THE ERRORS OF J.R. RALLO'S MONETARY THEORY: PART I

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Resumen: En su obra *Una crítica a la teoría monetaria de Mises*, Juan Ramón Rallo (2019) critica la teoría del dinero de Mises tal como se desarrolla en *Teoría del dinero y del crédito* de Mises (1971). En este trabajo muestro que Rallo y su predecesor Antal Fekete no hacen avanzar la teoría monetaria austriaca, sino que defienden una variante idiosincrásica de la escuela bancaria. El enfoque de la escuela neo-bancaria adolece de los mismos defectos que la escuela bancaria tradicional, sobre todo de no tener en cuenta la teoría del capital. Para abordar las cuestiones pertinentes, necesitamos volver y desarrollar algunos de los fundamentos esenciales de la teoría económica. Discutiré la naturaleza del dinero, el dinero ideal, el ahorro real, la demanda de dinero, la caída de los precios, el significado del tipo de interés y su determinación, etc. Demuestro que la expansión crediticia de un sistema bancario de reserva fraccionaria basado en letras está propenso a desencadenar un ciclo económico austriaco. Además, demuestro que en un mercado libre el descalce de plazos no desencadena un ciclo económico.

Palabras clave: Banca con reserva fraccionaria, teoría de liquidez, teoría del ciclo, teoría de capital, teoría monetaria, descalce de plazos

Clasificación JEL: E 21; E 22; E32; E41; E 43.

Abstract: In his work *Una crítica a la teoría monetaria* de Mises, Juan Ramón Rallo (2019) criticizes Mises's theory of money as developed in M ises's (1971) Theory of Money and Credit. In this paper, I show that Rallo and his predecessor Antal Fekete do not advance Austrian monetary theory, but rather defend an idiosyncratic variant of the banking school. The neo-banking school approach suffers from the same shortcomings as the traditional banking

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school, most notably its failure to consider capital theory. To address the pertinent issues, we need to return to and develop some of the foundations of economic theory. I will discuss the nature of money, ideal money, real savings, the demand for money, falling prices, the meaning of the interest rate and its determination, etc. I show that the credit expansion of a fractional reserve banking system based on real bills triggers an Austrian business cycle. Moreover, I show that in a free market maturity mismatching does not trigger a business cycle.

Keywords: Fractional reserve banking, liquidity theory, teoría del ciclo, teoría del capital, teoría monetaria, maturity mismatching

JEL Classification: E 21; E 22; E32; E41; E 43.

1. **Introduction**

In his work *Una crítica a la teoría monetaria de Mises*, Juan Ramón Rallo (2019)[1] criticizes Mises's monetary theory as developed in Mises's (1971) *Theory of Money and Credit*. While Rallo criticizes Mises, he dedicates his book to Antal Fekete, whom he congratulates for having advanced Austrian monetary theory (p. 7).

In this contribution I want to show that Rallo and Fekete do not advance Austrian monetary theory but rather defend an idiosyncratic variant of the banking school.

I give support to Huerta de Soto's (2014, p. 235) claim that Rallo's theory is neither new nor Austrian. I will show that the approach of the neo–banking school suffers from the same shortcomings as the traditional banking school, most importantly the inconsideration of capital theory (Huerta de Soto 2014).

In order to deal with the pertinent issues, we have to go back to some basics or essentials of economic theory and develop them. I will touch on the nature of money, the ideal money, real savings, the demand for money, falling prices, what the interest rate reflects and how it is determined, etc.

[1] Citations to Rallo without a cited year are to his 2019 work.

In section 2, I will present Rallo's theory as a variant of the classical banking school. In the next section, I will analyze the reasons that Rallo presents in favor of an elastic money supply, and I will ask what an ideal money is and whether price deflation is a problem. In section 4, I will present classic critiques of the Real Bills Doctrine, which to some extent are also applicable to Rallo's banking theory. Next, in our main section, I will put forward an Austrian critique of Rallo's theory showing that the system defended is prone to cause business cycles. In this context, I will emphasize the role of real savings in investment and review the essence of fiduciary media. In the sixth section, I will show that contra Rallo maturity mismatching is not the genuine cause of the business cycle and need not be destabilizing but can be dynamically efficient. Finally, I will mention some specific points in Rallo's work where I believe that there are misunderstandings or misconceptions regarding Mises's opus.

2. **A neo–banking-school approach: a brief overview**

The economic justification for fractional reserve banking provided by the banking school lies in the alleged problems that an increase in the demand for money with an inflexible money supply would cause. These problems, which will be discussed in detail later, arise from frictions due to price rigidities or resource costs derived from the production of money proper.

Rallo (2019) concurs with the banking school. He also finds problems with an inelastic money supply when the demand for money increases and sees the solution in fractional reserve banking following the banking-school tradition. However, Rallo's banking-school approach is of a unique or special kind.

Rallo's idiosyncratic version of the banking school combines several approaches and ideas: First, there is the needs-of-trade doctrine. The Spanish economist (Rallo, p. 59) follows the idea of Fullarton that the production of unbacked money substitutes (fiduciary media) would adjust to the needs of trade within a fractional reserve free banking system. If there is an increase in the demand for money, the fractional reserve banking system

produces more money substitutes. If too many money substitutes are produced, they flow back to the emitter. This is the law of reflux, the second idea that Rallo adopts from the banking school. Due to the needs-of-trade doctrine and the law of reflux, the fractional reserve free banking system flexibly adjusts the amount of fiduciary media to the needs of trade.

Third, Rallo (p. 71) adheres to the Real Bills Doctrine. The Real Bills Doctrine may be considered a refined version of the banking school's view. Some authors even regard the Real Bills Doctrine and the banking school's view as equivalent.[2] The Real Bills Doctrine defends the production of fiduciary media—i.e., unbacked money substitutes—(only) through the purchase (or discounting) of real bills. As real bills are guaranteed or collateralized by goods that are close to being bought by consumers, there exists an exogenous, real limit to the production of fiduciary media. According to the Real Bills Doctrine, it is the volume (p. 71) of goods produced that limits the amount of fiduciary media produced in a competitive fractional reserve banking system.

The volume of goods influences the demand for money since money is needed to complete the transactions to buy the goods produced. In short, when the demand for money increases because more goods are produced, in a fractional reserve free banking system, the supply of fiduciary media increases, thus facilitating trade. From this perspective, the issuance of fiduciary media is not distortive but rather coordinating. In this way, Rallo follows the old banking school, which maintains that credit expansion directed into the correct lines—i.e., via short-term credit (real bills)—will cause neither price inflation nor a business cycle (Rothbard 2000, p. 76).

In sum, Rallo's theory amounts to a combination of the Real Bills Doctrine, the needs-of-trade doctrine, and the reflux theory (Huerta de Soto 2014).[3]

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[2] Humphrey and Timberlake (2019, p. 11 fn.) argue that it was Lloyd Mints (1945) who gave the doctrine the name "Real Bills Doctrine." Before that, it was known as the "banking-school view" or "the commercial loan theory of banking."

[3] One should not confuse Rallo's particular approach with other fractional reserve approaches with links to the Austrian school, most prominently the one defended by

Critique of Mises

Based on this theory Mises is a logical target for Rallo because Mises stands in the tradition of the currency school, which opposes the banking school's ideas. Mises distinguishes between circulation credit, which is credit unbacked by real savings, and commodity credit, which is backed by real savings. With circulation credit, fiduciary media (unbacked monetary substitutes) are created, while with commodity credit this is not the case.

For Rallo (p. 123) this Misesian differentiation between commodity credit and circulation credit is problematic and somewhat artificial. He outright rejects the notion of circulation credit. He contends that banks are always credit intermediaries rather than credit creators. He points out that banks' assets always equal liabilities. Therefore, the credit granted by a bank (loans) is equal to

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Selgin and White (1996). While there are certain differences, Rallo's neo–banking-school approach and Selgin and White's fractional reserve banking approach have more commonalities than differences. Both oppose 100 percent reserve banking. Both believe that fractional reserve banking does not necessarily cause business cycles. Both argue that in order to reinstate monetary equilibrium following an increase in the demand for money, a fractional reserve banking system could expand credit. Both maintain that holding fiduciary media equals savings. Both also maintain that there are no necessary legal or ethical problems with fractional reserve banking. However, there are also some differences. Selgin and White do not regard maturity mismatching in a free banking system to be problematic, while Rallo believes this to be the true origin of the business cycle. Moreover, Selgin and White consider all credit expansion (independent of the type of loan created) to be unproblematic in a free banking system, while Rallo argues that only credit expansion based on real bills (or equivalents) is unproblematic. The following table portrays the differences between the fractional reserve schools and the full reservists such as Huerta de Soto, Hoppe, Salerno, and Rothbard. The view of Huerta de Soto, Hoppe, and Salerno on maturity mismatching is inferred from the theory they defend.

	fractional Reserve Banking can be beneficial	*Credit Expansion is Unproblematic Only if BaseD on Real Bills*	*Free Market Maturity Mismatching is unproblematic*
Selgin and White	Yes	No	Yes
Rallo	Yes	Yes	No
Huerta de Soto, Hoppe, Salerno	No	No	Yes

the credit that it receives (liabilities such as the deposits and notes it issues). In other words, the credit that the bank provides to its debtors is equal to the credit that banks' creditors provide to the bank.

An example of saving

Rallo (p. 125) provides an illustrative example of credit intermediation and saving. He assumes a fractional reserve gold standard. In this world, a bank creates fiduciary media to grant a mortgage. The mortgage holder buys a house from a developer using the fiduciary media as payment. When the developer accepts the payment with fiduciary media, he becomes a saver in Rallo's eyes because he does not ask for money proper (gold in this case).

Rallo, then, imagines the same situation without the bank (i.e., without the intermediary). Without the bank the developer receives as payment an IOU (fiduciary media)[4] issued by the house's buyer. The developer now holds the IOU issued by the buyer and has to wait until paid in gold. As the mortgage is paid, the developer receives money proper (gold). Rallo argues that the holder of the IOU (the developer) is saving and that the substance of the example does not change when there is an intermediary, because he regards the fiduciary media as an IOU issued by the bank. The holder of the fiduciary media is, therefore, also saving.

As long as the fiduciary media are in circulation, someone is giving up present goods. The holder sticks to fiduciary media instead of buying present goods (p. 127). He is waiting to get the money proper.

If the holder of fiduciary media sells them to another person, this other person has two options. First, he could go to the bank and demand money proper (gold); then the gold is held by this person. The amount of fiduciary media is reduced (reflux). Second,

[4] The astute reader will notice that, at this point, the example becomes problematic. The IOU issued by the house buyer is fundamentally different from fiduciary media issued by a bank, because the latter are perfect monetary substitutes.

he can hold onto the fiduciary media and forgo withdrawing the gold (pp. 128–29). Then the person is, according to Rallo, saving.

Rallo (p. 65) maintains that the people that hold bank notes "finance" the granting of credit by the bank because they do not ask to redeem their bank notes (fiduciary media) into base money (money proper).

Rallo also denies that the issue of fiduciary media implies a double availability of money proper, as 100 percent reservists claim. He argues there are only two options. First, the holder of the fiduciary media redeems them into gold. In this case, the gold is only available to the person who redeems the fiduciary media (and not to someone else). Second, the fiduciary media is not redeemed; then the gold remains available to the bank (and is not available to the holder of fiduciary media).[5]

Having briefly exposed the functioning of the fractional reserve free banking system as envisioned by Rallo, I will take a look at his arguments in favor of such a system. In the discussion we must look at the workings of cash-building deflation and the question of an ideal money.

3. **Increases in the demand for money and the ideal monetary system**

3.1. *Cash-building deflation and its social function*

Not only does Rallo describe how a fractional reserve banking system based on real bills works, but he also argues that such a system has important advantages vis-à-vis a full reserve system. Before I analyze the reasons Rallo provides for an elastic money supply that counteracts cash-building deflation, let us first look at the process of cash-building deflation itself.

The demand for money is the demand to hold money as a cash balance. Cash balances serve to reduce felt uncertainty, as money

[5] It is true that the gold is only in the possession of one person at a time. However, this does not negate the fact that there can be several persons that have a right to that gold at the same time and consider it part of their cash balance.

balances allow one to confront "unforeseen and indefinite expenditure" (Mises 1953, p. 303).[6] When individuals want a higher cash balance, they attempt to buy money from others, who concomitantly must reduce their cash balances. When a majority or even all

[6] The uncertainty demand for money may be distinguished from the "transaction demand" for money, which is the demand for money to facilitate exchange. The transaction demand for money may fall—for instance, when companies economize on money, such as when they increasingly use secondary media of exchange and introduce compensation schemes. Clearing systems economize on money and facilitate payment dates by reducing the transaction demand. Financial innovations such as credit cards and PayPal accounts are other examples that reduce the transaction demand for money. The ceteris paribus result of such economizing is what Salerno (2021) has called "good inflation." Due to the economizing innovation, there is an "excess" in cash balances. People spend this excess, bidding up prices. The price inflation thereby performs the vital function of bringing real cash balances back to the desired level. This increase in prices is a one-shot event triggered by the general adoption of the financial innovation, with no systematic effect on the credit market and market interest rates.

At the same time that there are factors that reduce the transaction demand for money, there are also counteracting factors that may offset the former: a further differentiation in the division of labor, productivity increases, split-offs of companies, or a lengthening of the structure of production via new companies increases the transaction demand for money.

The payment innovations such as the introduction of clearing systems that reduce the transaction demand for money act in principle like de-hoarding or increases in money proper such as gold mining in a gold standard. When individuals find new money, they can use it to add to their cash balance, increase their investment spending, or increase their consumption spending. Similarly, individuals that economize on their money spending can spend more on consumption goods or investment goods in line with their time preference. When they spend the new or freed-up money exclusively on investment goods, reducing their relative consumption spending (increasing savings), factors of production will be reshifted toward more roundabout production processes. This lengthening of the structure of production is sustainable and in line with the decrease in social time preference that itself is reflected in the altered proportion in consumption and investment spending. In any case, it is a one-shot event that may be classified as a business fluctuation. Entrepreneurs are in the business of forecasting changes. Changes take place in all spheres, including the demand for money or social time-preference rates. A change in economic data is not the cause of a business cycle and a general depression. It just leads to a business fluctuation with higher profits in some sectors and lower profits in other sectors (Rothbard 2000). Yet such fluctuations do not constitute cyclical movements of general booms that inevitably end in a general depression after which the cycle starts all over again.

Thus, payment innovations do not cause a business cycle. And again, there are the aforementioned tendencies that increase the transaction demand for money and which compensate for the payment innovations. On the long-run influences on the demand for money, see Rothbard (2001, pp. 675–76).

individuals demand to increase their cash balance, they cannot all increase their *nominal* cash balance at the same time if the money supply is constant. Yet they can increase their real cash balances.

The increase in the real cash balance of economic agents is essential for actors. In the end, what counts is what a cash balance can buy and not its nominal value. When nominal prices fall, real cash balances increase for all money holders. And this is exactly the outcome of the market process when all individuals try to increase their nominal cash balances.[7]

Therefore, to attain the desired outcome of an increase in real cash balances, there is no need for a special adjustment including changes in the supply of money. As Hülsmann (2000, p. 106) points out, "Unlike all other commodities, money itself constantly adjusts to the conditions of the market. The *services* rendered by any unit of money are constantly adjusted under the impact of change in the demand for and supply of money."

There is also a social function of increases in the demand for money in times of crisis.[8] The demand for money may increase sharply when uncertainty increases. In the wake of natural catastrophes, wars, or pandemics, uncertainty soars as does the demand for money. The demand for money is satisfied in these situations usually by reducing consumption spending. Thereby, consumer goods are set free that are urgently needed because production has been reduced due to the natural or human-induced catastrophes. If the demand for money did not increase and manifest itself in a reduction of consumption spending, then consumer-good prices could rise more sharply in such scenarios. The price surge is dampened, and the demand for uncertainty preparation is fulfilled. The probability of a social panic induced by skyrocketing consumer-good prices is reduced. Consumer goods are set free for

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[7] Note that for an increase in real cash balances to occur, it is not necessary that all prices be "perfectly" flexible downward. Some prices will fall more than others, until the desired increase in real cash balances is achieved. The increase can, thereby, come very quickly when individuals abstain from buying (Bagus and Howden 2011b).

[8] If the demand for money increases because of deflationary expectations, there may be less consumption and relatively more investment. The real yield on investments increases because the increase in the purchasing power of money adds to the yield of the investment.

those that are hit particularly hard by the catastrophes (Huerta de Soto 2021).

Furthermore, when individuals want to increase their cash balance, it is not only the case that they may buy less until prices fall to the desired level of real cash balances. When individuals want to increase their cash balances, they can also sell from the accumulated stocks of goods they hold. Finally, individuals may produce and work more to sell more goods and services and increase their cash balance, thereby driving down prices. In times of uncertainty, when more natural and human catastrophes than usual are expected, such an increase in output has a social function. There is (or is expected to be) a relative scarcity of goods and services due to the (possible) catastrophe. The expected destruction of goods and services may be partially offset by the increase in output that results from the attempts to increase cash balances.

Hence, there are two important social functions of cash-building deflation. First, consumer goods may be liberated and made available to those that are especially harmed in times of uncertainty. Second, output may increase, helping to reduce the damage. These social processes, however, are disrupted when new fiduciary media are produced in response to the increased demand for money. Then (nominal) cash balances increase without the need to sell stocks, reduce consumption spending, or increase production.

It is, therefore, unnecessary, and potentially even harmful, to prevent a cash-building deflation via credit expansion. Without credit expansion, prices will fall to the levels required for the desired real cash balances. The alternative is to increase the production of fiduciary media—i.e., the supply of money in its broader sense—to prevent a potential fall in prices.

The idea that instead of prices, quantities have to adjust is in essence a Keynesian idea. Keynes (1936) argued that Say's law (1964) was wrong and that there could be an overproduction of all goods and services. For instance, when there is unemployment, Keynesians typically do not recommend that wages adjust but recommend increasing another quantity—namely, aggregate demand. Similarly, when the demand for money increases, the market adjustment runs through the price mechanism and possibly a cash-building deflation. The alternative to the price adjustment is

an increase in quantities—namely, the supply of fiduciary media. According to Rallo, this increase should and does occur through the automatic functioning of a fractional reserve banking system.[9]

Finally, when talking about sharp increases in the demand for money due to higher perceived uncertainty, we should not forget that these are rather rare in a free market economy. In a free market the demand for money is rather stable (Bagus and Howden 2011a).

One important cause of a surge in the demand for money is the uncertainty that comes along with the bust after an artificial boom.[10] The recession, however, is caused by credit expansion unbacked by real savings. Ironically, it is the production of fiduciary media in response to an increase in the demand for money that may trigger an unsustainable boom, as I will discuss in more detail below.

It is not only the policy of price stabilization in times of economic growth by a central bank that destabilizes the economy (Huerta de Soto 2012, ch. 6; Machlup 1940, p. 177; Hayek 1933, p. 114; Hayek 1928; Mises 1928). The policy of price stabilization through the production of fiduciary media at times when the demand for money is increasing also destabilizes the economy—and the demand for money. It is, thus, unfortunate that

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[9] We should not forget that the Federal Reserve System was installed to achieve the ideal of an elastic currency as well. Paul Warburg, the intellectual architect of the Fed, in his justification for the creation of the Fed, does not appeal to the objective of full employment or price stability. Rather, Warburg argues that the Fed would achieve an "elastic currency" according to the "needs of trade" (Murphy 2021, pp. 46–47). Warburg pursued the very same objective that Rallo had in mind, albeit with different means. Zhu (2013) similarly emphasizes the main original objective of the Fed to provide an elastic money supply: "The Federal Reserve's central founding purpose was to provide a more flexible supply of currency and bank reserves in order to stem banking panics."

[10] As Huerta de Soto (2012, p. 684, fn. 123) points out, "Curiously, like Keynesians and monetarists, modern free-banking theorists are obsessed with supposed, sudden, unilateral changes in the demand for money. They fail to see that such changes tend to be endogenous and to occur throughout an economic cycle which is first triggered by shifts in the supply of new money the banking system creates in the form of loans. The only other situations capable of producing a sudden rise in the demand for money are exceptional, like wars and natural disasters. Seasonal variations are comparatively less important and a free-banking system with a 100-percent reserve requirement could counteract them with a seasonal transfer of gold and slight price modifications."

Rallo appeals to surges in the demand for money to justify credit expansion. The possibility of granting loans unbacked by real savings is exactly what the Real Bills Doctrine promotes and what triggers such surges. By granting loans unbacked by real savings fosters boom-and-bust cycles, the demand for money becomes more volatile than it would be in a free market.

3.2. *Ideal money*

The question of the ideal money is one source of divergence of opinion between the banking school and the currency school. It is due to their view on the ideal money that the banking-school theorists, among them Rallo, believe that fractional reserve banking can be beneficial.

The best money is the one that is chosen by individuals on the free market. There are several characteristics that make a medium of exchange more prone to become money, such as low storage and transportation costs, easy handling, durability, divisibility, resistance to tarnishing, homogeneity, recognizability, and strong nonmonetary demand (Bagus 2009; 2015b). The market-chosen (nonmanipulated) money allows for efficient economic calculation, which is an essential guide for human action in a society based on the division of labor (Mises 1998, p. 225, pp. 230–31).

Mises (1998, p. 418)[11] and Rothbard (2001, p. 670) consider that any quantity of money can fulfill its function as a medium of exchange once a medium of exchange has been established as

[11] Mises states (1998, p. 418):

> "The services money renders are conditioned by the height of its purchasing power. Nobody wants to have in his cash holding a definite number of pieces of money or a definite weight of money; he wants to keep a cash holding to a definite amount of purchasing power. As the operation of the market tends to determine the final state of money's purchasing power at a height at which the supply of and the demand for money coincide, there can never be an excess or a deficiency of money. . . . The quantity of money available in the whole economy is always sufficient to secure for everybody all that money does and can do."

See also Mises (1953, p. 85): "Changes in the value of money are accommodated in such a way to the demand for it that, despite increases or decreases in its quantity, the economic position of mankind remains the same."

money.[12] Changes in the demand for money will lead to changes in its purchasing power but not affect money's social usefulness. In particular, an increase in the purchasing power of money does not reduce the money's usefulness as a medium of exchange (Bagus 2006, p. 114).[13]

Mises (1998, pp. 518–19) points out that cash building is not a problem in a market economy. Hayek also believes that the idea that the money supply must be elastic and respond to changes in money's demand is erroneous. He states that "to demonstrate that the cry for an 'elastic' currency which expands or contracts with every fluctuation of 'demand' is based on a serious error of reasoning" (Hayek 1931, p. xiii).

Rallo however, in good banking-school company, believes that a good money responds to increases (decreases) in demand with compensating increases (decreases) in its supply. In short, money should have an elastic supply. In the envisioned fractional reserve banking system, the supply of fiduciary media adjusts to its demand. When the demand for money increases, fiduciary media are issued. The increased demand for money is caused by the needs of trade. When the fiduciary media are redeemed into cash, the fiduciary media disappear following Fullarton's law of reflux.

These arguments concerning the need for a reaction of the supply of money to changes in its demand concur with the so-called monetary-equilibrium theory, which is part of the Keynesian and

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[12] As Rothbard (2001, p. 670) puts it, "We conclude that there is no such thing as 'too little' or 'too much' money, *that, whatever the social money stock, the benefits of money are always utilized to the maximum extent*" (emphasis in the original).

[13] While gold mining in a gold standard (increases in the money supply) does not increase or decrease gold's usefulness as a medium of exchange, the costs of gold mining must be considered as necessary costs to uphold this particular monetary standard and, from the point of view of the freely interacting individuals, as welfare enhancing. Voluntary abstention from gold mining in a gold standard would save these mining costs and would not change the benefits from the use of money either. The use of coercion to prohibit gold mining, while not changing the benefits of the use of money, would, however, decrease the welfare of the coerced individuals. From our point of view, Mises's and Rothbard's claim that any quantity of money allows society to reap the full benefits of money's use is, therefore, completely compatible with the view that the optimal money is the one that is chosen in the market. See also Barnett and Block (2004).

monetarist analysis (Huerta de Soto 2012, p. 677). As we will see in section 3.4, the monetary-equilibrium theory, because of its macroeconomic approach, prevents understanding of the underlying microeconomic processes and leads its proponents to identify problems that dissolve when viewed through microeconomic lenses.

But why, according to Rallo, is credit expansion based on real bills beneficial if the demand for money increases? Rallo (2019, pp. 56, 57) argues that increases in the demand for money in a free market lead to problems. He even titles a section of his book (2019, p. 53) "The problem of the increase in the demand for money." But what are these alleged problems?

These problems can be divided into three kinds: unnecessary resource costs, unnecessary coordination problems due to price rigidities, and a lack of stability making entrepreneurial forecasting more difficult. I will deal with the arguments in turn.

3.3. *Rallo's arguments in favor of an elastic money supply*

3.3.1. Resource costs of a full reserve money standard

Rallo argues that an increase in the demand for money withdraws money stuff from nonmonetary purposes (for instance, from the production of gold jewelry in the case of a gold standard) and directs more factors of production toward mining. This reduces the welfare of society (p. 53). Rallo emphasizes that Mises offers only clearinghouses as a way to accommodate the increase in the demand for money. The Spanish economist maintains that this is insufficient. Rallo's preferred solution to the problem is fractional reserve banking based on real bills.

But is it really a problem for a pure gold standard when the demand for money increases?

Mises (1998, p. 418) recognizes that "one may call wasteful all expenditures incurred for increasing the quantity of money."[14]

[14] I believe Mises's statement to be an unnecessary concession.

However, Mises continues, even though paper-money production in a fiat money standard appears to be cheaper, it comes with important costs.

The most fundamental question is how many factors of production should be employed to produce money or maintain the monetary system. There are maintenance costs in any monetary system. In a fiat money standard, such costs include the wages of monetary policy makers, among many other things (Huerta de Soto 2012, pp. 778–81). There are also mining and maintenance costs in a gold standard (or a Bitcoin standard for that matter).

Gold or Bitcoin mining entails costs as in any other human action. On a free market, individuals decide freely how many factors of production to use for gold mining and for jewelry production. Costs are subjective. It does not make sense to say that the alternatives to those chosen by freely interacting individuals are less costly than the ends chosen. Subjectively, actors make these choices because they prefer them. Why would someone consider these choices to be detrimental to the welfare of society? Utility and welfare are subjective concepts. From a value-free point of view, one simply cannot say that welfare is higher when there is less gold mining and more fiduciary media production or when there is less coinage and more jewelry production.

There are several monetary systems that can be chosen with different costs. The choice can be made either by the government or the people. Mises (1998, p. 419) states that it should be the market that selects money, not the government. That should be the criterion for the costs. Thus, to argue that a freely chosen gold standard would reduce welfare is problematic.

The origin of money and constant purchasing power

Indeed, when it comes to choosing the best money in the eyes of market participants, we are talking about the origin and evolution of money. When money arises out of a barter economy, a certain commodity starts to face a demand to be used as a medium of exchange. The demand for a medium of exchange increases, thereby driving up its purchasing power. This is the

natural part of the process of the evolution of money. Indeed, price deflation in terms of the future money is part and parcel of the process in which money evolves. The purchasing power of the commodity that prevails in the competitive process in which money evolves will not remain stable or constant. It will increase because of the additional demand to use it as a medium of exchange.

Rallo argues that an elastic money supply with stable purchasing power is preferable. But why should the emerging money's purchasing power be held constant? Would that not slow down the process of the evolution of money? Rallo defends the idea that the ideal money has stable purchasing power. Consequently, it seems that he would have to argue that for a commodity to become money, its supply must be very elastic. The supply of the commodity (or its substitutes) must increase quickly when its demand increases rapidly in the process of monetization.

Most actors, however, would likely prefer a medium of exchange that increases in value and does not allow for such important increases in its quantity.[15] Moreover, the evolution of institutions such as money never ends. Thus, it is arbitrary to argue that during the evolution of a medium of exchange on its way to becoming money, no stabilization of the purchasing power of money is needed while arguing that in a later phase, once a money has been established, it would be somehow advantageous to stabilize its purchasing power through the issue of fiduciary media. The evolution of money never ends. New media of exchange may arise and compete with the existing ones. A natural part of this evolution is that emerging competitors face higher demand and increases in their purchasing power.

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[15] That is also true for entrepreneurs. Entrepreneurs do not prefer a money whose purchasing power falls just because they want higher prices for their products. For entrepreneurs, qua entrepreneurs, their margin is essential—i.e., the difference between buying and selling prices. This difference is independent from the general tendency of prices, as costs may move before selling prices. Entrepreneurs do not hoard merchandise to reduce uncertainty; rather they, qua actors, also hold cash balances in order to mitigate uncertainty. Therefore, ceteris paribus, entrepreneurs prefer cash holdings that gain in purchasing power to those that do not.

3.3.2. Price rigidities

Sometimes it is argued that deflation is problematic because of price rigidities. Indeed, Rallo (p. 112) argues that social welfare decreases when the demand for money increases and all prices have to fall. The loss in social welfare comes because prices do not fall to the same extent; i.e., there are price rigidities.

As stated above, individuals that want to increase their cash balances buy less and sell more until prices fall. And all prices are flexible in the long run in a free market. The price fall may cause losses for producers that do not manage to cut factor prices fast enough. In this case there is a redistribution to the detriment of the entrepreneur and to the advantage of the factor owner—for instance, a worker. The factor owner forecast prices better than the entrepreneur. The forecasting profits and losses are not unique to times of falling prices as I have stated elsewhere: "Both employers and employees anticipate future prices and take them into account when they make long-term contracts. Surely, they can err, but in both directions, while general prices are falling or rising" (Bagus 2006, p. 117).

When factor owners have secured a long-term contract in a time of falling prices, leading to accounting losses for the company, there are two possibilities. First, the contract is renegotiated and the price paid to the factor owner is lowered to make the company profitable again. Then the rigidity of the long-term contract ends. Second, the factor owner insists on the long-term contract and the agreed-upon price. Then the company may become bankrupt and the factor owner unemployed. A new company may then hire the factor owner at a lower price as his discounted marginal value product has fallen because of price deflation. In this case there is redistribution but not necessarily a fall in overall production. A new company takes the place of the old company.

Unemployment tends to disappear in the market process. It is either voluntary or caused by government intervention. Hutt (1977) speaks of "preferred idleness" when the unemployment is voluntary. If increases in the demand for money lead to preferred idleness, from a value-free point of view we cannot say that this is suboptimal or represents a loss in social welfare.

I should also point out that in case of a price deflation, it may well be that factor prices (costs) fall faster than a company's selling prices. What is essential for the entrepreneur is the price differential, which may increase in times of falling prices. Indeed, it is a neoclassical error to believe that prices follow, and are determined by, costs. It is the other way around as Böhm-Bawerk (1891) points out. It is costs that follow expected future prices because entrepreneurs bid for factors of production in anticipation of the expected price of the good they intend to sell in the future (taking into account all factors that may influence this price). Thus, costs logically move before selling prices. It is the task of entrepreneurs to anticipate price changes like all relevant other future changes (Bagus 2006). Of course, entrepreneurs may err; then they suffer losses.

When entrepreneurs make losses, they simply have bid too much for the services of factors of production. However, entrepreneurs can bid too much for factors of production in times of falling, rising, or constant prices. This is independent from the general tendencies of prices. And why would the percentage of entrepreneurs that bid too much for the services of factors of production be systematically higher in times of falling prices caused by an increase in the demand for money than in times of stable and rising prices (Bagus 2006, p. 110)?

It is also important to point out that with uncertainty-induced cash building, relative prices have to change. It is not a sign of spurious rigidities that relative prices change but a sign of a change in subjective valuations. Suppose there is a natural catastrophe and the scale of the destruction is unclear. People may want to increase their cash balance by cutting back on consumer purchases and investments that they find less necessary. They could cancel a vacation to the affected area or cease investing in companies that may be affected adversely by the catastrophe. Then the relative prices of these goods and assets fall more than other prices. The idea that relative prices must not change but must be maintained by increases in the supply of money is absurd and counterproductive. A system that is designed or intended to keep relative prices stable unequivocally will lead to distortions as subjective valuations and relative prices continuously change.

3.3.3. *Absence of price stability in a full reserve money standard*

Rallo maintains that the ideal money has a stable value. He argues that his preferred system of fractional reserve banking based on real bills would stabilize the purchasing power of money because increases (decreases) in the demand for money would be met with increases (decreases) in the supply of money. In this context, Rallo (2019, pp. 99–100) maintains that instability of the purchasing power of money creates arbitrary winners and losers.

However, is price stability desirable per se? There are several problems with Rallo's (2019, p. 102) argument that ideal money has stable purchasing power.[16]

First, it is true that changes in the purchasing power of money create winners and losers (for instance, changes in the purchasing power of money affect creditors and debtors). But this is true for all changes in market data. When consumers start to value ice cream higher relative to other goods, milk producers will benefit relative to the producers of other goods, whose demand shrinks. When actors value money higher in relation to other goods and want to increase their cash balance, people who own money (or the claim to money in the future—i.e., creditors) will win, while others, especially debtors, will lose. In both cases there are winners and losers due to changes in market data (namely, subjective valuations). Either all market changes must be considered arbitrary, or none of them must be. In any case, Rallo does not prove that "arbitrary" market changes have to be prevented.

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[16] Rallo (pp. 102–5) uses neoclassical tools such as demand and supply functions to argue that the supply of an ideal money should be elastic and the demand inelastic in order to stabilize the equilibrium value of money. He also indicates that for the demand function to be very inelastic, the marginal utility of money should be constant (p. 104). However, in the field of human action there is no room either for constant marginal utility (which is a logical impossibility because an additional unit at the disposal of an actor is necessarily ranked lower on the value scale than the previous marginal unit), supply and demand functions, or equilibrium prices. As stated below, the very idea of monetary equilibrium and stabilization of total spending is a macroeconomic idea that hides the underlying microeconomic processes, leading to fateful theoretical errors. The neoclassical idea of equilibrium prices contrasts with the Misesian idea of a "plain state of rest" (1998, p. 246) in which no further transactions take place because neither sellers nor buyers are interested in an exchange.

It is an entrepreneurial task to anticipate prices. Part of the entrepreneurial task is to anticipate the purchasing power of money. Thus, entrepreneurs must, can, and do forecast changes in the demand for money. Those who anticipate it better than others will gain, while others, who are worse in their anticipation, may lose. There is nothing arbitrary about this redistribution; it is entrepreneurial.

Second, the purchasing power of money always changes. It can never be neutral (Mises 1998, pp. 413–16).[17] There are no stable valuations (Mises 1998, p. 220). Regardless of how much Rallo desires it to be so, there is no stable money. Subjective valuations change, and, consequently, so does the purchasing power of money. Mises points out that if purchasing power changes slowly, there is no problem for economic calculation.[18] As the purchasing power of money will always change, who is to decide which changes in the purchasing power of money are too large? When is money so volatile that real-bills fractional reserve banking is needed for stabilization? It is an unscientific value judgment to argue that without real-bills fractional reserve banking, the purchasing power of money would be too volatile. It is market participants who decide which money to choose.

Third, it is not true that a stabilized price level reduces information costs overall. While some information costs may be reduced

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[17] As Mises (1998, pp. 415, 416) puts it:

"While money can be thought of only in a changing economy, it is in itself an element of further changes. Every change in the economic data sets it in motion and makes it the driving force of new changes. Every shift in the mutual relation of the exchange ratios between the various nonmonetary goods not only brings about changes in production and in what is popularly called distribution, but also provokes changes in the money relation and thus further changes. Nothing can happen in the orbit of vendible goods without affecting the orbit of money, and all that happens in the orbit of money affects the orbit of commodities. . . . *A world of the kind which the necessary requirements of neutral and stable money presuppose would be a world without action. . . . Money is an element of action and consequently of change.*" (emphasis added)

[18] Mises (1998, p. 225) writes:

"Economic calculation does not require monetary stability in the sense in which this term is used by the champions of the stabilization movement. The fact that rigidity in the monetary unit's purchasing power is unthinkable and unrealizable does not impair the methods of economic calculation. What economic calculation requires is a monetary system whose functioning is not sabotaged by government interference. . . . For the sake of economic calculation all that is needed is to avoid great and abrupt fluctuations in the supply of money. . . . Precision is unattainable in economic calculation quite apart from the shortcoming emanating from not paying due consideration to monetary changes."

by ensuring a more stable price level, other information costs may increase. For instance, fixed prices by the government may reduce information costs in the sense that entrepreneurs can forecast future prices more easily. However, these fixed prices do not reflect anymore the subjective valuations of market participants, which involves important costs of discoordination. Indeed, as will be shown below, real-bills fractional reserve banking distorts interest rates, which no longer reflect subjective intertemporal valuations, potentially triggering business cycles.

Fourth, changes in the purchasing power of money transmit important information. When the demand for money increases, prices tend to fall, transmitting this change in preference to market participants. When the demand for money increases as an individual stops purchasing a certain consumer good, there is important information generated in the market as the relative price of this product falls. When this fall in prices is counteracted with increases in the money supply through credit expansion, things change. Then interest rates are artificially reduced, and there may be artificial boom-and-bust cycles. While prices may remain stable, economic actors might not be aware of the distortions. The business cycle, in the end, makes planning more difficult and increases uncertainty and price volatility.

Moreover, when the demand for money increases and the fractional reserve banking system reacts with an increase in fiduciary media, there will be redistributional effects as the new fiduciary media enter the economy in specific places. As fiduciary media are introduced into specific places, the change in relative wealth positions and prices causes adjustment costs as well—not to speak of the adjustment costs due to the business cycle that may be prompted.

Fifth, as mentioned above, the demand for money may become more volatile because the credit expansion unbacked by real savings sets in motion the business cycle (Bagus and Howden 2011c). Instead of forecasting the demand for money, entrepreneurs in a price-stabilizing fractional reserve banking system must forecast the effects of the injection of fiduciary media on redistribution, on relative prices, on the business cycle, and on the demand for money.

It is true that sharp increases in uncertainty due to catastrophes are hard to anticipate. And one could argue that in Rallo's version of the Real Bills Doctrine, entrepreneurs have to anticipate one less factor: changes in the demand for money. However, in a market economy all goods and services may change their price and, thereby, affect the demand of other goods, including money. To stabilize the price of any good may reduce uncertainty on one end but may increase it on another. One could also argue that with a price control on milk, entrepreneurship is easier because one less factor must be forecast. However, the probability of distortions and business cycles increases, making entrepreneurship more difficult.

Sixth, and also mentioned above, ceteris paribus market participants prefer a money that constantly increases in purchasing power to a money with a constant purchasing power. This is because money is always held in a cash balance to protect against the uncertainty of the future. When money gains in purchasing power, it protects better against uncertainty than otherwise. Therefore, ceteris paribus all agents prefer to hold their cash holdings in a money that increases in purchasing power.

As a counterargument, Rallo (p. 100) makes the case that buyers would not give up a money that is expected to rise in value. This is basically the idea that price deflation leads to problems because people postpone purchases (or do not buy at all as Rallo seems to imply). However, there is the universal fact of time preference. Even though it is expected that gasoline prices will be 10 percent lower next year or that the new iPhone will be sold at lower prices within two years, people prefer to fill their tank and use the iPhone today rather than in the future and, consequently, are willing to give up money in return.

Finally, when the demand for money increases, Rallo thinks, the best result would be that this demand is satisfied without a change in relative prices because this would cause arbitrary winners and losers. As mentioned above, relative prices will change if there is an increase in real cash balances due to falling prices. Some prices will fall more than others. For instance, when uncertainty increases because of the danger of war, people might increase their cash balance by abstaining proportionally more from vacation spending

than from spending on groceries. As a consequence, prices of tourist services will fall more than prices of groceries. This change in relative prices is not a distortion but reflects subjective preferences. Maintaining stable prices through monetary expansion would frustrate the adjustment and distort relative prices.

3.4. *The implicitly macroeconomic approach of monetary equilibrium*

The idea of a flexible money supply that adjusts the quantity of money to its demand is related to the theory of monetary equilibrium.

The theory of monetary equilibrium is, by its very nature, macroeconomic and at odds with the microeconomic Austrian approach. It focuses on the general price level instead of actions of individuals that want to increase their cash holdings (Huerta de Soto 2012, p. 688; van den Hauwe 2006). The level of aggregation is too high, inhibiting the view of the underlying microeconomic processes.

When someone has a higher demand for beer, he can directly satisfy this demand by buying more beer. When someone has a higher demand for cash balances, he can directly satisfy this demand by abstaining from consumption or selling additional goods and services. If all individuals want higher real cash balances, prices fall and directly satisfy the desire. Most likely, not all individuals will want to increase their real cash balance in the same proportion; some might not want to increase them at all. The result is achieved through individual decisions to buy and sell and to abstain from doing so. How would a real-bill fractional reserve bank fulfill these preferences of individuals wanting to adjust their real cash balances?

Increasing fiduciary media to satisfy an increased demand for money has the following problem: The additional supply of fiduciary media that results from the discounting of real bills does not directly reach those that have a higher demand for money (Huerta de Soto 2012, pp. 688–93; Bagus and Howden 2011b). It first gets to the companies that discount real bills and then to the factor owners of the investment projects financed with these fiduciary media.

From there, the fiduciary media will flow through the economy until they reach those that want to increase their cash balance. Thus, when new fiduciary media are produced by real bills, discounting these fiduciary media will only indirectly reach those individuals that want to increase their real cash balances, causing distortions on the way.

4. **Critiques of the traditional Real Bills Doctrine**

At this point, I would like to turn the focus to the traditional Real Bills Doctrine. Rallo's approach is not identical with the traditional Real Bills Doctrine, but it relies on its main ideas. Thus, it is worthwhile to investigate why the Real Bills Doctrine is widely rejected, not only by Austrian economists or fractional reserve bankers such as George Selgin but also by the economic mainstream (Selgin 1989). The critique of the Real Bills Doctrine has a long tradition itself and is worth being reviewed.

Let us briefly restate the Real Bills Doctrine: The Real Bills Doctrine states that credit expansion is never excessive or deficient when the newly created monetary substitutes arise from granting loans against short-term commercial paper (also called real bills). When bankers only lend for a short term against goods that will be finished and marketed within 30, 60, or 90 days, the stock of money will change with real production. New money will be created only to buy new goods at the existing prices (Humphrey and Timberlake 2019, pp. 1–2).[19]

The Real Bills Doctrine originates from a business norm applied in banking circles. The idea of bankers was to channel new monetary substitutes into additional real production by discounting short-term commercial bills of exchange.[20] The increase in real

[19] Real bills as such are not a problem and may circulate as secondary media of exchange in specialized circles (i.e., without being general accepted media of exchange). When a real bill is sold for money formerly spent on consumption goods, someone is saving (reducing consumption). If the real bill is liquid, it may allow one to reduce cash balances somewhat.

[20] The proponents of the Real Bills Doctrine oppose credit expansion through real estate loans, stock market loans, and purchases of government securities. Only credit

output allows for the creation of new money to buy this additional output at old prices, preventing price deflation (Humphrey and Timberlake 2019, p. 168). The commercial paper (real bills) serves as a reserve against the notes and deposits issued. In the vision of its proponents the commercial paper is paid off quickly and the created money substitutes disappear again (law of reflux).

Thus, instead of financing 30-year mortgages through the creation of new bank credit, the Real Bills Doctrine prefers the purchase of real bills by banks with newly created monetary substitutes, thereby monetizing goods closer to market and more liquid than mortgages. According to the Real Bills Doctrine, bankers do not entice entrepreneurs with artificially cheap credit into additional investment projects but passively respond to the demand for additional money and accommodate the needs of business. They fulfill a helpful social need. As Schumpeter (1954, p. 730) argues, the Real Bills Doctrine makes bankers look good, which in turn explains its attractiveness to bankers.

The history of the Real Bills Doctrine

The Real Bills Doctrine has a long history. It came into existence 300 years ago as a rule to guide bankers' loan-making behavior in a gold standard (Humphrey and Timberlake 2019, p. 5). The idea was to tie the creation of bank credit to real output. The money supply would vary with the needs of trade. While Adam Smith is credited with the origin of the Real Bills Doctrine, Lloyd Mints found its basic idea already represented in the works of John Law (Mints 1945). Law defended the idea that bank note use should be tied to the market value of land, land value being an indicator or proxy of national production in agricultural societies. Similar to the Real Bills Doctrine, Law's idea was to tie the production of money to output. However, as critics of John Law have pointed out, more issue of bank notes leads to a higher market value of land, which in turn, justifies more note issue, and so on. There is an

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expansion for the purchase of real bills is considered to be desirable.

inflationary spiral. And there is no limit to overissue. Thus, the basic idea both in Law's theory and the Real Bills Doctrine is that the money supply should be tied to a real productive asset (Humphrey and Timberlake 2019, p. 10).

It was Adam Smith who changed the productive asset that should back the credit created by a fractional reserve bank from land to short-term, self-liquidating bills of exchange (real bills). He argued that the amount of fiduciary media follows the needs of trade when banks "discount to a merchant a real bill of exchange drawn by a real creditor upon a real debtor, and which, as soon as it becomes due, is really paid by that debtor" (Smith 1937, p. 288).

The Real Bills Doctrine was later defended by the anti-bullionists. They denied that the Bank of England had overissued notes during the Napoleonic Wars when the redemption of specie payment was suspended. They maintained that adherence to the doctrine would prevent overissue even without upholding gold convertibility.[21] Anti-bullionists argued that as the Bank of England had restricted its note issue to the amount of real bills, it had adjusted the money supply to the real needs of trade and the demand for money.

Thomas Tooke and John Fullarton extended the work of the anti-bullionists. They combined the Real Bills Doctrine with the requirement to convert bank notes into gold and the theory of reflux (Humphrey and Timberlake 2019, pp. 18–19). Convertibility in an international gold standard implies that if domestic prices rise relative to foreign prices, gold outflow will threaten bank reserves and restrict credit expansion. Not only international gold outflow restricts expansion according to Tooke and Fullarton, but also the needs of trade. Ultimately, the reflux mechanism implied that if a bank overissued notes, the notes that money holders do not desire would be returned to the banks and converted into gold, thereby leading to price stability. Finally, to this argument the free banking school added the point that adverse bank clearings also restricted overissue of notes.

[21] Note that Rallo defends gold convertibility plus real-bills fractional reserve banking.

The traditional critiques

Several critiques have been raised against the traditional Real Bills Doctrine.

First, the most common critique of the Real Bills Doctrine refers to its linkage of the money supply to a nominal variable—i.e., the market value of goods produced (Humphrey and Timberlake 2019, pp. 5–6). The market value of goods produced is, however, not independent from the money supply. This implies that there is, without convertibility into gold or some other limited reserve, no limit on the money supply and prices.

Imagine that due to supply chain constraints after a pandemic, prices of consumer goods increase disproportionately to their reduction of supply. This means that the market value of consumer goods produced increases. The value of discountable real bills increases. Banks can in this situation create additional monetary substitutes by purchasing real bills. As the money supply increases, prices tend to increase even more. The market value of produced consumer goods increases further, which allows their producers to get even bigger loans from banks (through discounting real bills), increasing the money supply even more. Prices and money rise together in an inflationary spiral.[22]

The only constraint on such a spiral is (gold) convertibility; and to his credit that is what Rallo defends. In a fractional reserve gold standard there is a reserve ratio that banks wish to uphold and which puts a brake on this inflationary spiral.[23] The real-bills principle by itself does not limit prices or the money supply (Humphrey and Timberlake 2019, p. 13). The first one to point that out was Henry Thornton (1802). Later David Ricardo also criticized the idea that the needs of trade could limit the amount of money (Humphrey and Timberlake 2019, p. 18).

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[22] Indeed, Rudolf Havenstein, the president of the Reichsbank during the 1920s German hyperinflation, appealed to the Real Bills Doctrine, arguing that prices increased sharply and that therefore the needs of trade increased. As the quantity of money demanded for transactions increased, there would be a shortage of money, Havenstein argued, and the money supply had to be increased (Humphrey and Timberlake 2019, pp. 21–22).

[23] Unless banks expand credit in unison nationally and internationally.

Second, and related to the above, critics have argued that the Real Bills Doctrine is procyclical. When production rises, more money is produced. When production falls, less money is produced. In this sense, Humphrey and Timberlake (2019) maintain that the Real Bills Doctrine contributed to the monetary instability of the 1920s and 1930s. I add that before the rise of central banking, real-bills discounting was the traditional banking practice in the 19th-century gold standard. Yet this period produced numerous banking crisis (Huerta de Soto 2014, p. 231). Thus, to put it mildly, from a historical point of view, real-bills practice has failed to provide clear evidence that banking crises are prevented.

Third, there is an objectivist remnant within the Real Bills Doctrine. It distinguishes between production, which is considered to be good, and speculation, which is considered to be bad (Humphrey and Timberlake 2019). Its proponents claim that a real bill can be used for credit expansion because real bills help to bring real goods that have already been produced to the market. However, a short-term speculative credit that is backed by securities should not be used for credit expansion, because it is used to finance speculation.

However, there is no clear, objective distinction between production and speculation. All production activity is speculative (Humphrey and Timberlake 2019, p. 169). There is no guarantee that the consumer goods produced will be sold at a certain price. There is ineradicable uncertainty and always entrepreneurial speculation involved in business activity. The proponents claim that real bills are backed by goods that are certain to be sold at a guaranteed price, while there is no such thing as certainty in economic activity but always uncertainty and speculation.

Moreover, stock market speculation, if successful, also creates real value for society by adjusting prices and productive structures. The price information provided by stock market quotations is essential information for the adjustment of the productive structure of the economy. The stock market via its price information facilitates the regrouping of assets, which is a very important and productive endeavor (Lachmann 1978).

Furthermore, bank lending against securities may also be used to finance real production. In addition, not only real bills are backed by real goods, but stocks are in the end also backed by real

goods; they are also real. In one case it is consumer goods to be sold soon; in the other case the collaterals are capital goods that produce consumer goods.

In both cases—lending against securities and lending against real bills (commercial paper)—a fractional reserve banking system increases the money supply (by producing fiduciary media). The use of the newly created money substitutes is open to the borrower. The funds may be used for financial-market speculation or improving productive facilities. One may actually make the case that the flow of newly created money to financial markets is—at least in the short term—less distortive. When the newly created money flows to financial markets, asset prices are distorted, while the structure of production is not immediately affected. Malinvestments will occur faster when the money flows into the expansion of real productive activities (Bagus 2007).

Fourth, Henry Thornton in his 1802 classic points out that goods could be sold several times, giving rise to several real bills (Thornton 1978). Let us take the following example: Person A sells goods worth €100 to person B, and person B pays with a real bill that comes due in 30 days. The next day person B sells the goods to person C and person C pays with a real bill payable in 30 days. In this case, two €100 real bills are in existence for the market value of €100 in real goods. If A and B take their respective real bills and different banks purchase them for €99 each, then the money supply increases by €198 (Humphrey and Timberlake 2019, pp. 14–15).

Fifth, there exists the possibility of creating real bills on purpose. Let us say that company A provides an input to company B for €100, while company B provides an input to company A for €100 also. Both companies are providing goods or services to the other. The claims cancel out. However, let us imagine that company A pays B in the form of a real bill; and B pays A also with a real bill. Then both companies hold a real bill drawn on the other company, and they could just cancel them. However, they could also take them and rediscount them at a fractional reserve bank that creates new fiduciary media. Then the money supply increases by the sum of the discounts. Instead of compensating payments, real bills are exchanged. The money supply increases, and new investment projects can be started without any increase in real savings.

A possible rebuttal to this critique is that it is the genuine task of banks to analyze in detail the quality of the real bills and also make sure that there is no creation on purpose as in the example above. However, the quality of real bills is not a variable that is independent from the practice of real-bill fractional reserve banking. Once a real-bill credit expansion starts, the prices of consumer goods tend to increase and, thereby, the value and quality of real bills increases as well. The bills will also become more negotiable if real-bill credit expansion is widespread. As there is more money around, and the money supplykeeps increasing because of real-bill credit expansion, real bills become easier to sell.[24] They become more negotiable and more attractive to use. In other words, the quality of real bills is not independent from the institution of fractional reserve banking.

In addition, the practice may be self-defeating. This is so because the fractional reserve discounting of real bills may trigger an artificial boom as I will show below. During the artificial boom, there may be overconsumption, which in turn increases the quality of real bills as the price of goods collateralizing them increases. The overconsumption results from lower interest rates and a possible wealth effect, as economic agents feel richer.[25] When the recession hits, many bills will turn bad. After the end of the inflationary process, with widespread malinvestments and during a panic, no bill may be of good quality. Thus, in the same way that banks considered subprime loans during the boom phase to be better quality than they actually were, banks may consider real bills during the boom as better quality than they are and discount more of them.

5. The (Feketian) banking-school approach cannot prevent cycles

In this section I explain why the variant of the banking school that is defended by Rallo will not prevent business cycles. For this

[24] On the connection between credit expansion, overall liquidity, and maturity mismatching, see (Bagus 2010).

[25] On overconsumption, see Mises (1998, pp. 546–47) and Salerno (2012). On the possible wealth effect, see Bagus (2008).

endeavor I have to analyze the nature of real savings that are necessary to sustain productive processes. I must analyze some basic features of capital theory. Furthermore, I will analyze how the market for real bills affects the whole structure of interest rates and long-term investments. Finally, I will look at the supposed limit for credit expansion in the needs for trade.

5.1. *The demand to hold money is not saving*

5.1.1. The essence of fiduciary media: present goods or future goods

Probably the most important theoretical disagreement between Rallo and the Austrian school is about the role and nature of real savings and its relation to the demand to hold money. This question is connected to the nature of fiduciary media, which I will discuss in this section.

One of the contributions of Mises in his 1912 work *The Theory of Money and Credit* was to enhance Menger's analysis of money and provide a new subjectivist typology of money (Hülsmann 2012a). According to Mises (1953) money in its broader sense may be categorized into money proper and money substitutes. In a gold standard, gold is money proper. Money substitutes, such as demand deposits or bank notes, can be exchanged against money proper (such as gold) on demand. Money substitutes are perfectly redeemable claims on money (proper). There are two types of money substitutes: money certificates and fiduciary media. Money certificates are money substitutes that are completely backed by the issuer by money proper. Fiduciary media, however, are money substitutes that are not backed by money proper.

In other words, fiduciary media are money substitutes that are issued beyond the amount of money certificates. When someone deposits money proper at a bank, the bank issues a money certificate. Fiduciary media are created by the issuing bank when it grants a circulation credit. Whereas with a commodity credit someone gives up purchasing power to the benefit of someone else, with a circulation credit and the issue of fiduciary media it is

different: "The gain of the party who receives before he pays is balanced by no sacrifice on the part of the other party" (1953, p. 264). "As there is no sacrifice, fiduciary media are created out of thin air" (1953, p. 306).

Mises, who was trained as a lawyer, was influenced in his analysis of claims and titles by his academic teacher Eugen von Böhm-Bawerk (1881, p. 120).[26] As money substitutes are claims payable on demand, they are considered to be present goods. Money substitutes are regarded as certain claims. They are redeemed at par. They do not trade at a discount. Perfect money substitutes (i.e., demand deposits) and money proper fulfill the same services of reducing uncertainty and facilitating transactions.

When money substitutes are issued, there is no credit transaction, because the issue of a title (perfect money substitute) to a present good (money proper) is not a loan. Things are different for loans, which are credit transactions. In a credit transaction, there is a transfer of goods delivered in the future.[27] As Böhm-Bawerk (1881, pp. 5–11) clarifies, a credit transaction involves a title to a still nonexistent future good.

The distinction between present goods and future goods is important to Mises and essential for the debate on real-bill fractional reserve banking. For Mises a demand deposit (fiduciary medium) is a title (or claim) to a present good, while a bond and a real bill are titles to future goods. Rallo, however, does not apply the Misesian distinction between present goods and future goods. Rather, Rallo distinguishes between real assets, which are those assets that do not represent a liability of someone else, and financial assets, which do represent a liability of someone else (p. 96).

For Rallo both demand deposits and real bills are financial assets, while for Mises the former is a claim to present goods and the latter a claim to future goods. Rallo's conceptualization of real assets and financial assets, which may be useful in other contexts,

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[26] Mises states that claims themselves are not goods but give the right to dispose of goods (Mises 1953, p. 52). What he seems to mean is that claims are not the goods that they can be exchanged for. However, when these claims are on demand, they act as if they were present goods: they are perfect substitutes.

[27] On probabilities of debt contracts, see Böhm-Bawerk (1881, p. 86).

does not allow him to see the differences between a title to present goods and a title to future goods: his focus on the distinction between real assets and financial assets hides the problems of fractional reserve banking.

A more nuanced view holds that there are three kinds of property (present goods)—namely, consumer goods, producer goods, and money. Moreover, there are titles (claims) to future consumer goods, future producer goods, and future money (Hoppe, Hülsmann, and Block 1998, p. 24). For Rallo there are only real assets and financial assets. The important difference between titles to present goods and titles to future goods remains unnoticed in Rallo's conceptualization. Is there no essential difference between a car valet (title to a present good) and a bond (title to a future good)? For Rallo, both are financial assets. This lack of distinction is especially problematic when titles to present goods exercise the same function as the present goods themselves for practical purposes, as is the case for fiduciary media and money proper.

As a consequence, Rallo has a completely different assessment of fiduciary media, which is at the root of many discrepancies. For Rallo fiduciary media are not present goods and perfect monetary substitutes but just very liquid financial assets. From there it is only a short, fatal step to his claim that people holding fiduciary media are basically investing in a financial asset and, hence, saving. The issuance of additional fiduciary media against real bills, for Rallo, thereby does not pose a problem, as there is real saving on the part of those that hold the fiduciary media.

Rallo cannot accept the possibility of perfect monetary substitutes used as present goods, because then the question of their backing with real savings would come to the fore. Perfect monetary substitutes are defined away because otherwise his whole argument would collapse. As "perfect monetary substitutes" must disappear in Rallo's world, they are categorized under a new name: "financial assets."[28]

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[28] Rallo comes up with a new term for these financial assets: "promises to pay." So "perfect monetary substitutes" become "promises to pay" with a certain default risk. This semantic change seems a stretch and inadequate since bank moneys are money substitutes that are completely available for purchases from a subjective point of view

Apart from definitions, there is another question about essence at play. What is decisive in the matter of the nature of fiduciary media is the subjective point of view.[29] In the same way that the law of diminishing marginal utility is based on subjective thoughts, the concept of perfect monetary substitutes is as well. When, from the point of view of the actor, individual units of a good are perfectly interchangeable, the law of diminishing marginal utility applies. The law states: when the number of units of a good considered as perfectly interchangeable and at the disposal of an actor increases, the marginal utility of each of these units individually considered falls. These units are not perfectly interchangeable from an objective point of view. What makes the law of diminishing marginal utility applicable is not objective characteristics of goods but the subjective consideration of the actor. The same applies to monetary substitutes.

But can units be *perfectly* interchangeable or can titles to goods be *perfect* monetary substitutes? There is nothing perfect in this world from a metaphysical point of view, indeed. But no sophisms can change the fact that subjectively, units can be considered to be perfectly or—if you prefer—completely interchangeable. And an individual may consider two €5 notes and one €10 note as equivalent and perfect substitutes. In the same way, monetary substitutes can be subjectively considered to be perfectly interchangeable with money proper, at least at a specific moment in time and specific place. A €10 note can be considered to be perfectly interchangeable with €10 in a demand-deposit bank account. Indeed, in their accounting practices, companies consider cash and money in bank accounts to be one entry—as perfect substitutes.

What is essential here is that the €10 note and the €10 in the bank account may form part of what the individual considers subjectively to be his cash balance (Hülsmann 2000, p. 107). And when the individual makes a decision to buy or not buy, to sell or not sell

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and are objectively used as if they were money proper. They act in practice as (perfect) monetary substitutes.

[29] While there are objective differences between an accounting liability of a central bank (i.e., cash in circulation) and an accounting liability of a commercial bank (i.e., a demand deposit), what is essential is the subjective viewpoint of the actor, which can make the latter the perfect substitute for the former. On the subjective view of the money supply, see Rothbard (1978) and Salerno (1987).

a good or service, he takes into account the cash balance he subjectively considers as available; and this cash balance includes both money proper and perfect monetary substitutes. Perfect monetary substitutes are (objectively) used as if they were money proper.

Therefore, there is an essential difference between creating some secondary media of exchange—for instance, someone issues shares in the stock market, which are very liquid[30]—and creating perfect monetary substitutes that are unbacked by money proper (i.e., fiduciary media). Both are financial assets from Rallo's point of view. However, there are crucial differences. In the latter case,

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[30] A counterargument by Rallo could be that IOUs may circulate without a discount and be used as money substitutes. Indeed, when Elon Musk writes an IOU of $100 (redeemable on demand), it could be accepted without a discount. There is no problem. Musk must save—i.e., restrict his consumption by $100--because the IOU could be presented to him at any time. In this case there is no double availability. The holder of the IOU may consider it as of high liquidity and reduce his money holdings as a consequence. Yet such an IOU will not be considered a perfect monetary substitute for several reasons. First, it is not easily divisible into smaller amounts. Second, its circulation is restricted to professionals, those who know who Elon Musk is and what his signature looks like, and those that can judge the authenticity of the document. While individuals may regard cash in hand and money in their bank account as subjectively interchangeable, they will find differences between an IOU from Elon Musk and cash.

Thus, Elon Musk's issuing an IOU that is redeemable on demand does not increase the supply of money in its broader sense, which comprises money and (perfect) money substitutes, because the IOU is not a perfect money substitute but indeed a financial asset. No money has been created without prior savings, and Elon Musk must maintain liquidity to pay his debts.

Banks operate fundamentally differently from Musk issuing an IOU. No one is depositing cash with Musk and receiving a receipt or certificate. Rather Musk owns cash and issues a claim against it. He issues a claim to the cash he actually owns. In contrast, fractional reserve banks do not have cash reserves to redeem all claims but create money substitutes without having cash (creating fiduciary media). They use deposited money to grant credit in a volume higher than these deposits of money proper.

Hülsmann (2000) argues in this respect that banks cannot create money but only titles to money. He argues that it should be prohibited for banks to issue titles to money, but it should be allowed for them to issue IOUs. These IOU, like Elon Musk's IOU, would experience a "fringe existence" in a free market (p. 109). Thus, they would be different from fiduciary media. The question here remains up to which point these IOUs would be considered to be immediately available on demand and, therefore, considered to be equivalent to demand deposits. If these bank IOUs are considered to be equivalent, then the obligation of demand-deposit contracts would apply and banks should have the cash at hand at all times.

the money supply, comprising perfect monetary substitutes and money proper, increases. There is a double availability. The person who holds the money proper believes it to be available, and the person holding the perfect monetary substitutes considers money proper to be available as well. No such double availability occurs in the case of an issue of shares in the stock market.

Now, let us further examine whether fiduciary media are financial assets. A financial asset implies an exchange of present goods against future goods. In a bond, for instance, the lender gives up present goods (money available today) against future goods (money available in the future). Similarly, a stock is a financial asset. The purchaser of the stock gives up money and gets in return the right to dividends in the future. Money, however, is neither a bond nor a stock; it is not a financial asset. Money is a present good that gives services in the present—namely, facilitating exchange and reducing uncertainty.

Uncertainty reduction is the key for understanding money's nature and function. Without knowledge of the timing and the magnitude of future expenses, individuals demand money in order to hedge against that uncertainty. Money proper and money substitutes differ from financial assets, as they represent on-demand availability at par value (Howden 2023). With financial assets such as stocks or bonds there remain residual risks. Thus, the demand for money is the demand for present goods to reduce uncertainty and satisfies a different need from the demand for financial assets, which is a demand for future goods expressed by giving up present goods.[31]

When someone demands money or money substitutes by selling some present good, there is no exchange of present goods against future goods; there is no credit transaction. Money must be available in the present to render its services. Now, fiduciary media are perfect money substitutes. They are accepted in exchange as if they were money proper. They exchange on par with money proper. And indeed, in common statistics, both cash and demand

[31] Mousten Hansen (2021) argues along these lines that the nature of fiduciary media is incompatible with the aim of people holding money (to reduce uncertainty) and an entrepreneurial error.

deposits are included in M1 because they perform the same economic function. In short: as money is not a financial asset, and fiduciary media are perfect monetary substitutes, fiduciary media are not financial assets.

People hold fiduciary media because they are perfect monetary substitutes and perform the same function as the present good called money.

As Herbener puts it:

> "People only demand money-substitutes, not fiduciary media, and their demand exists only when they have confidence in full redemption based on the issuers' practice of full redemption. People could not demand fiduciary media because they cannot distinguish between a money-substitute that is a money-certificate and one that is a fiduciary medium. If they could make such a distinction, then fiduciary media would not be viable." (Herbener 2002, p. 83)

While fully redeemable bank money is a perfect monetary substitute, a real bill is not, according to Mises (Rallo, p. 27). It may be a secondary medium of exchange. Indeed, holdings of real bills do not serve a bank in a bank run. While real bills are redeemable in 30 days (or 60 or 90), in a bank run depositors want their money right now (Humphrey and Timberlake 2019, p. 29).

Again, the question of the nature of fiduciary media is important because of the role of savings. If fiduciary media were financial assets, implying an exchange of present goods against future goods, the holders of fiduciary media would be saving, and credit expansion by real-bill fractional reserve banks would be backed by real savings. If, however, as I have demonstrated, fiduciary media are perfect monetary substitutes and act as present goods, then no one is giving up present goods and saving by holding bank money. I will analyze this issue in more depth in the next section.

A short legal excursion

Connected to the question about the essence of fiduciary media—whether they are financial assets or perfect monetary

substitutes—is the legal issue of fractional reserve banking. The legal issue is only indirectly touched upon by Rallo. Nevertheless, it is quite important.

Rallo sees a loan contract not as an exchange of present goods against future goods but rather as a relationship between creditors and debtors. A credit is a collection right or collection claim (p. 128). For Rallo, fiduciary media such as bank notes or bank accounts are "on sight or on demand credits." Therefore, in real-bill fractional reserve banking there is no double availability of money proper, because the fiduciary media constitute a collection right only at the moment that someone demands to redeem them into money proper—not before nor afterward. Therefore, the bank only has to have the reserves at the moment the holder of the rights asks for collection.

Neither in *Human Action* nor in *The Theory of Money and Credit* does Mises write about the legal issues surrounding fractional reserve banking. However, Mises (1953, p. 268) remarks, "The depositing of the money in no way means that he has renounced immediate disposal over the utility that it commands." This remark indicates that Mises believes that there is a double availability involved in the issue of fiduciary media. The problem of the double availability is at the core of the legal problems of fractional reserve banking.

Even if we assume that banks do issue "on sight credits" with collection rights and not demand deposits, as long as these "on sight credits" are considered to be perfectly available and equivalent to demand deposits, all traditional legal principles that apply to demand deposits must also apply to "on sight credits." Changing the name of demand deposits to "on sight credits" does not change their nature. Legal principles apply to contracts that are equivalent even though different names are used. For instance, a contract that states that if it rains 25 percent of days there will be a payment of X is equivalent to a contract that says that if it rains one out of four days, there will be a payment of X. The same principles apply to both contracts.

An "on demand credit" that gives the right to the holder to collect on demand is equivalent to a demand-deposit contract. When the holder always has the right to collect or withdraw his money at

any time, and believes he is able to do so, it forms part of his cash balance, not only at the moment that he withdraws his money but always. As such, fiduciary media are monetary substitutes and used as means of payment. Therefore, there exists a double availability at the moment fiduciary media are created.[32] The holder of the fiduciary media believes the money proper is available to him, as he has the right to collect, and the bank that uses the money proper believes it is available for its investment purposes—namely, to grant credit.

5.1.2. Holding financial assets and savings

Holding a fiduciary-media cash balance is not like holding financial assets such as stocks or bonds. When someone buys stocks and bonds, he is giving up purchasing power. When someone holds fiduciary media, he is not giving up purchasing power but holds a present good. There is a double availability because the holder of fiduciary media and the bank act as if they had the money available.

Compare the following two scenarios: First assume that person A saves from his income and purchases a newly issued stock (a financial asset). The company takes the money to invest in a 10-year project. The saver, then, after one year sells the stock, and another person becomes the saver, as he reduces consumption and purchases the stock. If no one saves to purchase the stock from A, then A becomes a forced saver, as he cannot sell the stock and cannot consume as much as he hoped for. In any case, consumer-good prices do not increase. The investment project is backed by real savings and sustainable.

Now assume that person B saves from his income and adds to his cash balance, which he holds in a demand deposit—a perfect

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[32] Machlup (1940, p. 220) shows that even with short-term fractional reserve loans, there is double availability, leading to an economic crisis:

> "If . . . the modern credit system supplies this entrepreneur with new "short-term funds" in order to finance his "merely temporary capital requirements" next time they arise, or lends "short-term funds" to the other entrepreneur so that he can repay his loan, the effect is that command over the same productive resources is given twice over. It is obvious that in the long run this situation cannot endure and that equilibrium can be re-established only after the expansion of the more roundabout production processes has been followed by contraction associated with the usual phenomena of the crisis."

money substitute and present good. The bank takes the money and grants a loan to a company to invest in a 10-year project. When after 1 year person B spends his money, consumer-goods prices rise relative to prices of capital goods, and a new project that was undertaken to last 10 years may have to be abandoned as shorter projects become relatively more profitable with the rise in consumer prices.

While financial assets arise in credit transactions and holding financial assets implies saving, holding a cash balance is not saving. This error can already be found in Keynes (1964), where the author writes:

> "It is supposed that a depositor and his bank can somehow contrive between them to perform an operation by which savings can disappear into the banking system so that they are lost to investment, or, contrariwise, that the banking system can make it possible for investment to occur, to which no saving corresponds. But no one can save without acquiring an asset, whether it be cash or a debt or capital-goods; and no one can acquire an asset which he did not previously possess, unless *either* an asset of equal value is newly produced *or* someone else parts with an asset of that value which he previously had. In the first alternative there is a corresponding new investment; in the second alternative someone else must be dissaving an equal sum. For his loss of wealth must be due to his consumption exceeding his income." (pp. 81–82)

Keynes, on the next page, argues that the person who holds the additional fiduciary media created by credit expansion is actually saving: "Moreover, the savings which result from this decision are just as genuine as any other savings. No one can be compelled to own the additional money corresponding to the new bank credit, unless he deliberately prefers to hold more money rather than some other form of wealth" (p. 83).

Benjamin Anderson (1979, p. 391) comments correctly that "one must here protest against the dangerous identification of bank expansion with savings, which is part of the Keynesian doctrine."

An increase in the amount of money units (or fiduciary media) does not equal an increase in real savings. The fact that the new monetary units change hands and are always in the cash

holding of someone does not mean that they are real savings. Even if the fiduciary media are not spent immediately, that does not mean that there are additional real savings (Huerta de Soto 2012, p. 697).

Huerta de Soto (2012, pp. 694, 697, 700) mentions that George Selgin's case for fractional reserve banking is based on Keynes's argument. Rallo partially follows the argument.[33] Rallo does not identify all bank expansion with savings but only credit expansion in which real bills are discounted. He believes that when fiduciary media are created by credit expansion based on real bills and then not presented for redemption at banks but held, there is an increase in real savings. However, the error of Keynes, Selgin, and Rallo is the same. Holding newly created fiduciary media does not equal new saving. Saving implies prior abstention from consumption and liberation of consumer goods. It implies giving up present goods, something that does not occur when fractional reserve banks expand credit based on real bills.

As Mises (1953, p. 272) puts it, "A person who accepts and holds notes, grants no credit; he exchanges no present good for a future good. The immediately-convertible note of a solvent bank is employable everywhere as a fiduciary medium instead of money in commercial transactions, and nobody draws a distinction between the money and the notes which he holds as cash. The note is a present good just as much as the money."

Huerta de Soto (2012) reminds us, "All saving requires discipline and sacrifice of the *prior* consumption of goods and services, not merely the renunciation of the potential consumption afforded by new monetary units created *ex nihilo*" (p. 548).

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[33] Huerta de Soto's (2012, p. 700) statement on Selgin is, at least partially, also applicable to Rallo:

> "It is not surprising that these doctrines [doctrines that maintain that an increase in fiduciary media equals saving] have been defended by authors like Keynes, Tobin, Pointdexter and, in general, all who have justified inflationism, credit expansion and the "euthanasia of the rentier" for the sake of aggressive economic policies geared to insure an "adequate" level of "aggregate demand." What *is* surprising, however, is that authors like Selgin and Horwitz [and Rallo], who belong (or at least belonged) to the Austrian School and thus should be more aware of the dangers involved, have had no alternative but to resort to this sort of argument in order to justify their "fractional-reserve free-banking" system." (emphasis in original)

There may be, of course, forced saving as a consequence of real-bill credit expansion.[34] When the additional fiduciary media bid up prices, some individuals will be forced to reduce their consumption. Moreover, after an artificial boom started by real-bills credit expansion, many capital goods will lose in value, there will be a recession, and in the recession consumption will fall. Yet not ex post forced savings but prior savings are needed for investment projects to be sustainable.

Rallo might reply that the producer that issues the real bill could already consume the goods that are used to collateralize the bill and, thus, the producer would be saving. However, this argument is problematic and in conflict with subjective value theory for several reasons.

First, the producer cannot, normally, consume all products he produces. Indeed, in an economy based on the division of labor, producers produce a large quantity of consumer goods whose marginal utility is quite reduced and then these goods are exchanged for goods and services that other specialists produce in large quantities. Indeed, in a society based on the division of labor, normally the producer does not produce the consumer goods for himself but for others.

Second, a consumer good becomes a consumer good when it is assessed as such subjectively by a potential consumer. Beforehand the good has to be produced, transported, and marketed to the final consumer. As long as it still needs transportation and marketing, it is not a consumer good yet but still at an earlier stage of production (Mises 1953, p. 83). It is a capital good or intermediate good. Not consuming the capital goods is required to finish a particular investment project, but it does not constitute real savings available to finance another project.

Capitalists may sell their unfinished capital goods and increase consumption at any stage of the production process. Yet for the

[34] Another case is that of a change in the proportion in the spending of consumer goods and producer goods due to de-hoarding. When de-hoarding leads to a relative increase in spending on producer goods, this reflects a fall in time-preference rates. The producers of producer goods will have more buying power, leading to a relative reduction in consumption. On this case, see also fn. 43.

production processes to be completed successfully, someone has to keep saving until the very end of the production process.[35] Selling the unfinished capital goods does not increase real savings from an aggregate point of view. Nor does the discounting of bills backed by these unfinished capital goods increase real savings. When unfinished capital goods (backing real bills) are used for credit expansion, new fiduciary media are created without an increase in real savings.

It is true that capitalists save and these savings are transformed into intermediate goods and finally consumer goods. Yet it would be double counting to say that the savings that are converted into consumer goods not only sustain the production process of this consumer good but constitute additional savings available to finance another project. Capital goods can be said to constitute savings, but they are not available to sustainably finance further projects via fractional reserve real-bill discounting.

Third, Rallo is correct that if the holders of fiduciary media asked for redemption into money proper, then an immediate credit contraction would ensue. But it is a non sequitur to deduce from this that as long as there is no bank run, there is an increase in real saving. Depositors' not redeeming their deposits into money proper is not equivalent to their "financing" the credit through real savings—i.e., sacrificing a larger part of consumption. Take the following example: If a bank buys government bonds, creating a fractional reserve deposit for the government, then the money supply increases. The government uses the funds to buy from another bank customer (instead of withdrawing money proper), so there is no credit contraction. But that does not mean that there is additional real saving just because the bank customer holds onto the newly created fiduciary media. The real amount of goods available to sustain production processes has not increased. It is simply that new means of payment have been created.

Banks issue perfect monetary substitutes that are accepted as money proper. The factor owners paid with newly created fiduciary

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[35] Robinson Crusoe, if he produces for the market, has to have savings until his product is sold to the final consumer. That is, he does not need savings only until his product is "finished" in an objective way; he needs them until the product is actually purchased by the consumer.

media do not have to wait to spend. They can directly use these monetary substitutes. They do not have to redeem them into money proper before using them. There is no renunciation of consumption at the moment of the creation of the fiduciary media on the part of the bank.

Just because someone holds onto the fiduciary media, it does not mean that real savings in society has increased. What would Rallo think about a money falsifier? If a money falsifier produces falsified notes and the money circulates, then the holders of the falsified notes will, according to Rallo's argument, also forgo the disposal of present goods. They could have bought consumer goods with these falsified notes. If the holders do not use the notes immediately, it does not mean there is more real saving. And if they spend them and other people start to hold them, there is not more savings either. It is absurd to claim that the falsified notes in the pockets of the people "finance" the investment of the falsifier because they could have tried to redeem them against money proper. There is no more real savings; there is just "forced savings," as prices tend to rise. And there is redistribution.

Rallo's reply to Sean Corrigan

In a response to Corrigan, Rallo (2014) insists that real-bill discounting by fractional reserve banks involves saving. His argument is that the goods backing the real bill are already produced and could be consumed. Modifying one of his examples, let us assume that the owners of the factors of production are paid with a voucher that they can exchange at the end of the production process against consumer goods. In this case, the owners of the factors of production are saving (voluntarily) during the production process. Now, instead of paying the owners of factors of production with a voucher (real bill), the real bill is discounted and exchanged against fiduciary media, which are paid to factor owners. The owners of the factors of production can exchange these fiduciary media for the consumer goods produced at any time. If factor owners do not buy the consumer goods but hold onto the fiduciary media, they are, according to Rallo, effectively saving in the same way that they save when they are paid with vouchers.

While this is the most favorable case for Rallo, in which real bills are issued against consumer goods[36] and these fiduciary media are untouched until the end of the production process, problems still remain.

First, and as stated above, the production process ends when the consumer good is sold. Retail shops form part of the production process. They are the last stage of production. This last stage involves time, and the product has to be transported physically and spiritually (by marketing) to the consumers. Hence, Rallo's distinction between two types of consumer goods—namely, those that have been produced but not sold yet and can be used for real-bill discounting and (real) consumer goods—is artificial and does not make economic sense.

Savings must be available till the very end of the production process to sustain factor owners and not only to the very end minus 30 days.[37] Handing out fiduciary media to factor owners 30 days before the end of the production process does not shorten or speed up the production process. It allows factor owners to spend these fiduciary media before the production process ends. Indeed, if no time was gained in accessing money, then real-bill discounting would indeed be redundant. Thus, there is some time gain that is not sustained by real savings.

Second, even if the factor owners do not touch the fiduciary media, their cash balances increase and they will bid for goods and services based on this increase. Maybe they use other fiduciary media or money proper for additional purchases that they would not have acquired without the real-bill credit expansion.

Third, the fact that fiduciary media have to be created to sell the consumer goods shows that their price would have had to fall otherwise, or else the seller would have had to wait. By creating new

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[36] The traditional Real Bills Doctrine considers real goods in the process of production as good collateral for bills—i.e., not only consumer goods but also fungible and highly demanded intermediate goods. Thus, Rallo defends a special and restrictive kind of Real Bills Doctrine.

[37] Another question is the following: why is credit expansion based on real bills (i.e., loans for 90 days) sustainable, but not loans with 91-, 92-, 93-, etc., day maturity dates?

fiduciary media, there is no increase in real savings; just a price fall or waiting time may be eliminated.

Fourth, let us imagine that additional consumer goods are produced that the entrepreneur expects to sell for 1,000 MU.[38] A bank discounts a real bill for 990 MU. New fiduciary media are created and increase the income of the factor owners. Now, in order to purchase the 1,000 MU worth of goods, the 990 is insufficient. Self-liquidation cannot occur. More importantly, if all 990 MU of additional factor income were consumed while purchasing the newly produced goods, this would imply a change in the proportion of consumer and investment spending. One hundred percent of the additional monetary income would be spent on consumer goods and 0 percent on investment. The proportion of income spent on consumer goods would increase; i.e., there would be an increase in time preference. The increase in time preference, however, would require an adjustment of the structure of production.

If time preference does not change, then at least a small part of the 990 MU additional factor income will not be spent on consumer goods but saved and invested. In this case, self-liquidation of the real-bill credit expansion does not occur. The additional consumer goods will not be purchased for 1,000 MU but must fall in price. Prices must adjust due to the economic growth. But this is not a problem but part and parcel of a market economy. The production of fiduciary media cannot change that and is the potential source of intertemporal distortions.

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[38] Here we have the most favorable case for the Real Bills Doctrine. We can also imagine a scenario of an existing production process that in its totality has been financed through equity. Then the last phase of the production process starts to be financed by real-bill credit expansion, freeing up equity. Apparently, there was no increase in real savings. Credit markets and capital markets are interconnected. When more credit is created by discounting real bills, savings are liberated for other investments whose interest rate tends to fall, generating systematic investment errors.

Another point must be clarified: In the above example I analyzed the effect of additional real-bill credit expansion, not the rolling over of old loans. I analyzed additional real-bill credit expansion backed by additional consumer goods produced. The old credit expansion had already had its effects, and the economic system had become accustomed to a certain amount of fiduciary media. The example aims to analyze the effects of an additional dose of fiduciary media injected through real-bills discounting.

5.1.3. The need for real savings

Capital theory is an essential and distinctive building block of Austrian economics. Essential differences between the Austrian school and other schools of economics can be derived from their different theories of capital (Huerta de Soto 2012).

The key Austrian insight on capital theory is that production is a process that takes time. Consequently, there is a need for real savings to sustain production processes. Someone has to give up consumption in order to sustain the owners of the factors of production engaged in the production of capital goods. Saving provides present goods to sustain investment projects.

In capital markets, present purchasing power is exchanged for titles to future goods. This need for real savings to sustain production processes is not only the key difference between the Austrian school and other schools in the field of "macroeconomics" but also key to understanding Austrian business cycle theory. According to this theory there is an intertemporal discoordination between savers and investors due to credit expansion that distorts the interest rate. Investors invest as if real savings had increased and engage in too ambitious investment projects, while consumers do not increase their real savings. Induced by credit expansion and artificially low interest rates, investment projects appear to be profitable that would not be profitable with higher interest rates that represent the real amount of savings.

Entrepreneurs taking new loans from a fractional reserve banking system start new projects, even though savings have not increased. Sooner or later the artificial boom comes to an end, as there are not enough real savings to sustain the factors of production in the new projects. It becomes obvious that there have been malinvestments, and they are liquidated in a recession.

Let us take a look at the system that Rallo proposes. He proposes a real-bills fractional reserve banking system where fiduciary media can be redeemed into money proper (such as a fractional reserve gold standard).

To understand the workings of such as system, let us imagine Robinson Crusoe on his island. He catches fish with his bare hands. He catches 3 fish in a whole day, and he consumes all 3 of

them. The 3 fish symbolize the consumer goods that he needs to sustain himself comfortably. The investment project that Robinson creates in his mind is to build a net to catch fish more efficiently. He believes that with his net, which is a capital good, he will be able to catch 10 fish in only half a day, thereby increasing his output.[39] He also believes that it will take him 30 days of full-time work to build such a net. If Robinson is not willing to sacrifice consumption and to save and build a 90-day hoard of fish (assuming that they are not perishable), he will not be able to engage in his project. Someone in society could, however, save for him. For instance, Friday could sacrifice consumption and lend him 90 fish for 30 days (or some more days to give him time to catch 90 fish).

Instead of lending Robinson all 90 fish at the beginning of the project, Friday could save and lend 3 fish a day, extending the loan for 30 days. Alternatively, other inhabitants of the island may lend to Robinson. For instance, Friday may lend 45 fish for 15 days and Gordon another 90 fish (45 to pay back Friday and 45 for consumption) for the second 15 days. Alternatively, Tom may lend 2 fish and Peter 1 fish the first day for one day, and John 7 and David 2 fish on days two and three (3 to pay back Tom and Peter and 6 to sustain him on days two and three), and so on. For the project to be sustainable, it is essential that every day there are 3 fish of net real savings that are transferred to Robinson to sustain him. The maturity (quality) of the loans is not what is essential but the availability of net real savings (the quantity of fish saved and transferred to Robinson).

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[39] This implies in banking-school jargon that the "needs of trade" increase. Another question concerning a real-bills fractional reserve gold standard is the following: would banks only discount more real bills when the needs of trade increase? Imagine that new gold is mined on our island by Tom. At this point, the new mining has not increased the number of fish (it may have increased slightly the amount of consumer and producer goods, as gold is not only money but also a factor of production and consumer good); thus real savings have not increased. If the newly mined gold is then used to purchase a real bill from Robinson, which is later rediscounted by a fractional reserve bank, then, effectively, fiduciary media have been created to finance a company's investments. There is no increase in real savings. A similar critique can be brought forward against fractional reserve banking à la Selgin. When gold is mined, it flows into banks, raising reserves. This would allow Selgin's banks to expand credit without any prior increase in real savings. See, on this point, Huerta de Soto (2012, p. 687) and Bagus and Howden (2010b; 2011b).

So far so good. If there are enough real savings transferred to Robinson to sustain him for 30 days, then the project can be completed successfully. The net is built, and society is richer, as a new capital good that increases productivity has come into existence.

Now, imagine that no one increases savings, but everyone consumes all fish that are produced. There is no net real savings. Then, the project is not viable, because Robinson has nothing to consume during the 30 days. Imagine that Friday owns a bank with some gold reserves. Now, Friday gives a loan to Robinson (collateralized by the fish he wants to catch with the net) without anyone increasing real savings. All fish that are caught are still consumed. Friday issues a monetary substitute (fiduciary medium) to Robinson that states that it gives the right to claim 90 gold coins from Friday's bank on demand. The monetary substitute is a perfect one: it trades at par with money proper. As the market price of fish in the past was 1 gold coin, Robinson believes that he will be able to purchase the fish needed and starts his project. However, if no one increases real savings, Robinson will not be able to purchase the fish to sustain himself. They will just not be there. The creation of fiduciary media, even though "backed" by consumer goods brought to the market within 90 days, does not create fish today. As a consequence of Robinson's bidding, fish prices may go up, sending him the signal that it was an error to engage in this investment project.[40]

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[40] When people de-hoard, find money in their backyard, or economize on their money holdings through payment innovation, they will spend the additional money in the same proportion on consumption and investment goods if their time preference remains the same. If they spend 100 percent of their additional purchasing power on investment goods, then their time preference has changed, and more resources will be directed toward investment. Economic agents are saving more (in relative terms). In contrast, with an increase in fiduciary media, there may be the illusion (Hülsmann 1998) that more investment projects are viable without an increase in savings. With no decrease in time preference, the (full) investment of the fiduciary media to lengthen the structure of production will lead to an unsustainable boom. Once the fiduciary media reach the factors of production and they spend it on consumer goods, the relative increase in consumer-good prices will lead to a recession. See also fn. 6. The case of de-hoarding may also be illustrated with our Robinson example. There may be dishoarding to purchase producer goods (such as fishing nets) while consumer-good (fish) spending remains the same. The relative increase in the prices of fishing nets will enable the producer (Robinson) to purchase more fish to sustain production.

Robinson may actually issue a real bill, and sell it to Friday's bank in exchange for 90 newly issued gold fiduciary media. If market participants accept them as perfect monetary substitutes (and this is the case that Mises discusses), then these fiduciary media circulate and someone will always hold them. Maybe the fiduciary media get to Tom, and later to Peter. Both could ask for redemption into gold. However, let us assume that they do not ask for redemption. Even though Tom and Peter do not redeem their fiduciary media, the circulation of them does not create any new real savings to sustain Robinson. It only drives up prices. So, it is an error to argue, as Rallo does, that the holding and acceptance of the fiduciary media is saving. As we have seen, it just does not create more fish.

Let us modify the example to highlight another point. Imagine that Robinson receives 90 units of fiduciary media from Friday's bank in exchange for a real bill. He buys 90 fish from a hoard that Tom has. Note that Tom is not lending for 30 days; he only sold his stock against a perfect monetary substitute. He did not pledge to restrict his consumption for 30 days (as he could have done with a loan contract). Only when Tom (or someone else) reduces his consumption by 90 fish for 30 days will the project be viable. In other words, if all newly created fiduciary media will be saved, the project is viable. Only if the fiduciary media created will not be used for additional spending will the project be viable. But that means that Tom has to restrict consumption. If Tom just held the fiduciary media, this would imply that savings rates have risen, that time preference has been reduced. Only in this rare case would the creation of fiduciary media, the discounting of the real bills, lower time preference.

As Huerta de Soto (2012, p. 549) points out, once the newly created funds are invested and get to the owners of the factors of production, the owners have to save the funds completely in order to make the investment sustainable. If they only spend part of the fiduciary media on consumer goods, there will be a recession. As

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More fish (real savings) are transferred to Robinson in line with the change in time preference. The structure of production becomes more capital intensive with a lower purchasing power of money in line with consumer preferences.

Huerta de Soto (2012, p. 552) puts it, "*Economic agents will ultimately have to save absolutely all monetary income derived from the new investment*."

However, if time-preference rates are constant, then economic agents will spend the additional funds. Tom will not restrict his fish consumption. Then the project is not viable. And again, holding additional money substitutes does not equal a decrease in time preference. If Tom uses the fiduciary media during the 30 days to buy a consumer good from David, and David sells the fiduciary media to John to buy another good, then consumer-good prices tend to increase, indicating the lack of real savings available to finance all investment projects currently undertaken.

It is quite simple: the creation of fiduciary media does not increase voluntary real savings, which is necessary to finance additional projects. The reduction of consumption to free goods to sustain Robinson during the production process does not occur by creating fiduciary media even though the fiduciary media are held by actors and circulate.

5.1.4. Cash holdings versus flow of savings

The crucial error in Rallo's theory is to not take into account that cash holdings is a stock variable and savings is a flow variable.

The flow of saving is the portion of the produced consumer goods that are saved (Huerta de Soto 2012, p. 697) and made available to the owners of the factors of production that are producing capital goods. Economic agents save part of their monetary income, thereby sacrificing enjoyment of consumer goods. In other terms, savings is the portion of income that is not used in current consumption (Machlup 1940, p. 212). This savings—i.e., unconsumed real goods—is always and everywhere a flow variable.

Cash holdings is, however, a stock variable. In an economy with a constant money supply, this stock variable obviously is constant as well (Bagus and Howden 2011b).[41] When the money supply

[41] As Bagus and Howden (2010b, p. 43) put it in relation to fractional reserve credit expansion:

increases, cash holdings—that is, the stock variable—increases. Yet this increase in cash holdings does not say anything about the portion of produced goods that are saved and available to sustain production processes. Adding a zero to all bank notes and bank accounts increases the stock of cash holdings ("savings" in everyday language) but not real savings.

In other words, an increase in the stock variable of cash holdings does not imply an increase in the flow variable of savings (real goods not consumed). Indeed, cash balances may be increased by reducing saving and investment spending. The flow variable of savings is determined by time preference. The lower the time preference, the higher the proportion of income that is saved and the higher the amount of goods available to sustain investments. The stock variable is determined by the demand of and supply for money.

In relation to the Real Bills Doctrine, it is important to understand that it is the flow of savings that is used to sustain factors of production in the capital-goods sector. This flow of funds (sometimes also called the "subsistence fund"; see Strigl 2000) does not grow by discounting real bills. The discounting of real bills by fractional reserve banks only leads to redistribution. It changes the persons who get access to the subsistence funds. Through the creation of fiduciary media, the holders of fiduciary media get greater control of the subsistence funds than they otherwise would have.

In order to understand better the relation between cash holdings and the flow of savings, it is useful to emphasize that there are three ways in which individuals can spend their monetary income. They can spend it on consumption or investments or they can add to their cash balance.[42] Now, individuals can add to their cash balance (stock of "savings") in three ways. They can disinvest,

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"The confusion between increases in savings and cash holdings is a confusion between stock and flow variables. Saving is a flow variable—the part of income that is not consumed. Cash holdings (savings) represent a stock in existence. Cash holdings do not represent saving. One may actually increase cash holdings by saving less (and consuming more), for example, spending a smaller portion of the available income on investments (or selling investments in order to consume). Fractional reserve banking leads to a change in the stock variable (cash holdings) that may create the artificial perception of a change in the flow variable (saving)."

[42] See Rothbard (2001, pp. 689–90) and Huerta de Soto (2012, p. 694). As Hoppe (1994, pp. 72–73) points out:

reduce consumption, or reduce both investment and consumption spending.

Imagine an economy where people hold a cash balance of 100 MU. They spend 80 percent of their 100 MU of income on consumption, and 20 percent they save to invest. Now, when the people decrease their cash holdings (stock of savings) to 90 MU, they can use these 10 MU to increase consumption spending from 80 to 90 MU, which leads to a relative increase in consumer-goods prices in comparison to capital-goods prices and a shortening of the structure of production. Alternatively, they could also decrease their cash balance and increase their investment expenditure by 10 MU, from 20 to 30 MU. This would lead to a relative increase in capital-good prices and a lengthening of the structure of production. As you can see, the reduction in cash balances (stock of monetary "savings") may go along with a shortening or a lengthening of the structure of production.

Similarly, people could increase their cash holdings. They have here again three possibilities: they reduce either their consumption spending or their investment spending or a combination of both. When they reduce their consumption spending, consumer-good prices fall relative to capital-goods prices, and the structure of production is lengthened. As Mises (1998, pp. 518–19) remarks on this particular case:

> "If an individual employs a sum of money not for consumption but for the purchase of factors of production, saving is directly

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"First off, it is plainly false to say that the holding of money, i.e., the act of not spending it, is equivalent to saving. . . . In fact, saving is not-consuming, and the demand for money has nothing to do with saving or not-saving. The demand for money is the unwillingness to buy or rent non-money goods—and these include consumer goods (present goods) and capital goods (future goods). Not-spending money is to purchase neither consumer goods nor investment goods. Contrary to Selgin, then, matters are as follows: Individuals may employ their monetary assets in one of three ways. They can spend them on consumer goods; they can spend them on investment; or they can keep them in the form of cash. There are no other alternatives . . . [U]nless time preference is assumed to have changed at the same time, real consumption and real investment will remain the same as before: the additional money demand is satisfied by reducing nominal consumption and investment spending in accordance with the same pre-existing consumption/investment proportion, driving the money prices of both consumer as well as producer goods down and leaving real consumption and investment at precisely their old levels."

> turned into capital accumulation. If the individual saver employs his additional savings for increasing his cash holding because this is in his eyes the most advantageous mode of using them, he brings about a tendency toward a fall in commodity prices and a rise in the monetary unit's purchasing power. . . . Whenever an individual devotes a sum of money to saving instead of spending it for consumption, the process of saving agrees perfectly with the process of capital accumulation and investment. It does not matter whether the individual saver does or does not increase his cash holding. The act of saving always has its counterpart in a supply of goods produced and not consumed, of goods available for further production activities."

Thus, when people add to their cash balance by abstaining from consumption, this implies a fall in time-preference rates and a corresponding tendency toward a more capital-intensive structure of production.[43] If new fiduciary media are created and injected into

[43] On the process of cash building by abstaining from consumption that leads to economic growth, see Huerta de Soto (2012, pp. 448–49) and Bagus (2015, pp. 65–66); and for a comparison of the direct investment of savings and cash building through savings, see Bagus (2016). Hülsmann (2009) would not agree with our analysis. Hülsmann does not consider three margins but only two: present goods and future goods. He rightly argues that money is a present good. For him, reducing consumption spending to increase one's cash balance implies a change in the composition of present-good spending but not a change in time preference. I do not agree with Hülsmann. It is true that money is a present good. Yet it is decisively different from consumption goods, as consumption goods can be used to sustain factors of production during the production process. Therefore, the distinction between consumer goods, producer goods, and money remains important. Hülsmann argues that in commodity money standard an increased demand for money would raise the pure rate of interest. He argues that as prices fall, the return on investment in money production (e.g., mining) increases. Then factors of production are shifted to mining, raising the return on investment in all other industries and reducing it in mining until the pure rate of interest stabilizes on a higher level. Yet when the proportion of consumption and investment spending remains the same, social time preference does not change. The prices of factors of production in mining are bid up until the ROI in mining corresponds with the social time-preference rate. The fact that there is an increase in the demand for money shows that consumers value the production in one sector in the economy relative to that in other sectors higher than before. Similarly, consumers could increase their demand for bicycles by reducing their demand for cars. The ROI increases in the former sector and falls in the latter in the beginning until factors of production are shifted and ROI equalizes. However, there is no change in the pure rate of interest. The same applies for an increase in the demand for money without a

the economy, and the holders do not spend them—i.e., they are completely saved—then new projects are sustainable because of the relative reduction of consumption spending.

The other alternative to increasing cash holdings is reducing investment spending. This would lead to a relative increase in consumer-good prices and a shortening of the structure of production. For instance, people may divest in capital equipment by not reinvesting in depreciating machines and thereby increase their cash holdings. Alternatively, they can sell financial assets to increase their cash holdings.[44] So cash holdings (of money proper and money substitutes) may increase while at the same time real savings are falling. This insight does not combine well with the Real Bills Doctrine. This is because the Real Bills Doctrine implies that increases in the stock variable (namely, cash holdings) indicate that the flow variable (namely, real savings) has increased and that real-bill credit expansion may safely finance additional investments.

To come back to our initial example of an increase in cash balances, it is also possible, if social time preference does not change, to increase cash holdings by reducing consumption and investment spending proportionately.[45] For instance, people may reduce both types of spending by 10 percent by reducing consumer spending from 80 to 72 MU and investment spending from 20 to 18 MU,

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change in time-preference rates (and the proportion of consumption and investment spending).

[44] See Huerta de Soto (2012, p. 697). Huerta de Soto (2014, p. 231) gives an example of an increase in cash holdings by selling investment assets. Thus, an increase in cash holdings is compatible with an increase in consumption and a decrease in investment spending. An individual can sell bonds, increase his cash balance, and increase consumption. Another individual then does the opposite. A society may also increase real cash balances and consumption by reducing savings. The members of society reduce their savings and invest less in the purchase of financial assets. Then maturing bonds, for instance, are not renewed. Instead, the funds are used to increase cash balances and consumption.

[45] A growing economy does not change our conclusions. In a growing economy, consumption increases with constant time-preference rates, as does the amount of goods available to sustain production. However, if credit is expanded, then interest rates will be lower than otherwise, and more projects will be undertaken. There is a distortion while there is growth. In other words, even if new goods are coming to market and there is growth, with constant time-preference rates, credit expansion leads to malinvestments.

thereby adding 10 MU to their cash balance. Then there is no effect on the structure of production. As we can see, there is no necessary relation between the demand for money and time preference. The level of cash balances may change without changes in time preference and without changes in real savings.

One must distinguish between the purchasing power of money and the supply of real savings. The supply of and demand for money determine money's purchasing power. An increase in the level of cash balances, however, does not say anything about the change in the proportion of investment and consumption spending or about the flow of real savings for investment. It is the supply of and demand for future goods that determine the amount of gross savings available for investments. The supply of and demand for future goods themselves are expressions of time preference. Time preference reflects itself in the proportion of spending on consumer goods (present goods) and investment goods (which hopefully yield consumer goods in the future).

5.2. *The yield curve and arbitrage*

The banking school maintains that if only the right kind of loans are created by a fractional reserve banking system, there will be no business cycle. The right kind of loans are short-term, self-liquidating loans backed by goods to be sold in the near future: real bills. The interest rate on the real bills is called the discount rate. The Feketian banking school distinguishes between the interest rate and the discount rate, as if these were two radically different things and established in hermetically sealed markets. This separation allows the banking school to justify its argument that credit expansion of one type is unproblematic and to maintain that with the right kind of credit expansion, long-term interest rates, which are important for capital investments, are not affected.

In other words, according to the banking school, credit expansion to finance, for instance, mortgages lowers long-term interest rates leading to a business cycle. However, credit expansion to finance goods quickly marketed only influences the discount rate, not long-term interest rates, and therefore does not initiate a business cycle.

Yet the claim of hermetically sealed credit markets is flawed. Credit markets are like communicating vessels. When short-term interest rates (discount rates) are lowered by credit expansion, this also lowers long-term interest rates for two main reasons.[46]

First, there is the practice of maturity mismatching or maturity transformation—i.e., borrowing short at low interest rates to invest long at higher interest rates. Maturity mismatching raises short-term and lowers long-term rates. When the discount rate is lowered by real-bill credit expansion, maturity mismatching becomes more attractive than otherwise.

Not only is maturity mismatching perfectly legitimate (Bagus and Howden 2009; 2012; Bagus, Howden, and Huerta de Soto 2018), but it can also be successful. Maturity mismatching has an important function in making short-term revolving savings available to finance long-term projects, as I will discuss in more detail below.

Second, even if there is no maturity mismatching or maturity transformation as seems to be the policy objective of the banking school, a decrease in short-term interest rates has an influence on long-term rates. Savers will invest their funds differently. When short-term rates (the discount rate) fall, investments in long-term vehicles become relatively more attractive. Investment behavior changes on the margin. More people will invest long term, where rates are still higher, and fewer people will invest their funds short term, where rates have been lowered by real-bill discounting and the creation of fiduciary media. People will shift their savings from short-term to long-term investment vehicles. As a consequence, long-term rates follow short-term rates and fall without the necessity of any individual actor to borrow short and lend long. In other words, even assuming maturity matching, credit expansion (based on real bills) lowers long-term rates.

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[46] There exists a vast empirical literature on the relation between short-term and long-term interest rates. The effect of monetary policy, which is traditionally directed at short-term rates, on long-term rates has been especially researched. For a review article that finds that short-term rates had significant effects on long-term rates, see Akhtar (1995). Even a banking-school author such as Felix Somary (1930, pp. 228–31) points out that the "money market" and the "bond market" are connected by arbitrage.

In short, when there is credit expansion in the form of short-term loans, the whole yield curve will shift downward. Not only short-term rates are reduced, but also long-term ones, even though there is no increase in real savings. There is an artificial reduction of interest rates, possibly leading to an artificial, unsustainable boom.

5.3. *Credit markets are interconnected*

As we have seen, credit markets are not hermetically sealed. Moreover, the fiduciary media created can be invested flexibly. Credit created through the purchase of real bills is fungible. When a company gets new fiduciary media that have been created through the discounting of a real bill, the company has additional funds to invest. Normally companies will invest the funds where the highest yield is expected, and this tends to be in long-term projects. They might not use the very same monetary units that have been created, but they can use other funds, which now are "liberated" since money is a fungible good.

Let us assume a company in a 100 percent reserve system finances the transportation of goods to the market through equity. Now, real-bill fractional reserve banking is introduced. Real-bill fractional reserve banking allows the company to get hold of additional funds by discounting real bills. This practice frees up equity that before was used to finance the transportation of goods.[47] The company can use its own funds in another way. The free funds

[47] Hayek (2008, p. 290) argues that there are instruments to economize on money, such as book credit or bills of exchange, that liberate funds: "They give to somebody the means of purchasing goods without at the same time diminishing the money-spending power of somebody else." The same applies to mergers that reduce the need to use money proper in the economy. While mergers and the use of secondary media of exchange liberate funds, this involves no new money creation. The increased economizing on money is a limited and slow process. Credit expansion, however, may boost the creation of secondary media of exchange. Credit expansion expands the issue of secondary media of exchange such as bills of exchange because these secondary media of exchange are bought with fiduciary media and become more negotiable. Without credit expansion the growth in use of secondary media of exchange is slower and their supply more stable.

will then be invested where the highest yield is expected, and this is, as indicated above, usually in longer-term projects.[48] Money (and fiduciary media) is like water. It will find its way through little openings and holes and run downward, where the most profitable projects can be found.

As Rothbard (2000, p. 77) puts it, "A firm may simply cease using its own funds for financing short-term inventory, and instead borrow the funds from the banks. The funds released by this borrowing can then be used to make long-term investments."

Similarly, Machlup (1940, pp. 192, 201) states that because of credit expansion (and real-bills credit expansion is one type) there is less pressure on credit markets. Most importantly, the final form of credit and its use are not determined by the initial lender (Machlup 1940, p. 251).[49] Through several channels the funds may end up financing long-term projects (Machlup 1940, pp. 257–58; see also Machlup 1932).[50]

First, the entrepreneur that discounts real bills at a bank may lend money to another entrepreneur, who invests in a long-term project.

Second, the entrepreneur that discounted the real bill will be able to pay with cash instead of asking for loans. The company that receives cash may then invest in long-run projects.

Moreover, and as pointed out above, the effect of increased economizing and mergers is countered by other influences such as the creation or spinning off of new companies or the creation of new productive stages, which increase the demand for money for transactions.

[48] The argument that the real-bills credit will only be used to finance consumer goods (if the needs of trade require it) is problematic for other reasons. There are several stages of production, and the consumer-good stage is only the last one, which depends on the inputs of the earlier stages. One cannot expand the consumer-good stage sustainably without expanding earlier stages of production (Machlup 1940, p. 205). The idea that real-bill credit can be restricted in its effect on the consumer stage is, therefore, mistaken.

[49] Machlup (1940, p. 253) admits, though, that credit expansion that finances working capital is less harmful than the one that finances fixed capital.

[50] As Machlup (1932, p. 275) clarifies, "The entrepreneur who receives fresh advances for working capital, in fact, has part of his own working capital set free—which was previously needed for circulating capital; so that he can now invest his own funds in fixed capital. Thus, the actual concrete and visible use of a fresh credit does not correspond to the intended use."

Third, there is some easing in the general credit market, which allows some marginal borrowers to invest somewhere. As the company financed by created credit (real-bills credit) needs less real savings, marginal borrowers that could not find financing on credit markets will now get financing and invest where they expect the highest yield.

Thus, because of real-bill credit expansion, interest rates tend to fall and the price of capital goods to increase. The fall of the interest rate has a stronger effect on the profitability of longer-term projects than on short-term projects (Machlup 1940, pp. 252–53).[51] This makes it more likely that the credit ends up in producers'-good industries.

Along the same lines, Benjamin Strong, the first governor of the Federal Reserve Bank of New York, argued that customers could borrow using real bills to finance speculation and that there is no guarantee that fiduciary media created by real bills will be used to finance these goods (Chandler 1958, pp. 197–98). Strong argued that one cannot know where the money raised through real bills will be used (Humphrey and Timberlake 2019, pp. 73–74). Similarly, Ahamed (2016, p. 359) shows that when the Federal Reserve managed to reduce bank loans to brokers in 1928 and 1929, other sources of credit substituted for speculation. For instance, US companies lent to brokers their surplus liquidity (of course, influenced by the discounting of real bills). In short, when real bills are discounted, thus creating new fiduciary media, these funds may end up at another end of the economy—for instance, financing stock market speculation.

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[51] For an empirical approach see Cachanosky and Lewin (2016), who find that more roundabout—i.e., longer term—projects are more sensitive to interest rate changes. And as Machlup (1932, pp. 276–77) points out, when new projects are started, the prices of production goods and factors of production increase. The fall of the interest rate affects circulation capital less than fixed-capital investment because the interest rate is of greater relevance for the latter. In other words, for short-term projects the increase in factor prices tends to be more important than the fall of the interest rate, while for longer-term project the rate fall is more relevant. Therefore, marginal borrowers tend to invest in longer-term projects. Machlup (1932, p. 281) also states that his friend Hayek would probably agree with him that all new funds, including short-term ones, are finally used to finance long-term projects.

What is important is not so much what kind of loans are granted as the banking school claims but rather what quantity of money (fiduciary media) is created by credit expansion. As Rothbard (2000, pp. 76–77) puts it:

> "The important aspect of bank credit expansion is the *quantity* of new money thrown into business lending, and not at all the type of business loans that are made. Short-term, "self-liquidating" loans are just as inflationary as long-term loans. . . . The crucial point is the injection of new money into business firms; regardless of the type of business loan made, this money will then seep into the economy, with the effects described in the Austrian analysis. The irrelevance of the *type* of loan may be seen from the fact that business firms, if they wish to finance long-term investment, can finance it *indirectly* from the banks just as effectively as from direct loans. . . . All credit is interrelated on the market, and there is no way that the various types of credit can be hermetically sealed from each other."

The creation of credit without prior saving is problematic independent of the type of credit. The type of loan is irrelevant because the essential question is whether someone has given up purchasing power and control over consumer goods. As Machlup (1940, p. 171) puts it, "No matter whether they [the banks] do this [create credit without prior saving] by making advances or overdrafts, by discounting bills or by purchasing securities, they are providing purchasing power which has not been given up by anybody beforehand. Part of the supply of money capital thus frequently is 'created' credit."[52]

Similarly, Mises (1998, p. 790) writes about the idea of qualitative credit control:

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[52] Alluding to banking practices like the Real Bills Doctrine, Machlup (1940, p. 193) writes, "Thus, it seems that the likelihood that a credit expansion will be crash-proof is not increased by the fact that loans are made to selected industries on the basis of certain rules about liquidity." He continues (1940, p. 200), "The 'proper' limits of credit expansion are not affected by the nature and quality of the credit." Machlup concludes (1940, p. 261), "It is not the form the credit takes nor the exact place where it enters the system that makes it dangerous: it is, instead, its amount." Machlup (1940, p. 292) sums it up: "Qualitative credit control is effective only if it involves quantitative control."

> "The mode in which the additional amount of credit finds its way into the loan market is only of secondary importance. What matters is that there is an inflow of newly created credit. If the banks grant more credits to the farmers, the farmers are in a position to repay loans received from other sources and to pay cash for their purchases. If they grant more credits to business as circulating capital, they free funds which were previously tied up for this use. In any case they create an abundance of disposable money for which its owners try to find the most profitable investment."

Real-bills credit expansion is as inflationary as any other credit expansion. However, there is one merit to Rallo's approach: Restricting credit expansion to real bills is a step in the right direction, as it rules out other types of credit expansion and, thereby, the overall quantity of credit expansion (Rothbard 2000, p. 77). And the quantity of credit expansion influences the quality of credit. Restricting the quantity of credit expansion increases the quality of loans. In contrast, the greater the credit expansion, the stronger the need to lower credit requirements.

It is true that real-bill credit expansion leads to shorter terms on outstanding loans. They are paid back earlier, reducing the money supply. Yet, in the same way that banks may renew and grant new mortgages (backed by the market value of the houses) when mortgages are paid back by borrowers, banks may renew or grant new short-term loans through discounting further real bills. As long as the short-term loans are renewed, they have the same effects on the money supply as longer-term loans.[53]

In the same way that Peel's Bank Act can be seen as a step in the right direction because it restricted the possibilities for credit expansion (by making it illegal to issue unbacked bank notes), the Real Bills Doctrine also restricts the amount of credit expansion by

[53] Something similar occurs when we look at central banks' government-bond purchases and lending activities collateralized by government bonds. When central banks continue to roll over loans to the banking system collateralized by government bonds, it has the same effect as a central bank's purchase of government bonds. New reserves are created. In the case of the loans, reserves increase as long as they are not rolled over anymore. In the case of the purchases, reserves increase until the bonds are sold or the bonds are paid back (Bagus 2011).

only allowing "high quality" loans. Yet it is an error to think that business cycles will be ruled out as long as credit expansion remains possible. The proponents of Peel's Bank Act promised the end of business cycles, but they failed because they did not understand that demand deposits equal bank notes in their function as monetary substitutes. The proponents of the Real Bills Doctrine commit a similar error because they do not understand that fiduciary media are perfect monetary substitutes. They believe that a banking system following the Real Bills Doctrine would lead to a stable economy without booms and busts in the same way that the proponents of Peel's Bank Act believed that their proposal would eliminate business cycles.

In defense of the proponents of the Real Bills Doctrine, one could argue that cycles induced by real-bill credit expansion only produce negligible or no harm, as they distort the structure of production only slightly—namely, by three months. With funds secured for three months only, no long-term investment project is started anyway, the argument goes.

Yet this argument fails for two reasons. First, as stated above, money is fungible, and when funds are liberated they tend to be invested where the highest return is expected, which is usually in longer-term projects. Second, even if we do not consider this fungibility, the three months add up over all stages as production as Huerta de Soto (2014, pp. 230–31) illustrates with a useful example.

Huerta de Soto assumes an evenly rotating economy with five stages in which goods of high quality are sold from one stage to the next. The production process takes 9 months and capitalists have to wait 3 additional months for payment as they allow their customers to pay the goods received within 3 months. The economy is working completely without banking. In the thought experiment, a fractional reserve banking system is added that offers the capitalists to discount real bills collateralized by the goods of high quality. Thereby, the capitalists do not have to wait 12 months to be paid but receive money substitutes after 9 months. If time preference does not fall and capitalists do not save the created funds for 3 months, they will invest them, purchasing capital goods from their suppliers. In all stages there is a lengthening of 3 months,

which adds up to 15 months over all five stages. The artificial lengthening is then 1 year and 3 months, or 25 percent of the 5 years that the production process lasted before the fractional reserve banking system was introduced. Once the real bills are being repaid, banks roll over or renew them, and so on. Thus, now, there are 6.25 stages instead of 5 stages. Thus, the distortion of the structure of production is much larger than 3 months, even if we do not consider the fungibility of money.

We can thus conclude that any type of credit expansion, independent of the quality or type of the loans granted, distorts the structure of production if unbacked by real savings. The Real Bills Doctrine, if it allows for credit expansion without prior savings, will trigger Austrian business cycles. It is the quantity of new fiduciary media injected into the credit market that counts. Any injection of fiduciary media will exert expansionary effects.

As Mises (1998, p. 439 fn. 17) puts it, "The notion of 'normal' credit expansion is absurd. Issuance of additional fiduciary media, no matter what its quantity may be, always sets in motion those changes in the price structure the description of which is the task of the theory of the trade cycle."

5.4. *The demand for money and the interest rate; or, the needs of trade as an exogenous limit on credit expansion*

In this section I will deal with the argument offered by the banking school: that credit expansion is limited by the needs of trade. Is credit expansion limited by the amount of real bills, which itself it is limited by the amount of real goods produced? Is it the case that first a real bill comes into existence and then a loan? Or is it that first banks lower interest rates, which makes it more attractive to issue and discount real bills?

Rallo believes that when the need for trade and the demand for money increases, banks expand credit by discounting real bills. The increase in the money supply in the broader sense is a response to an increase in the demand for money backed by real bills and ultimately real goods. Banks do not expand credit on their own, but only react to a higher demand for money.

What proponents of the Real Bills Doctrine do not see is that the demand for fiduciary media is not independent from banks' action—namely, the ease with which they grant loans. Banks, by reducing the credit criteria or lowering the interest rate on loans, can induce a higher demand for loans. Furthermore, they can maintain their fiduciary media in circulation by renewing their loans at lower rates.[54] Borrowers compare the interest rate charged on loans with the expected profit rate they will get from investing in these loans. The lower the interest rate charged, the more investments appear profitable and the higher the demand for loans ceteris paribus.

Without prior demand for fiduciary media, banks can induce this demand by reducing interest rates (Huerta de Soto 2012, p. 683). The lower the discount rate, the more real bills will be presented at banks and the higher the demand for fiduciary media. As Rothbard (2000, p. 77) states, "Banks do not simply passively await business firms demanding loans: these very demands vary inversely to the rate of interest that the banks charge."

Mises (1998, pp. 436–37) similarly states:

> "The Banking School failed entirely in dealing with these problems. It was confused by a spurious idea according to which the requirements of business rigidly limit the maximum amount of convertible banknotes that a bank can issue. They did not see that

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[54] As Mises (1953, p. 345) puts it in relation to banking-school representive Fullarton:

> "The fatal error of Fullarton and his disciples was to have overlooked the fact that even convertible bank-notes 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 bank-notes 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, viz., 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, i.e. practically to zero, the whole edifice built up by Tooke's school collapses."

> the demand of the public for credit is a magnitude dependent on the banks' readiness to lend, and that banks which do not bother about their own solvency are in a position to expand circulation credit by lowering the rate of interest below the market rate."[55]

Machlup (1940, p. 265) considers the whole argument that banks passively discount a given amount of real bills presented to them as based on mere superstition. Banks could react to an increased demand for money by restricting the supply if that is in their interest:

> "It was supposed for a long time that there was a strict dependence of the total volume of bills and requests for their discount on the "volume of trade." It has frequently been pointed out that this is a mere superstition. The number of bills coming forward for discount is largely dependent on the credit policy of the banks. An increase in the demand for loans against bills can in principle just as well lead to a tightening of the discount market as to the granting of the loans. It all depends on the policy of the banks."

Indeed, when, in a recession, the demand for loans (real-bill discounting) from troubled companies increases, banks may decrease their supply while raising rates.

And it is not true that an overexpansion leads directly and necessarily to a reflux, in which fiduciary media are represented for redemption. As Mises (1998, p. 424) points out, when prices increase, people often increase their real cash balance because they restrict purchases in the hope that prices will drop again. Thus, at least for a prolonged time, the demand for money may adjust to the supply of fiduciary media.

One should also not forget that the ability to issue fiduciary media is not restricted by people's wish to hold higher cash balances. There is always demand to hold fiduciary media, as long as they are considered to be perfect monetary substitutes, because they give their holder an advantage over those who have lower

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[55] See also Mises (1953, p. 312): "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."

cash balances. The demand for fiduciary media is, thereby, not restricted by needs of trade.

Additional fiduciary media give entrepreneurs a competitive advantage over their rivals independent of the evolution of the "needs of trade." This is because whenever there is an increase in the money supply in its broader sense, there is a redistribution (Cantillon 2017). The first receivers of the fiduciary media benefit, as they still can buy at the old, lower prices, while the last receivers lose. An entrepreneur who receives a loan from a bank in the form of fiduciary media enjoys an increase in his cash balance. He may purchase the newest technology at the old, lower prices (while his rival who did not indebt himself cannot). The second receiver of the fiduciary media also has an advantage because prices have not increased across the board yet. Thus, Cantillon effects are a reason why there is a demand for fiduciary media independent of needs of trade.

It is not only that the demand for fiduciary media is not exogenous to the banking system. It can not only be stimulated by banking policy but also feed on itself (Bagus and Howden 2010b). When real-bill credit expansion causes the money supply to increase, asset-prices may increase as well. People may feel richer (wealth effect) and demand more loans from banks collateralized by rising asset prices. The demand to hold fiduciary media increases (Bagus 2008b; 2007).

If the needs of trade do not put a limit on credit expansion, what about bank competition?

Mises (1998, p. 440) argues that competition in a fractional reserve banking system would restrict credit expansion, even though it would not bring it to a halt: "It [free banking] would, it is true, not hinder a slow credit expansion, kept within very narrow limits, on the part of cautious banks which provide the public with all information required about their financial status."

In his *Theory of Money and Credit* (1953, p. 397) Mises similarly states, "It is clear that banking freedom *per se* cannot be said to make a return to gross inflationary policy impossible."

This is because fractional reserve banks can cooperate and expand in rhythm, in which case they do not lose reserves to their competitors. There is an incentive to expand credit in rhythm since this allows

them to increase profits (Huerta de Soto 2012, pp. 664–71). And those banks that do not discount real bills will lose market share. This is, basically, the argument of Longfield in his reply to Parnell, who thought that clearinghouses would restrict credit expansion. Thus, a coordinated credit expansion is possible (Bagus and Howden 2010b).

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