The Role of Money Market Funds (MMFs) in the Austrian Theory of Money: An Application to Business Cycle Theory

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Abstract

It is unclear whether shares of money market funds (MMFs) should be considered money. MMFs invest in short-term, liquid credit and generally have a fixed or stable net asset value (NAV). MMF shares are used as media of exchange, for final settlements, and as a store of value. However, many Austrian authors view money in a narrower sense, as mere physical currency and bank deposits. Many theories, such as the Austrian business cycle theory, are then derived from this conceptualization of money. The author makes the case for considering MMF shares as money and a redefinition of money that actually includes liquid instruments such as MMF shares. The implications for the Austrian theory of the business cycle and Cantillon effects are discussed

KEYWORDS: money market funds, liquidity, money, credit, Austrian business cycle theory

Money market funds (MMFs) represent $3 trillion dollars in financial industry assets. However, regulations regarding MMFs have increased substantially after various of them have "broken the buck" in the 2008 crisis. Moreover, negative interest rates have destroyed a great part of the MMF industry in Europe, since it is impossible to maintain a stable net asset value (NAV) and pay dividends (which can be considered *de facto* interest payments) when the underlying assets have negative yields.

MMFs are, however, completely ignored in Austrian theory. A quick search in the Review of Austrian Economics is illustrative. The term "money market funds" is not even once mentioned in any of its articles. Other (Austrian) papers on money market funds are scarce

(e.g., Haymond, 2000). This paper attempts to contribute to the, sometimes confusing, Austrian literature on money. In short, there is a gap between a great deal of the Austrian theoretical body (e.g., the Austrian business cycle theory) and the concept of money. I will critique some theories that take inadequately into account financial instruments such as MMFs and propose an integration of MMFs into the (Austrian) theory of money.

To begin, I will do a brief literature review with some of the terms that Ludwig von Mises uses in his work, and later compare the work of more modern Austrian authors to see where "money substitutes" like MMFs enter the picture. Then I will discuss the implications for various other theories, most prominently the Austrian theory of the business cycle.

The Insoluble Paradox of Ludwig von Mises' Definition of Money

Ludwig von Mises in his first chef-d'œuvre Human Action (1949), defines money as "commonly accepted medium of exchange." Then he proceeds to explain the origin of money. However, he explains the origin of gold as medium of exchange. In a world without financial intermediation, this might be of great relevance. Nevertheless, in a world with increasing financial intermediation, there are many other media of exchange to be considered. Mises called these media of exchange "money substitutes." In other words, Mises, probably unaware of his own definition, operationalizes money not as commonly accepted medium of exchange, but rather as the "highest point in the money-credit pyramid." Mises says A, but uses B.

As such, Mises falls into a contradiction. Laymen commonly accept commercial bank deposits as media of exchange. In popular language, we even call these demand deposits "money". However, Mises operationalizes money not as demand deposits, but rather as the instrument or good that is no longer "redeemable" into something else. In other words, Mises first defines money as the commonly accepted medium of exchange, but when he begins defining "money substitutes" he redefines money unwittingly as "the irredeemable instrument."

If money market fund shares can be redeemed into demand deposits of a commercial bank, and these demand deposits can be redeemed into central bank currency, then paper central

bank currency, according to Mises, is "money." Money market fund shares would represent money substitutes. In a similar fashion, other liquid credit instruments, like commercial paper and in some cases US Treasuries would be considered money substitutes by Mises as well. However, bank deposits are just as "commonly accepted" as central bank currency, and in some cases even preferred over physical currency (bills).

The Recognition of Friedrich Hayek

Friedrich Hayek, in his often cited work "The Denationalization of Money", recognizes this error, which was not only committed by Ludwig von Mises, but by a multitude of economists. To quote Hayek (1976):

> [A]lthough we usually assume there is a sharp line of distinction between what is money and what is not (…), there is no such clear difference. What we find is rather a continuum in which objects of various degrees of liquidity, or with values which can fluctuate independently of each other, shade into each other in the degree to which they function as money. (p. 56)

Here Hayek moves to a definition of money that does not clearly separate money from credit, but rather argues that any economic good – even loans, bonds and securities – has a degree of liquidity. The most liquid goods tend to be used as media of exchange.

Does Hayek refer to money as being able to extinguish or settle debts? Does Hayek further develop his definition of money? Unfortunately, he chooses to leave this very important question aside and directly goes into the theory of currency competition:

> There is, however, as we have just pointed out, **no need for a very sharp distinction between what is and what is not money** [emphasis of the author]. The reader will do best if he remains aware that we have to deal with a range of objects of varying degrees of acceptability which imperceptibly shade at the lower end into objects that are clearly not money (p. 58)

There is, at least according the judgment of Friedrich Hayek in his treatment of competing currencies, no need to further develop a line between what money and/or credit is. Whether he is right with regard to the treatment of currency competition, is something the reader can reflect upon. But we must conclude that for the treatment of other very important theories – let us highlight the theory of the business cycle – such an avoidance of defining and separating money and credit is unacceptable. The "Austrian" theory of the business cycle explains, after

all, how an increase in credit not backed by prior savings, results in unsustainable growth and a tug of war for scarce resources.

If there is an increase in the money supply, then there might arise Cantillon effects (an increase in the money supply has a non-neutral effect on nominal spending; the increase in money supply ends up in someone's hands before affecting the "the general price level"). If there is an increase in credit, then interest rates are affected (the "price" of time) and credit allocation (or intertemporal allocation) of resources is distorted; projects that are more capital-intensive and have longer durations are undertaken (Cachanosky & Lewin, 2014).

Thus, we conclude that distinguishing between money and credit is of vital importance for the application of various theories, including the Austrian business cycle theory.

Introducing the Money-Credit Pyramid

As we have concluded, Mises operationalizes money as "the ultimate means of settlement," even though he defines money as "commonly accepted medium of exchange." Hayek offers a critique to this conceptualization of money, but offers not a clear-cut solution by only pointing out that many economic goods are used as "money" and that each has different degrees of liquidity.

We will introduce an analytical tool that helps to analyze the various "types" of money we find in our day-to-day lives (Mehrling, 2012). Mehrling uses a hierarchy, in the shape of pyramid, to conceptualize the different types of money, which is akin to Hayek's concept of degree of liquidity.

Doing so, Mehrling (2012) explains the difference between Mises' distinction by referring to how, in practice, it depends on the person in question what the relevant "means of settlement" is. He explains this as follows:

> In this hierarchy, where is the dividing line between money and credit? It is tempting to draw the line between currency (and everything above it) as money, and deposits (and everything below it) as credit. The source of this temptation is the institutional fact that currency is the final means of settlement for domestic payments. Just so, for a bank settling its accounts at the end of the day, currency or "high-powered money" is certainly the means of settlement. **But things look different**

> **farther down the hierarchy. For ordinary people like us, bank deposits are the means of settlement** [emphasis of the author]. Hence we might be inclined to view deposits (and everything above them) as money, and securities as credit. (p. 2)

Thus, it actually depends on the subjective context of the person whether a given good is considered money (defined as means of settlement) or credit (which is redeemable into money). All these means of settlement, are commonly used media of exchange.

Defining money and credit as dichotomies, we consequently encounter two problems:

1. If we define money as means of (final) settlement, there exist various types of money, which posits a problem to other Austrian theories, such as the theory of the business cycle;
2. If we define money as a commonly accepted medium of exchange, there also exist various types of money, which also posit a problem to other Austrian theories, such as the theory of the business cycle.

As we will see, George Selgin (1991) recognized the same problem as Mehrling. He writes:

> [He is] tempted, if only for the time being, to revert to some old-fashioned terminology that, whatever its other shortcomings, seems more useful than modern terms are for shedding light upon the nature of money creation. Nowadays economists use the term "money" to refer to anything that's a generally-accepted medium of exchange. Hence the manifold measures of the U.S. money stock — M1, M2, M3, MZM, and so forth — all of which include various sorts of bank deposits. To refer specifically to the dollars that the Fed itself creates, including both bank reserves and Federal Reserve notes circulating outside of the banking system, they use the terms "high-powered money," or "base money," or "the monetary base."
>
> In the old days, in contrast, economists — or many of them, in any event — liked to distinguish between what they considered money in the strict sense of the term, or "money proper," and "money substitutes." **Both money proper and money substitutes serve as generally accepted means of exchange. The difference is that, while "money substitutes" consist of various kinds of instantly-redeemable IOUs or promises to pay, "money proper" refers to the stuff that the promises promise**, that is, what a bank customer expects to get in exchange for the substitutes if he or she asks the bank to pay up.
>
> A century ago, when the terms were still current, in most industrialized economies "money proper" consisted of gold coins, while paper banknotes and demand deposits that were redeemable in gold

> were mere money substitutes. Today the same terminology might be used to distinguish the irredeemable currency supplied directly by the Fed from the redeemable exchange media created by commercial banks and other private financial firms. **According to it, and thanks to a few twists of fate, paper Federal Reserve notes are now "money proper," while bank deposits, and checkable deposits especially, are "money substitutes**." Note that "money proper" in this context isn't quite the same thing as what modern economists call "high-powered" or "base" money, because the last includes bank reserves, which aren't actually "money" at all: **they are, true enough, means of payment so far as banks themselves are concerned, but so far as the general public is concerned, it's bank deposits, rather than the bank reserves that stand behind those deposits, that serve as money** [emphasis of the author].

Here Selgin recognizes the same very important problem as Mehrling: money, as medium of exchange and means of (final) settlements, is different among the various economics agents in a market economy:

- For businesses and households, to settle and extinguish debts, demand deposits are generally exchanged, but also other types of IOUs are exchanged, such as MMF shares.
- For banks, to settle and extinguish debts, bank reserves (either central bank currency or deposits at the central bank) are exchanged;
- For central banks, to settle and extinguish debts, gold reserves or SDRs (Special Drawing Rights) could be exchanged; there is no other way to reach a final extinguishing or settlements of debts for instance by exchanging IOUs such as government bonds or physical currency.

How do we get out of this impasse?

More Recent Attempts to Integrate MMFs in the Austrian Theory of Money

There have been specific debates about whether MMFs are to be considered money in more recent times as well. Larry White (1989) explicitly denies that MMFs are money:

> [T]he item that the check-writing MMMF customer relinquishes (ownership of shares in a portfolio of assets) is not what the payee accepts (ownership of an inside-money claim to bank reserves). Because the actual MMMF shares are not what the second party accepts (or intends to accept),

> MMMF shares cannot be considered a generally accepted medium of exchange; hence they are not money. (p. 213)

White makes an interesting, but nevertheless erroneous point. He says that even though settlements and exchanges in MMF shares happen, MMF shares cannot be considered a medium of exchange, because the payee directly exchanges MMF shares in checking account balance. However, there are two reasons to argue against this critique:

a. In practice, not every MMF share is directly exchanged in checking account balance and are held until some future point.
b. The same might be said for bank deposits: a payee might not accept a demand deposit, but rather an inside-money claim to bank reserves (e.g., physical currency). Does this imply that demand deposits cannot be considered media of exchange, at least partially? It would make a conceptualization and operationalization of money complicated and unworkable.

Credit Creation or a Credit Exchange?

When, in Austrian literature, the term "credit" is mentioned, there is often an implicit reference to bank credit, that is, commercial bank liabilities. An increase in "credit" means an increase in "commercial bank liabilities". Etymologically, credit comes from the French crédit, originating from the Italian credito and Latin creditum, derived from credere, which means "believe, trust." Extending credit and receiving credit is not merely reserved to banking institutions. Let us dig a bit deeper into the operations of a commercial bank through an accounting view of economic relationships.

Credit at the commercial bank level

Whenever we make a deposit at a commercial bank, we extend "credit" to the bank[1]. The bank extends "credit" to businesses, households and other institutions such as governments.

[1] For now, we reframe from a deeper analysis that a large part of the banks receives "credit" from the central bank. Some argue that central banks create "credit" out of nothing (which is wrong, central banks create

In other words, banks do not "create" credit, they transform credit. They often alter the maturity profile of the originally extended credit (mainly by households and businesses), by borrowing short and lending long, and diversify credit risk by taking in "credit" from a large group of depositors and creditors and by extending "credit" to a diversified, large group of lenders or debtors.

Banks therefore do not create credit, but exchange credit, and make it more "liquid", in terms of Friedrich Hayek.

Credit at the money market fund (MMF) level

When we make a deposit at a money market fund, we normally tend to wire the money by bank transfer. The money is then invested by the MMF in (short-term and low-risk) securities, and the security purchases are settled by bank transfer as well. If we refer to the money-credit pyramid of Mehrling, we can see that MMF apparently, in practice, is situated on a lower level down the pyramid than demand deposits of commercial banks. But it is similar to a commercial bank in the sense that it does not create credit.

Does a money market fund "create credit?" The answer is again no. In a very similar manner, MMFs transform credit, by altering the risk profile and possibly the maturity profile.

The fact that not only MMFs do not "create credit" but banking institutions as well has, unfortunately, not been grasped by various authors, such as Frank Shostack (2000):

> Since a credit transaction is a transfer of saved funds from a lender to a borrower it does not result in the creation of new money, but simply new credit. This credit, however, is not harmful, for it is fully backed by saved money. (p. 1)

To Shostack, shares in a MMF would be credit transaction where savings move from lender to borrower and therefore does not result in the creation of new money. However, we have

liabilities – paper currency and bank reserves, but not out of nothing). Central banks acquire credit (generally securities) and transform that credit into central bank IOUs. Central banks, banks and MMFs are financial intermediaries and not originators of credit. Central bank can turn (and have turned) very illiquid paper (e.g., mortgage-backed securities) into liquid paper (i.e., central bank IOUs), but do not create credit out of nothing.

already seen that banks, too, simply engage in credit transactions that do not result in the creation of new money. Illiquid (household and business) savings are transformed and turned into liquid savings (in this case in the form of demand deposits).

A brief note on money as unit of account

Moreover, what both MMFs and commercial banks have in common, and any other financial intermediary or money user for that reason, is the fact that each and every one of these instruments use the same unit of account, which is the local currency.

If we refer to the money-credit pyramid of Mehrling, we will see that the top layer of that pyramid is commonly used as unit of account.

A brief note on credit versus gold money

If we extent this idea to physical gold (not an IOU on physical gold), which has historically been an important medium of exchange, we might conclude that gold is fundamentally different from the earlier mentioned bank deposits and MMF shares, in the sense that these deposits and shares are an accounting asset for some and an accounting liability for the banks and MMFs in question.

Nevertheless, gold is a vehicle that people in earlier times would acquire to as a store of value. In a certain sense, they extend credit to the object (that is, gold) and the "debt" can later be settled by exchanging the gold for the goods or services the saver wishes to acquire.

A New Proposed Definition of Money

There are different points we can conclude and have concluded:

- There are different types of (generally accepted) media of exchange
- Whether a certain medium of exchange is able to extinguish or settle debt is subjective
- The different types of media of exchange have different "degrees of liquidity"

We will define and conceptualize money as all economic goods that are used as medium of exchange and that have different degrees of liquidity, that is, are not near illiquid. Money,

media of exchange, are superior to other economic goods since they hold a superior degree of liquidity. Money and credit are intimately intertwined and cannot be separated.

Considerations for the Austrian Business Cycle Theory

With a thought experiment, we will try to unravel the role MMFs play in the Austrian theory of the business cycle. First, we must return to some of the characteristics of MMFs:

- MMFs, like central and commercial banks, do not "create" credit, but transform credit
- MMFs invest in liquid (commercial and government) credit
- Whenever a share of a MMF is redeemed, the MMF proceeds to sell the underlying assets of that share and deposits the proceeds in a bank account (demand deposit). In this sense, a share in a MMF can be found higher in the money-credit pyramid.
- Whenever a share of a MMF is issued (i.e., the fund expands), the MMF proceeds to buy securities (e.g., bonds and commercial paper) for the amount of that share and receives the amount deposited in a bank account.
- Settlements in MMF shares happen, although not in great numbers

Now, if a MMF engages in maturity mismatching, and this happens on a large enough scale, then all the economic consequences follow that are described by the Austrian business cycle theory (lower interest rates induce more capital intensive investments with longer durations (Cachanosky & Lewin, 2014), even though the real resources have not been freed up and final demand is more focused on the short run than the long run).

Since a MMF, like a (commercial or central bank) only transforms credit, but not creates credit, they can have the same distorting effect on interest rates (more specifically, term structures) as banking institutions and thus on the intertemporal allocation of resources (Fuller, 2013).

Therefore, excluding MMFs from the concept of money is a large mistake since MMF shares are used as media of exchange, are used for settlements, are used as store of value, and can induce distortions in the intertemporal allocation of capital. In fact, it is perfectly possible to imagine a scenario where a recession will be caused not by distortions at the commercial bank

level, but rather at a money market fund level. Not recognizing that both media of exchange should be considered money, leads to an erroneous interpretation and explanation of the Austrian business cycle theory.

Distortions in Maturity Profiles through Financial Intermediaries; Winners and Losers in Financial Assets with Different Maturities

The earlier mentioned traditional Cantillon effects are difficult to defend with our notion of money. Cantillon effects are non-neutral (Thornton, 2006). As Thornton (2006) explains in his own words:

> "Cantillon showed that changes in the quantity of money could have several different types of real effects on production, investment, consumption, and trade depending on who first received the money; effects now labeled Cantillon effects, injection effects, or first-round effects." (p. 49)

But the idea of "changes in the quantity of money" is undefendable when what we consider money and what we do not consider to be money is a continuum rather than a dichotomy. And while Richard Cantillon may be excused, since financial markets at the time were not as advanced as today, the same excuse does not apply to modern-day economists.

If money is a relative concept and just refers to a degree of liquidity, an idea we defend in this article, and not a black and white dichotomy that separates money – media of exchange – from other economics goods, then it is obviously not clear if Cantillon effects must be restated to occur only with "changes in the quantity of demand deposits." But if it is true that Cantillon effects only occur when there is an injection of "new money" not backed by prior saving, then there can be no Cantillon effects of such kind in the real world, since in the first part of this paper we have established that any bank liability (demand deposit) is backed by savings or credit extended by other economic agents. Either way, redefining Cantillon effects in more concrete, modern financial terms would make for an interesting avenue for future research.

There exists, however, an important application of the theory of Cantillon effects that so far has been ignored.

Whenever financial intermediaries, such as commercial banks and MMFs[2], engage in maturity mismatching (borrowing short, lending long), long-term interest rates might fall relative to short-term interest rates. As a result, there exists a winner-loser effect.

Prices of long-dated financial assets (e.g., a 30-year US Treasury) increase when long-term interest rates decline. As such, there is a transfer of purchasing power to holders of long-dated financial assets at the cost of holders of short-term financial assets (e.g., 30-day commercial credit), who now hold assets that are worth less than in a scenario where financial intermediaries would not have engaged in maturity mismatching, bringing down long-term interest rates.

This increased purchasing power, if exercised, can alter the structure of relative prices, favoring assets and goods that are preferred by the "winners" of such financial Cantillon effects. The "losers" will experience a decrease in purchasing power, which affect the monetary demand on goods they prefer. It might be fruitful to do an empirical study whether

Conclusion: MMFs as Money and Implications

Money market funds (MMFs) have so far been ignored in the Austrian theory of money. Money is conceptualized as demand deposits of banks. However, this conceptualization cannot be defended. Mises' definition of money as commonly accepted medium of exchange was criticized as he tried to operationalize this definition as money being the ultimate extinguisher of debt. Friedrich Hayek recognized the error implicit in Mises' reasoning and proposed an alternative way of defining money not as dichotomy (black versus white), but as a continuum (degree of liquidity). The money-credit pyramid of Mehrling is introduced to expand upon the definition of Hayek.

[2] Money market funds (MMFs) normally tend to engage in almost no types of maturity transformation, in stark contrast to commercial banks. MMFs tend to maintain very short-term and liquid paper with short maturities, while banks tend to maintain a large percentage of long-term loans and securities. In some way, a move from bank deposits to MMF shares, might result in less maturity mismatching and a more stable financial system.

The author proposes a definition of money as a degree of liquidity. Some economic goods are more liquid than others, and are therefore more often used as media of exchange.

Shares in MMFs are important media of exchange – money – that have a relatively high degree of liquidity, but generally speaking not as high as commercial bank (demand) deposits and checking accounts. Some critics have argued that MMFs are credit, since MMFs cannot "create credit", whereas supposedly banking institutions can "create credit." We have seen that this theorem is based on a severe misconception of what credit is, where it originates and a lack of understanding when it comes to non-bank credit.

Having established that MMF shares are indeed money, we discussed the implications of the conclusion of credit instruments such as MMF shares as money for both the Austrian business cycle theory and Cantillon effects (and the non-neutrality of money). (1) Austrian business cycle theory is based on an explicit theory of "credit creation (unbacked by prior savings)". However, we concluded that financial intermediaries do not possess the power to create credit, but only to transform credit (i.e., the maturity and risk profile of credit). An Austrian business cycle could occur with no changes in the composition of bank credit, but with changes only in the composition of money market funds (MMFs). (2) Cantillon effects are based on a definition of money as pure monetary metal or demand deposits. A new type of financial Cantillon effect is introduced that refers to the increasing purchasing power of holders of long-dated fixed income instruments, when financial intermediaries (central banks, banks, MMFs, etc.) engage in maturity mismatching. When they use their increased purchasing power on financial assets and/or other economic goods, real changes occur in the structure of production.

It is the hope of the author that this article will be able to spark a new debate on an often-ignored topic, which is the definition and operationalization of money, and stimulate future investigations into modern-day media of exchange (e.g., commercial paper, repurchase agreements or repos, etc.). Since so many theories depend on an implicit recognition of what is money and what is not, this is a fundamental question that deserves further attention. With a diminishing role of banks in the broader spectrum of financial intermediation, it is important

for the advancement of Austrian economics to have a broader and more fundamental understanding on the role and nature of financial intermediaries.

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