and crises.

Macleod completely disagreed with this assessment. In a monetary economy, he argued it was not the case that part of the money stock was saved and then part of these savings were passed on as credit. In fact, the causal link was the exact opposite. Granting credit was not just a possible *allocation* of available money. It was its actual *origin*. By its very nature, money was a form of credit. It was a right, a claim on other people (see Macleod 1856, 1889, p. 82).

With this line of argumentation, Macleod made a radical departure from classical economics. As we have seen, the Banking School held the somewhat original interpretation that money creation was a reflection of real economic savings. But just like the Currency School, it did not doubt the foundational dependency between savings and investments. There could be an increase in investment only through increased savings. Macleod reversed this cause-and-effect sequence. It was not demand deposits that led to credit but rather credit created from nothing that led to demand deposits.

Macleod presented these ideas in a very polemical form, and because of this, his writings were often met with rejection. Yet the practical failures of the Currency School created fertile ground for his theories. At the time, the principles of the Banking School were the leading doctrine, but this new orthodoxy had a rather obvious weak spot: the artificial interpretation of money creation as “saving.” Just like the Currency School, Macleod underscored this weakness, and his approach offered a radical but intellectually appealing alternative to the discredited Currency School.

In the following decades, this approach was further developed, especially in England and the German-speaking world, and eventually led to a triumphant resurrection of mercantilism. Josef Alois Schumpeter, Albert Hahn, and John Maynard Keynes laid the most important milestones of this process.

Schumpeter (1911) argued that financing credit from nothing was intimately related to entrepreneurship as well as to the crises of the capitalist economies. Bank credit out of thin air paved the way to innovation, and innovation entailed adjustment crises of rival companies working with outdated technology. An economy that grew steadily and organically was, therefore, an unattainable ideal. Growth was primarily caused through innovative breakthroughs, but these could not be had without crises.

Hahn (1920) and Keynes (1936) pushed Macleod’s approach to its logical conclusion. It was not savings that led to (credit-financed) investment but (credit-financed) investment that led to savings. Thus they had finally arrived at the exact antithesis of classical economics. If investments could easily be made without

saving, then it would be superfluous to explore profound theories on the real economic importance of foregoing consumption. The classical concepts of a “wage fund” and of a “subsistence fund” (the sum total of all funds saved from consumption and available for investment) thus fell into oblivion. After the World War II, they were mentioned in textbooks only as a curious idea of the nineteenth century (see Braun 2012, 2014). Previously, cutting consumption was considered an indispensable prerequisite for the production of goods. Now it appeared to be superfluous, *at best*. More realistically, it appeared as a potential disruptive factor. After all, at least some part of income that was not spent on consumers' goods would not be spent at all, but hoarded, with corresponding losses for “aggregate demand” and thus for production.

From a Keynesian perspective, saving is an individualistic luxury with potentially adverse consequences for broader society. Just like their mercantilist predecessors, Keynesian economists tend to reject all bourgeois demands for a frugal lifestyle as self-serving and a danger to the public.

Hahn (1949) later recanted his fallacies. Keynes never did. He devoted much of his energy to hammering out a supposedly new economic philosophy, which, upon closer inspection, was a newer edition of the exact same fundamental concepts that had already been rejected by Adam Smith. According to Keynes, there was not enough money spent on the free market (“aggregate demand” was too low), and thus production remained below its potential capacity. The state could remedy this problem by providing entrepreneurs with suitable information (and also through propaganda and media manipulation if necessary) to boost optimism. It could also pursue redistribution policies to favor groups that typically spend more money than regular taxpayers. It could inflate the money supply by controlling the central bank. Finally, it could also spend more money itself, particularly, by putting macroeconomic investments under its supervision and control (socialization of investments).

1.8 *Welcome to State Dirigisme*

In 1936, Keynes published *The General Theory of Employment, Interest, and Money* triumphantly bringing Macleod's approach and the older related ideas of John Law (1705) into the world of academic economics. But the “Keynesian Revolution” had even more far-reaching dimensions. Keynesian-style “dirigisme through the printing press” was also connected to various radical intellectual movements of the nineteenth century that had not made it into the mainstream debates of their own times. The classical economists had not paid any attention to these advocates. They had dismissed them as money cranks.

More than 100 years before Keynes, pioneers in socialism had recognized that socialism could be realized relatively easily and without resistance if the state controlled the banking system. They saw the creation of a central bank as a decisive step in the fight for central economic planning to improve overall efficiency against the “anarchy” of the market.

The leaders in this school of thought were Barthélémy Prosper Enfantin (1796–1864) and Saint-Amand Bazar (1791–1832). Both were fierce adherents of the philosopher Henri de Saint-Simon (1760–1825), who advocated for a performance-orientated egalitarianism or meritocracy. With the help of the central bank, the Saint-Simonians wanted to make sure that all available resources were actually used; and that they were used by people who in their (the Saint-Simonians’) opinion would use them most sensibly (see Enfantin et al. 1831).

In the revolutionary year of 1848, Karl Marx and Friedrich Engels published their *Communist Manifesto* (1848), in which they presented similar considerations and demands. At the same time, the socialist anarchist Pierre-Joseph Proudhon also strongly recommended the creation of a central bank at the time. Unlike the Saint-Simonians and Marx-Engels, however, he was by no means recommending state-controlled (and paternalistic) governance over all economic processes. On the contrary, he believed that a central bank would allow for an unlimited amount of money and could therefore resolve all financing issues. The bank should rather be an instrument of individual emancipation from the constraints of scarcity.⁴

Sixty years later, Rudolf Hilferding (1947 [1910]) argued that there was no need to bring about the centralization of money and banking through political interventions. It was an inevitable tendency inherent in mature capitalism.

Keynes (1936, Chap. 23) avoided mentioning these socialist forerunners to his readers. He only highlighted such predecessors who, from a technical rather than ideological standpoint, argued that savings, and especially money hoarding, represented a hindrance to economic development. This included Thomas Malthus, Silvio Gesell, and John A. Hobson. Keynes also spoke favorable of Clifford Hugh Douglas, although he considered his criticism of interest rates to be excessive.

2 A Masterpiece from Vienna

When Ludwig von Mises began developing his *Theory of Money and Fiduciary Media* in 1906, the classical approach to monetary theory had already been pushed into the background for quite some time. The dominance of the Banking School was challenged only by a few old men who were somehow “left over” from the previous era. Younger scholars typically adhered to the principles of the Banking School, and some of them had started walking in the footsteps of Macleod and Marx.

⁴The exchange between Proudhon and Frédéric Bastiat (1863) is worth reading because both positions are expressed in a particularly clear and eloquent manner.

2.1 *The Austrian School of Economics*

At the time, Mises was a regular participant of a seminar taught by Eugen von Böhm-Bawerk at the University of Vienna. Böhm-Bawerk had achieved international fame through his book *Capital and Interest* (Böhm-Bawerk 1921). He fully adhered to the classical thought on the wealth of nations. In the same way as his mentor Carl Menger, he worked on rectifying and strengthening the ideas of Adam Smith. Böhm-Bawerk spent even less time than Menger dealing with monetary theory. And up until the 1880s, there had been little reason, due to the prevalence of classical economics. Even the disputes between the Currency and Banking Schools appeared to simply be an argument *within* the classical approach. At the beginning of the twentieth century, however, the movement inspired by Macleod became progressively stronger, and this also brought the ideas found in the nineteenth-century socialist underground onto a broader stage for the first time.

Böhm-Bawerk's seminar provided a fertile ground for the confrontation of these great intellectual movements, for it counted in its ranks three young pioneers of the twentieth-century monetary theory: Rudolf Hilferding, Josef Schumpeter, and Ludwig von Mises. Hilferding and Schumpeter were fully committed to the new lines of thought. Their writings solidified and accelerated the general departure from classical economics. Ludwig von Mises had also started off by following the contemporary mainstream. In 1903, however, he discovered Carl Menger's *Principles of Economics* (Menger 1871) and thereafter lost his former convictions.

Mises now recognized the importance of Adam Smith and understood the great improvements that Smith's doctrine had received from the hands of his countrymen. He also saw ample room for similar improvements in the field of monetary theory and the urgency with which they were needed. Therefore, he chose this field to make his own contribution. He started working on a *Habilitation* thesis in monetary theory, which he eventually published in 1912 under the title *Theorie des Geldes und der Umlaufsmittel*.⁵ A revised second edition was published in 1924, and this edition was then translated into English and first published in 1934 under the title *Theory of Money and Credit*.

Initially, Mises planned on giving a systematic exposition of his encompassing new approach to monetary economics. He wanted to begin with the fundamentals of value and price theory and then build on these foundations to present the theory of money. The approaching First World War partly destroyed his plan. Mises feared that there would not be enough time remaining to complete his work as planned. Therefore, he resolved to postpone work on the fundamentals and instead focus on questions related to monetary theory. It was not until many years later when he wrote *Nationalökonomie* (1940), which later became *Human Action* (1949), that Mises

⁵The habilitation diploma is best understood as a professional license for professors who seek employment in the universities of Central Europe. It is obtained on the basis of a comprehensive habilitation thesis dealing with an entire field of inquiry (typically written after a doctoral thesis, which deals with more narrowly defined problems).

finally executed the original plan when he presented his entire doctrine as one coherent whole (see Mises 2009 [1978], p. 95).

2.2 *The Nature of Money*

The first part of the habilitation thesis deals with some questions regarding value and price theory that Mises envisaged in his original plan. The title of this first section is “The Nature of Money,” but it also focuses on some deeper problems in value theory. For example, Mises discusses the arguments of Irving Fisher, who claimed that there are quantitative laws of the utility of goods. Mises (1981, p. 218) dismissed this theory, and more generally he rejected the notion that quantitative constants exist in the economy.

Carl Menger had shown that the subjective value judgments of acting persons were at the very heart of price theory. Starting from this insight, Mises sought to build his theory of money prices. The first step was acknowledging that the formation of money prices depends on the nature of the specific type of money that was being exchanged. Therefore, it was necessary to first classify the various forms of money in a way that corresponded to the particularities of their valuation and price formation (Fig. 3).

Mises, much like J.B. Say (1841, Chap. XXX, 1852, Chap. XVII), made a clear distinction between “money in the narrower sense” and “money substitutes.”

Money substitutes are “perfectly secure and immediately convertible claims to money” (p. 65), much like token coin, a promissory note issued by a bank, or a demand deposit held at a commercial bank. The value of these substitutes is derived entirely from the legal obligation the issuer has to exchange or redeem them at the

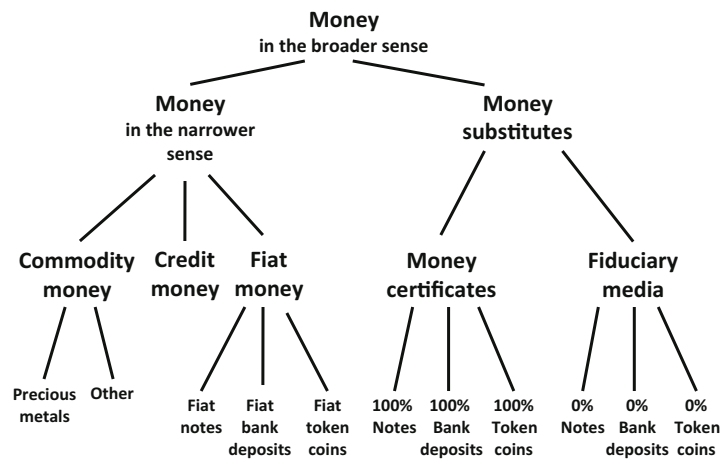


Fig. 3 Classification of monetary goods according to Mises. Source: Hülsmann (2012, p. 34)

owner's request and, of course, on the safe expectation that this obligation will be fulfilled. One might think that redemption would be particularly secure if the relevant substitute were 100% covered by a corresponding monetary sum held by the issuer (Mises refers to such a substitute as a "money certificate"). But according to Mises, even those substitutes that are not actually covered at all (he calls them *Umlaufmittel* or "fiduciary media") can be redeemable and secure monetary claims. It all comes down to the personal or subjective perspective of the money users. Such uncovered monetary substitutes can therefore be exchanged, too, and their prices would result from the same mechanisms as the prices of the money certificates (although the quantitative exchange relationship would be different).

In contrast to monetary substitutes, the value of money in the narrower sense (which today is commonly referred to as "base money") does not spring from a legal obligation to redeem it into other goods. Mises distinguished three main categories of base money: commodity money, credit money, and fiat money.

It is not necessary to discuss these distinctions in detail. Let us rather underscore the punch line. Mises argued that *the forms of money—which alone are relevant from the point of view of value and price theory—have nothing to do with the physical properties of the goods that are used as money*. For example, precious metal coins are not in and of themselves already money in the narrow sense. They *can* be base money, if they are subject to independent valuation. They *can* also be money certificates or fiduciary media, if money users have the expectation that these coins can be redeemed into base money. The same thing holds true for any paper note. It can be base money (paper money), but it can also be a money certificate or a fiduciary medium. The physical properties do not indicate the economic character. The latter derives from business practices, contracts, and legislation—in short, from a man-made context in which the type of money is used.

As can be inferred from the original German-language title of his book—which literally translates into "*Theory of Money and Fiduciary Media*"—Mises considered fiduciary media to be a very particular and very important form of money.⁶ Their importance stems from the fact that they allow an almost costless and thus almost unlimited extension of the money stock. This is quite different from the cases of commodity money and of money certificates. The production of precious metals and other forms of commodity money is costly, and thus, the amount of money in this form cannot be increased as quickly and arbitrarily as desired. Similarly, money certificates do not alter the total amount of money either since they are entirely backed by base money. On the other hand, the production of fiduciary means is limited only by accidental circumstances, such as a lack of coordination between issuers (the banks) or banking regulations.

⁶This was lost in the 1934 Batson translation, which rendered "fiduciary media" systematically as "credit" and thus blurred some of the major distinctions that Mises stressed in his book. Credit and fiduciary media are two very distinct phenomena, even though they are today (as in Mises' time) usually combined in the practice of banking. Mises stressed that there can be credit without fiduciary media and that fiduciary media do not need to be issued via credit. On the problems of the Batson translation, see Hülsmann (2012, pp. 32–34).

In the third part of his work, Mises examines the consequences these facts have for economic activity. This leads him to address the great questions that had already held center stage in the debate between the Currency and Banking Schools. It leads him to fully espouse the “currency principle” while correcting the numerous mistakes of the Currency School in relatively minor matters (Hülsmann 2000, 2007; Salerno 2012; McCaffrey 2012). And it leads him to make an original contribution to the doctrine of that school, namely, a crisis theory, which he develops out of Böhm-Bawerk’s theory of capital.

Before venturing into the arguments of the third part, it is important to consider the core concepts of the second part. Here Mises leaves aside all questions related to fiduciary media. He considers a hypothetical economy that uses only money in the narrower sense and money certificates, but not fiduciary media. Which factors determine the subjective value of money, and which determine money prices, in such an economy?

2.3 *The Value of Money*

The classical economists thought that the price of money corresponded to its production costs. Carl Menger had argued that this theory does not hold up. The market prices of all economic goods ultimately did not result from costs but from the subjective valuation of acting persons. Menger himself had demonstrated his argument only for the special case of consumer goods. Then Böhm-Bawerk went on to show that Menger’s theory also held true for capital goods. In regard to money, however, there was still no such proof.

There was a very old theory stating that money is merely some sort of an “assignment” of value of all other goods—just as a warehouse receipt assigns this or that good, held in storage, to the owner of the receipt. (Macleod’s credit theory of money, too, was a variant of this conception.) From this perspective, the question of the value of money was quite easy to answer: the value of money was simply determined by the value of the real goods it represented and for which it could so to say be redeemed.

This theory, however, was unsatisfactory because money in and of itself is not an assignment for other goods. Some forms of money (money substitutes) are indeed assignments, and *their* value could thus be explained this way. But money in the narrower sense is not similar to a warehouse receipt but rather to an independent commodity, as Menger (1968 [1909]) had pointed out. What then is the explanation for the subjective value of such a monetary commodity? How can its market prices be explained?

At the time, several influential economists, such as Knut Wicksell and Karl Helfferich, maintained that these questions could not be answered at all with the help of Menger’s theory of value. According to Menger, the market price of economic goods stemmed from their subjective use value. But this scheme of thought could not be applied to the special case of money, because its use value

was dependent on its purchasing power (on its market prices). The upshot would be circular reasoning, money prices being explained as a consequence of the subjective use value of money, and the latter being explained as a consequence of money prices.

How to get out of this vicious circle? Friedrich von Wieser, a student of Menger, had tackled this problem very much along the lines of the nineteenth-century German economists (see Hülsmann 2007, pp. 225–240; Gabriel 2012). Wieser argued that *today's* subjective value of money is derived from *yesterday's* money prices. Yesterday's money prices spring from yesterday's subjective value of money, which in turn is based on other money prices prevailing in the day *before* yesterday, etc. In other words, the alleged logical circle was an optical illusion. It arose from the false assumption that the subjective value of money at any particular time *t* was determined by the money prices prevailing *at the same time*.

Mises refined Wieser's approach and later named it "regression theorem" (Mises 1998 [1949], p. 406). He emphasized that determining the subjective value of money from previous money prices by no means established an endless chain of causation, thus producing a *regressus ad infinitum*. The chain of causation ended on the day on which the commodity in question was used as money for the first time. *Up until that day*, the market prices of this commodity resulted exclusively from the subjective value of its non-monetary uses. *On that day*, monetary demand came into play as well, and the subjective value of its monetary use could then be derived from its already existing purchasing power.

After clarifying the basic principles of the value of money and money prices, Mises sought to examine the consequences of changes in the supply and demand of money. In particular, he highlighted three fundamental ideas.

Firstly, Mises demonstrated that changes in the money supply had no mechanical effect on money prices. There was no fixed quantitative relationship, such as a percentage change of X in the money supply resulting in a percentage change of Y in the price level. More generally, the objective conditions under which human beings act had an impact on market prices only through individual choices. It is true that an increase in the amount of money tends to reduce the value of each individual unit of money, but how much the value diminishes depends on the people affected, and the valuations of each individual do not need remain constant over time.⁷

Secondly, Mises stressed that there is no *systematic* relationship between the money stock and aggregate production. Increasing the quantity of money does not benefit the production of goods, and reducing it does not hinder production. "An increase in the quantity of money can no more increase the welfare of the members of a community, than a diminution of it can decrease their welfare" (Mises 1981, p. 102).

This was, of course, the basic idea of classical economy theory as represented by the Currency School. Mises repeated this idea in numerous sections of his work (see Mises 1912, pp. 78, 83, 96, 156, 225, 227f, 230, 235, 262f, 402f). He was aware that,

⁷This phenomenon is now known as the "Cantillon effect," after the economist who first researched it in the eighteenth century. See Cantillon (2011 [1755], pp. 147ff).

in this respect, he was in direct contradiction with the Banking School and the majority of his contemporaries in economics. Changes in the money stock could lead only here and there, only *accidentally*, to positive and negative repercussions on aggregate production. This could result in particular from the fact that changes in the money stock entailed reallocations of wealth and income, which had an influence on capital formation (see Mises 1981, p. 239).

Finally, Mises emphasized that any change in the supply or demand of money influenced the distribution of income and wealth. *Overall* economic prosperity—what Smith called the wealth of nations—is not connected with monetary factors. But this does not hold true on the *microeconomic* level. Individual households and firms may very well gain or lose as a result of a change in the money supply or of the demand for money.

2.4 Theory of Fiduciary Media and Fiduciary Credit

After discussing the foundations of value and price theory in the second part of his book, Mises could finally address questions related to fiduciary media and fiduciary credit. Although fiduciary media could also be issued without granting credit at the same time (Mises called this the non-banking style or “nicht-bankmäßige” issue), the primary way to issue fiduciary media at the time and even up until today was in conjunction with a bank credit (banking style or “bankmäßige”). Therefore, the discussion around fiduciary media was closely related to the analysis of “fiduciary credit”—credit made available in the form of fiduciary media, created out of nothing.

Now the scientific literature on banking theory was, according to Mises, in a much less satisfactory condition than monetary theory (where one could at least rely on the works of Menger and Wieser). He felt the contemporary literature on banking was merely descriptive of the technical, organizational, and juridical aspects of the business. It had failed to tackle the economic problems (see Mises 1912, pp. IXf). What were these problems? In the third part of his book, Mises dealt with six major research questions:

1. What is the difference between true (commodity) credit and artificial (fiduciary) credit?
2. Are there any limits to the production of fiduciary media?
3. Is the production of fiduciary media “elastic” in the sense that it flexibly adjusts to changes in the demand for money?
4. Which impact do the banks’ cash reserves have on the demand for fiduciary media?
5. Is the issuance of fiduciary media liable to entail macroeconomic imbalances?
6. Which is the appropriate course of action for monetary and banking policy?

Mises built his banking theory on the foundations established by the classical economists and by the Currency School. He concurred with their approach in regard to the essential points and disagreed only on relatively minor issues (even if these

had had far-reaching consequences in practice). He assessed the scientific value of the Banking School in the exact opposite way. The latter was correct on the minor issues but wrong on the main points. The Banking School had correctly pointed out that there was no significant difference between bank deposits and banknotes from an economic perspective. It had also rightly rejected the rigid quantity theory, which claimed there was a mechanical link between the quantity of money and the price level. However, the Banking School idea of an “elastic” supply of fiduciary media was completely fallacious. In his words:

The fatal error of Fullarton and his disciples was to have overlooked the fact that even convertible banknotes remain permanently in circulation and can then bring about a glut of fiduciary media the consequences of which resemble those of an increase in the quantity of money in circulation. Even if it is true, as Fullarton insists, that banknotes issued as loans automatically flow back to the bank after the term of the loan has passed, still this does not tell us anything about the question whether the bank is able to maintain them in circulation by repeated prolongation of the loan. The assertion that lies at the heart of the position taken up by the Banking School, namely, that it is impossible to set and permanently maintain in circulation more notes than will meet the public demand, is untenable; for the demand for credit is not a fixed quantity; it expands as the rate of interest falls, and contracts as the rate of interest rises. But since the rate of interest that is charged for loans made in fiduciary media created expressly for that purpose can be reduced by the banks in the first instance down to the limit set by the marginal utility of the capital used in the banking business, that is, practically to zero, the whole edifice built up by Tooke's school collapses. (Mises 1981, pp. 383f)

In other words, the Banking School—much like Adam Smith in this regard—believed in the erroneous idea that the demanded amount of fiduciary media (of fiduciary credit) is independent from the price of such credits or rather that the credit price is independent from the supply of fiduciary credits. By pointing out this fundamental error, Mises refuted the theory of elastic bank credit in all its forms. In particular, he thereby also refuted the “real bills” doctrine. We have already seen that this theory was premised on the notion that the market prices of the commodities serving as collateral for the “real bills” (and therefore for money and credit creation) are independent from money creation. Mises saw through the fallacy of this premise. When fiduciary media are created from nothing and used for payment, commodity prices are inevitably higher than they otherwise would have been. Mises (1981, p. 346) draws the following conclusion:

The circulation of fiduciary media is in fact not elastic in the sense that it automatically accommodates the demand for money to the stock of money without influencing the objective exchange value of money, as is erroneously asserted. It is only elastic in the sense that it allows of any sort of extension of the circulation, even completely unlimited extension, just as it allows of any sort of restriction. The quantity of fiduciary media in circulation has no natural limits. If for any reason it is desired that it should be limited, then it must be limited by some sort of deliberate human intervention—that is by banking policy.

Thus Mises comes to essentially the same practical conclusions as the Currency School, albeit with a more refined and in-depth explanation. He also added a new element to their framework. Building on Böhm-Bawerk's capital theory, Mises developed a new theory of economic crises—known today as the Austrian business

cycle theory—which had particular relevance during the subsequent decades and even for our present day.

Much like J. B. Say, the representatives of the Currency School had already pointed out that the issuance of fiduciary media could lead to liquidity crises. They had not found it necessary to also examine what would happen if the banks suddenly had an unlimited amount of liquidity. They assumed that *only a few banks* would push forward with the issuance of fiduciary media so that they would sooner or later fall prey to a liquidity shortage, as they would be obliged to make ever higher payments to other banks (external drain). Now, could this not be avoided if *all banks simultaneously* increased their issuances (e.g., by creating a banking cartel)? Or if gold were simply replaced with some immaterial base money, therefore allowing the central bank to provide unlimited liquidity?

Such questions had been raised already by Joseph Proudhon and a few other writers of the nineteenth century. But mainstream economists, who at the time were thoroughly committed to classical economics, considered them absurd. Hardly anybody bothered to deal with such cranky nonsense. Now, as a result of the historical events discussed above, at the beginning of the twentieth century, these crazy ideas had spread quite widely and had become the subject of a much broader discussion. It was time for the matter to be investigated. Mises (1981, p. 390) wrote: “The problem that is before us is usually referred to by the catch-phrase ‘gratuitous nature of credit.’” It is the “chief problem in the theory of banking.” In the first edition, he had added: “and one of the most difficult problems of economics” (Mises 1912, p. 417).

Many economists at the time did not share the view that this was the central issue of banking theory. The theorists of the Banking School even held that this supposed problem simply did not exist. For them, it was impossible to increase the money supply to the point of surpassing the needs for trade. Therefore, the interest rate could not fall to zero. Credit could never be gratuitous.

Swedish economist Knut Wicksell held a different opinion. A few years before Mises, he realized that this was a serious and fundamental problem (see Wicksell 1898). Wicksell presented two considerations to prove the existence of natural limits to the creation of credit. On the one hand, commercial banks would sooner or later be concerned about the redeemability of their notes and demand deposits. Even if they could count on the support of the other banks (cartel), they would therefore abstain from creating any more fiduciary media. On the other hand, increases in the money supply would tend to increase the price level and thus the price of gold. But then people would sooner or later start to redeem their fiduciary media in gold, and the banks would have to forgo more issuances or reduce previous issuances.

Mises found Wicksell’s argumentation unsatisfactory. The second argument would only apply to commodity money systems, but not to fiat money systems. Even the first proof was not sound because it violates Wicksell’s own assumption that all money would have already been completely replaced by fiduciary media. In such a scenario, where the banks enjoy the full trust of their customers, there just would not be any redemptions of fiduciary media into base money.

If Wicksell's arguments were not correct, then why should the ever-increasing issuance of fiduciary media ever lead to a crisis? Mises developed his own theory by referring to Wicksell's distinction between the "natural interest rate" and the "money interest rate." Without issuing fiduciary media, the money interest rate would have a tendency to approach the natural interest rate, and the economy would find itself with an intertemporal balance between the production of consumers' goods and capital goods. This would change through the issuance of fiduciary media via fiduciary credits. The money interest rate would be pushed below the natural interest rate, thus disrupting the intertemporal equilibrium. The production of capital goods would then be artificially stimulated, yet without the real resources—the "subsistence fund"—that are necessary to achieve an overall extension of production. In other words, artificially low interest rates would lead to either too many or too lengthy production projects that could ultimately not be completed with the available real resources. Sooner or later, some of the already initiated projects would have to be stopped due to lack of funds. In Mises' words,

the situation is as follows:

despite the fact that there has been no increase of intermediate products and there is no possibility of lengthening the average period of production, a rate of interest is established in the loan market which corresponds to a longer period of production; and so, although it is inadmissible and impracticable from an overall point of view, a lengthening of the period of production becomes at first profitable. But there cannot be the slightest doubt as to where this will lead. A time must necessarily come when the means of subsistence available for consumption are all used up although the capital goods employed in production have not yet been transformed into consumption goods. This time must come all the more quickly inasmuch as the fall in the rate of interest weakens the motive for saving and so slows up the rate of accumulation of capital. The means of subsistence will prove insufficient to maintain the laborers during the whole period of the process of production that has been entered upon. (Mises 1912, pp. 430f)⁸

Mises' theory differs from the liquidity crisis theory of the Currency School in that he stresses that the crisis is one of the *real* economy (even though it has a monetary origin, as in the liquidity crisis theory). This is precisely why it cannot be avoided by unflinching and resolute issuances of fiduciary media or of immaterial base money. Such issuances may temporarily postpone a crisis, but only at the price of ever-increasing imbalances in the real economy.

2.5 *Monetary and Banking Policy*

In conclusion, we now turn to Mises' views on monetary policy. A comparison of the first and second editions of his *Theory of Money and Credit* demonstrates a radicalization of his political thinking between the years 1912 and 1924.

⁸Notice that we quote the first edition (our translation). On the changes that this passage underwent in subsequent editions of the book, see Hülsmann (2012, p. 21, footnote 41).

In the first edition published in 1912, Mises's thinking—much like that of his predecessors—revolved around the supposed ideal of money having a stable purchasing power. Just like the classical economists, however, he rejected a purely immaterial fiat money system. Just like Ricardo, he praised the gold standard because it largely restricted the possibilities for the state to abuse the system. He also stressed that it was practically impossible to measure changes in the monetary values with sufficient precision and that powerful lobbyists and interest groups would exploit these inevitable gray zones. But most of all, as we have seen, he made the case that any artificial increase of the money stock by central or commercial banks would initiate a new business cycle. This also held true when the objective was to stabilize the price level. Loaning out additional money would entail an artificial reduction of the interest rate, and thus new “roundabout” production projects would be *launched*. But it would not be possible to *complete* all of these projects with the available resources.

In the following years, then, Mises personally witnessed wartime inflation, the hyperinflations in Austria (1922) and in Germany (1923), and the socialist experiments financed by printing banknotes in Austria and other European countries. In the light of these experiences, he thoroughly reconsidered the traditional arguments of monetary policy.

In the first edition of his book, he had emphasized the fact—well-known at the time—that any artificial expansion in the money supply must cause a redistribution of income and wealth. The initial users of this new money could spend it while the price level was still relatively low, whereas later users—especially the last ones—would have to pay higher prices for a time, even though their own income would not yet have risen.

In the second edition of 1924, then, Mises made three decisive additions.

First, he stressed that *monetary stabilization policies, too, modified the distribution of incomes and wealth*. In other words, it was spurious to believe that monetary stabilization could be a tool to prevent distributional conflicts. In a best-case scenario, it could prevent an unfair redistribution between creditors and debtors, but by doing this, it would itself create a redistribution between the early and the later users of the new money units.

Second, Mises stressed that the redistribution between creditors and debtors could be prevented even without any monetary policy whatsoever—and was actually prevented in practice. Changes in the price level do not per se lead to an unequal distribution of wealth. This concerns especially the cases in which such changes are predictable (relatively uniform inflation and relatively uniform deflation) so that the contractual partners can take these factors into account.

Third, an absolutely stable price level was quite irrelevant from a practical point of view. Entrepreneurs bought and sold at concrete and individual unit prices, not at some abstract price level. They were not concerned with the general *level* of prices but with price *differences*. These differences—the price structure—were liable to permanent change under the impact of the market process, and they change even when the officially measured price level remains stable. It was therefore wrong to assert that money becomes better when its purchasing power became more stable.

Money with a perfectly stable purchasing power is not perfect money (see also Mises 1928).

With these considerations, Mises revolutionized the economic analysis of inflation and monetary policy. His central insight was that using state intervention to perfectly stabilize the purchasing power of money was pointless. It was therefore just as pointless to impose any kind of artificial money on the market in order to reach that goal.

Mises' thinking also developed in an entirely different direction. While he argued in the first edition of his book that price inflation was as equally undesirable as price deflation, he now came to the conclusion that an inflationary development was much more harmful than its deflationary counterpart (see Mises 1981, pp. 251–268). This is due to the fact that price inflation leads to capital consumption and, ultimately, to a relatively impoverished society. In particular, it reduces the incentives for savings; therefore less capital is available for investment. It also distorts business accounting, because of the reporting of phantom profits. Excessive profits would be paid out and consumed, thus leading to a progressively shrinking capital base for the entire economy.

In this light, monetary theory and policy need a complete revamp. The focus on micromanaging the value of money is misdirected. The central question is how to prevent significant mistakes leading to price inflation and political abuse of monetary policy. In 1924, Mises (1981, p. 435) answered that competition was the most effective means to avoid these problems (see Hülsmann 2008). It was the best way to limit abuses of the monetary system by private actors and, more importantly, by the state.

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