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What is money in a critical macro-finance framework?

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This forum contribution explains how analyzing the creation, distribution, and destruction of contemporary credit money is placed center stage in the emerging field of critical macro-finance. This approach not only involves traditional forms of money but also 'shadow money': private credit instruments which are not regulated as money from a legal standpoint, but in many respects are functionally equivalent to 'established' forms of money. Shadow money lay at the heart of the 2007-9 financial crisis and continues to be one of the 'hot potatoes' in the post-crisis monetary system (Pozsar, 2014; Gabor and Vestergaard, 2016, 2018; Ricks, 2016; Murau, 2017; Murau et al., 2020; Boy and Gabor, 2019; Wullweber, 2020). To connect different positions in this discourse, we propose three core criteria for defining shadow money as a baseline position for future critical macro-financial research.

The foundational idea of macro-financial analysis is to perceive the world as a hierarchical web of interlocking balance sheets (Mehrling, 2017; Gabor and Vestergaard, 2018; Tooze, 2018; Dutta et al., 2020; Gabor, 2020; Murau, 2020). Within this structure, money is nothing but a balance sheet item (Bezemer, 2016) issued as the liability of a (hierarchically higher) institution, which functions as an asset for another (hierarchically lower) institution. Traditional economic analysis has a rather static understanding of what we count as money. Typically, the only instruments considered as money are the liabilities of central banks (bank notes and reserves) and the liabilities of commercial banks (bank deposits). A critical macro-financial research agenda broadens this traditional perspective. Which instruments function as money changes over time and depends on different segments of the financial system.

The idea of shadow money gained some prominence through the work of Hyman Minsky (1957, 1986), though he had not yet used the label. The lineage for such ideas can be traced even further back to Schumpeter (1912) and Kindleberger (1978). Shadow money instruments are usually the neglected part of research on the monetary system. By definition, they are

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located at the edges of the spectrum of what counts as money. In the established monetary aggregates, they appear – if at all – in M2, M3 or higher, where definitions get blurry and measurements opaque.[1] The question of what constitutes shadow money is thus inextricably linked with monetary theory. It is at the edges of its spectrum where the monetary system is most dynamic. Boom cycles originate here as do financial crises.

Critical macro-finance and a credit theory of money

In the traditional understanding of money creation, there is no space for shadow money. The key institutions for traditional money creation are the central bank and commercial banks (Mishkin, 2009; Ryan-Collins et al., 2011; McLeay et al., 2014). Even within this simplified perspective, there are different ways to imagine how central bank and commercial bank money are connected and depend on each other. A defining feature of critical macro-finance is to criticize the application of *financial intermediation theory*, which portrays banks as mere intermediaries of the money that was previously created by central banks (McLeay et al., 2014). Instead, it subscribes to the *credit creation theory* (Bonizzi and Kaltenbrunner, 2020; also see Dutta et al., 2020; Gabor, 2020). This is maybe the single most important conceptual choice which distinguishes critical macro-finance analyses from other economic or political-economic research strands. There are various approaches in different neighboring sub-disciplines that do not necessarily talk to each other or even know of each other. But to the extent that they move towards acknowledging the ability of private financial institutions to autonomously create credit money, they broadly align with the research agenda of critical macro-finance.

What does a credit creation theory of bank money creation entail in detail? When a bank as credit money issuer makes a loan, it simultaneously creates deposits as credit money. The deposit is a promise to pay higher-ranking money, i.e. central bank notes or reserves. However, in order to create such a deposit, it is not necessary that a bank actually has such notes or reserves. The bank simply issues a promise to pay central bank money to its customer, the borrower, who is able to use this promise to pay in order to make all the purchases (s)he wants. Vice versa, the borrower promises to return the promise to pay at a future point in time. This promise to pay is a loan which the bank holds as its asset (see Figure 1 below).

Borrower		Credit money issuer	
+ Credit money (short-term IOU)	+ Loan or bond (long-term IOU)	+ Loan or bond (long-term IOU)	+ Credit money (short-term IOU)

Figure 1. Credit money creation as a swap of IOUs.

In this process – we may call it a swap of IOUs (Mehrling, 2011) or else find other turns of phrase, such as "to create deposits as a byproduct of credit creation" (Dow, 2006: 35) – the bank as credit money issuer creates a maturity mismatch when it agrees to make the deposit (a short-term IOU) available immediately while the loan (a long-term IOU) only has to be repaid at a specific future point in time (Hawtrey, 1919).

Both the short-term and the long-term IOU are denominated in a *unit of account* such as the US dollar, the Euro, or the British Pound. Once the bank deposit has been created, it might

be tempting to say that the deposit *is* a US dollar. This expression works for everyday language and is true for some practical purposes, such as paying for groceries. In a more exact framework, however, the bank deposit is merely a *promise to pay a US dollar* made by the credit money issuer. This may lead us to believe that the central bank money, which the deposit promises to pay, *is* the US dollar as 'money proper' or 'fiat money'. However, central bank money is also created according to the same mechanism. The credit money issuer in our balance sheet example could be a central bank, which issues notes or reserves in exactly the same way, by purchasing public or private bonds (Mehrling, 2020). From this perspective, central bank money is not 'money proper' either, but simply the *promise to pay a US dollar*.

This logical intricacy has been well-described by Alfred Mitchell-Innes (1914: 155), who famously argues "the eye has never seen and the hand has never touched a dollar. All that we can touch or see is a promise to pay or satisfy a debt due for an amount called a dollar". In this conceptualization, which has inspired works such as Keynes (1930) and Minsky (1986), the dollar as a unit of account is merely a nominal benchmark *manifested* in different credit instruments, which use it for the purpose of denomination. Arguing that any of those instruments ontologically 'is' this unit of account would be a category error. To support this theoretical argument, consider that before the introduction of the Euro (EUR), national units of account such as the Deutsche Mark and the French franc were connected to each other via the European Currency Unit (ECU), which at inception was a unit of account without corresponding instruments. In 1999, the ECU was renamed the EUR and the European financial institutions started issuing instruments denominated in that unit of account.

In fact, the status of central bank money is surprisingly unclear. Reserves are to some extent a legal orphan from a time when they were still convertible into some underlying asset such as gold (Bateman and Allen, forthcoming). Similarly, bank notes are formally a promise to pay higher-ranking money, but in absence of an empirical instrument that could deliver on this promise, they are nothing more than a promise to pay themselves. No country is as blunt about this as the United Kingdom, where the five-pound note says: "I promise to pay the bearer on demand the sum of five pounds". This element of logical recursion, which makes central bank money simultaneously a debt and a non-debt, may be intellectually dissatisfying to some but should in our view serve as a reference point in critical macro-finance research. Rather than thinking of central bank money as outside money or 'fiat money' (Hockett and Omarova, 2016; Wullweber, 2020), it is better understood as public inside money (Mehrling, 2020).

From this perspective, what distinguishes central bank reserves, notes, and bank deposits from other instruments and singles them out as 'money' is that they maintain 'par' with each other, a stable one-to-one exchange rate. Central bank money has the status of being the most direct representation of the unit of account, which implies a hidden par relationship to the unit of account. Bank deposits promise to trade at par to central bank money and hence with the unit of account. This at-par promise is stabilized by central bank and treasury guarantees through liquidity and solvency insurance. This is how a US dollar created by JP Morgan is exactly equal to a US dollar created by Barclays is exactly equal to a US dollar created by the Federal Reserve.

Critical macro-finance and the shadow money discourse

The financial crisis of 2007-9 triggered a debate on shadow banking (McCulley, 2009; Pozsar et al., 2012) and the new forms of money creation that possibly come along with it. The crucial step was to acknowledge that a creation of IOUs somewhat akin to the credit creation logic is

not limited to traditional banking institutions. Perceiving money as only central bank notes, reserves, and commercial bank deposits is conceptually too narrow to understand today's real-world monetary and financial system. Early works that expressed this idea were Gorton (2010) and Mehrling (2011). These have since sparked a broader debate on theorizing such instruments as shadow money (Pozsar, 2014; Gabor and Vestergaard, 2016; Ricks, 2016; Michell, 2017), which we think of as the 'core shadow money discourse' (Murau and Pforr, 2020).

Gabor and Vestergaard (2016), in line with Gorton (2010), restrict the definition of shadow money to repurchase agreements (repos) (see also Gabor, 2020 in this issue). Legally speaking, a repo is an agreement to sell a financial security today and buy it back later. From an economic perspective, this is another way of creating credit. The short-term funding given to a securities dealer can appear like a deposit as it can be withdrawn within a very short period of time (i.e. next day). If repo contracts are continually renewed or rolled over, we have a situation where short-term money can be withdrawn on a daily basis yet normally remain deposited with the security dealer (Gorton, 2010: 44).

Pozsar (2014) and Ricks (2011, 2016) adopt a broader perspective by incorporating money market fund (MMF) shares and asset-backed commercial papers (ABCPs) into the picture (see also Mehrling, 2011). Until the 1970s, it was forbidden in the United States to pay more than two per cent interest on bank deposits. Then MMFs stepped in and used their status as funds rather than banks to offer MMF shares as deposit alternatives while paying higher interest on them. Later even card payments became possible, making such funds practically indistinguishable from bank accounts in terms of the products they offered. Meanwhile, the ABCP market emerged in the context of international regulatory standards that obliged banks to build up reserves when granting loans. Since such reserve holdings reduce profitability, banks set up special purpose vehicles (SPVs) – to all intents and purposes, letterbox companies – and handled some of their lending business via that channel. Instead of bank deposits they issued ABCPs, which did not appear on the banks' balance sheets and thus helped them circumvent minimum reserve standards while increasing profitability (Murau, 2017).

How is this core shadow money discourse connected to the field of critical macro-finance? It would be too far of a stretch to say that all these works consciously contributed to critical macro-finance. While the label had existed in the blogosphere for a while, the first peer-reviewed article using it in connection with the shadow money debate was Gabor and Vestergaard (2018). However, it is fair to say that the core shadow money discourse has taken place *in the spirit* of critical macro-finance, at a time when calls for new economic thinking had popped up on various fronts using different theoretical traditions as entry points. Gabor and Vestergaard are primarily influenced by Minsky (1957, 1986). Michell follows the Circuitist framework of Graziani (2003). Pozsar has adopted the Money View language (Mehrling, 2011), which has borrowed much of its vocabulary from American Institutionalism, whilst Ricks (2016) comes from a Law and Finance tradition and often refers to Milton Friedman as a reference point. In that respect, the research agenda of critical macro-finance (Gabor, 2020) has the potential to reconcile a number of different theoretical traditions.

Also in the spirit of critical macro-finance is a debate on the role of foreign exchange (FX) swaps, which emerged after the core shadow money discourse. Particularly influential was a publication of the Bank for International Settlements, in which Borio, McCauley and McGuire (2017: 37) discuss what balance sheets would look like if the borrowing through FX swaps was "recorded on-balance sheet, as the functionally equivalent repo debt is". FX swaps represent an agreement to swap currencies today and revert that transaction at some point in the future.

They have a Janus-faced character as they can be seen as both derivatives and money market instruments (Stenfors, 2017; Toporowski, 2017). Treating FX swaps as functionally equivalent to repo makes FX swaps a good candidate to be accounted for in the shadow money discourse as well. Arguably, FX swaps are even the core shadow money form in the contemporary institutional setting (Murau, 2018; Setser, 2019; Pozsar, 2020). One of the main reasons for focusing on repos, ABCPs, and MMF shares as shadow money had been the dynamics of the 2007-9 crisis. This crisis occurred in three waves during which all three types of instruments were affected: ABCPs primarily in the first wave, MMF shares in the third, and repos in all three (Murau, 2017). FX swaps, by contrast, had been a funding channel that continued to function relatively smoothly (Coffey et al., 2009), and have therefore received less attention in post-crisis scholarship but also regulation too. While the crisis interventions and post-crisis reforms have substantially altered repo, MMF share, and ABCP markets, FX swaps have remained largely untouched. Using a rough and back of the envelop estimation, we may say that – in comparison to the $13 trillion USD deposits outstanding in the United States – the current numbers are $2.68 trillion of daily global FX swaps trade involving USD, $2.5 trillion of daily US bilateral repo activity, $4.015 trillion of outstanding MMF shares, and $246 billion of ABCPs (all data Fed, SEC, and BIS).[2]

Towards a baseline theory of shadow money for critical macro-finance

In the core shadow money discourse, the apparent disagreement on what instruments constitute shadow money seems to imply profound conceptual differences between theorists. However, as we show in Murau and Pforr (2020), there are less disagreements on a conceptual level than may appear at first sight. Despite terminological differences, all authors in principle agree on three criteria that an instrument must fulfil in order to fit the shadow money category. Their disagreements therefore pertain rather to how they apply concepts to the empirical cases, and how they go about handling the ambiguities that come along with this. For a future research agenda on money in critical macro-finance, we suggest taking the three criteria as a baseline position when exploring the edges of the monetary spectrum.

First, the shadow money theorists agree that, in order to qualify as shadow money from a demand side perspective, an instrument must serve as a *substitute for bank deposits* for its users (Gabor and Vestergaard, 2016: 2; Ricks, 2016: 4). Some individuals or institutions must decide for some reason to hold shadow money forms instead of deposits. Pozsar (2014: 4) famously argues that "for institutional cash pools, money begins where M2 ends". The underlying idea for this criterion is that deposits and shadow money are integrated in the same hierarchy of money, with deposits being the hierarchically higher instruments while shadow money instruments are hierarchically lower *promises to pay deposits* (Pozsar, 2014: 26; Gabor and Vestergaard, 2016: 2).

Shadow money theorists differ in how far this aspect of substitutability must go. We can illustrate this point by looking at some of the elementary functions of money. Most agree that shadow money instruments substitute for the *store of value* function. This is implied when shadow money theorists emphasize that all shadow money forms have to be safe and liquid. It is trickier, however, if we focus also on the *means of payment* function. Here, only MMF shares can (partly) substitute for bank deposits because they can sometimes be used in retail stores to purchase actual goods and services. All other instruments are made for wholesale markets. Finally, there is a question of the extent to which instruments can be a *means of settlement*. Michell (2017) is the strictest in this regard. While he accepts the criterion of substitutability, he denies that it is empirically fulfilled as "these financial claims cannot be used either as a

means of payment for goods and services or as a means of settlement for financial contracts" (Michell, 2017: 355). A counterargument in line with our interpretation of traditional money is that deposits are not an ultimate means of settlement but merely a *promise to pay central bank money*, as we have shown above. More generally, which instrument can be used as a means of settlement depends on an institution's relative position in the hierarchy of money (Mehrling, 2012).

Second, shadow money theorists allude to a credit theory of money and seem to have some form of *credit creation mechanism* in mind, related to the deposit creation mechanism depicted in Figure 1. They acknowledge differences in accounting practices for deposits, MMF shares, repos, and ABCPs, but often remain vague in their explanation of the actual mechanics involved (Pozsar, 2014: 15; Gabor and Vestergaard, 2016: 5-6; Ricks, 2016: 57, 74). This is precisely the critique Michell (2017: 372) makes when he argues that shadow banks do not have "the same autonomy to expand credit as that of traditional banks" as "the creation of new credit either requires a prior decision to 'not spend" or "the expansion of money and credit on the balance sheets of 'traditional' banks".

From our point of view, the (unsettled) question here is to determine in practice what it means to create credit. To what extent do the balance sheet mechanics for shadow money creation have to be identical to those of deposit creation, and do the legal accounting standards matter, or is it rather the *actual promises made* that can be recorded either on or off-balance-sheet? In fact, there is a deeply engrained ambiguity when it comes to conceptualizing the precise mechanics of balance sheets. For example, the operations of MMFs can be thought of as either those of a fund or those of a bank that performs fractional reserve banking (McCabe, 2015), and a similar case can be made for ABCPs. The issuance of a repo can consistently be put on-balance-sheet in different ways, also depending on whether it is issued by a securities dealer or a bank (see Murau and Pforr, 2020: 14-15). As an *asset swap*, the depiction focuses on the exchange of deposits as higher-ranking money, emphasizing the collateral and abstracting away from credit creation and the issuance of lower-ranking money (e.g. Gorton, 2010). As a *swap of IOUs*, repo issuance abstracts away from higher-ranking money and collateral but records the credit character and the issuance of lower-ranking money on the balance sheet (Mehrling, 2011; Pozsar and Sweeney, 2015). The *repo* is then issued as an IOU against a *reverse repo*. A third option thinks of repo mechanics as a substitution of two different IOUs, that of a repo and that of a deposit, while a discrepancy emerges between the legal and the economic ownership of the security (Gabor and Vestergaard, 2018; Gabor, 2020). The least discussed case are FX swaps, for which the actual accounting practices are those of derivatives, but which can be conceptualized in the same three ways as repos once thought of as on-balance-sheet instruments (Borio et al., 2017).

Third, theorists agree that shadow money forms are promises to pay deposits as higher-ranking money to which they *trade at par* and in which they are instantaneously convertible (Pozsar, 2014: 7; Gabor and Vestergaard, 2016: 2; Ricks, 2016: 31; Michell, 2017: 362). While par exchange between deposits and central bank liabilities is guaranteed by public institutions, par exchange between shadow money and deposits typically relies on market mechanisms and private guarantees.

The main difference is that Gabor and Vestergaard (2016) think of par clearance in an almost mathematically exact way, whereas Pozsar (2014) and Ricks (2016) are vaguer and accept an 'almost' par relationship and 'almost' instantaneous convertibility. Gabor and Vestergaard (2016: 12) prioritize the securitized repo claim over other instruments due to the elaborate at-par regime that comes along with it, involving features such as mark-to-market, margin calls, and haircuts, and because these claims are often overnight, at a very short

maturity. MMF shares and ABCPs are not collateralized and may have longer maturities, which Pozsar (2014: 9, 14) and Ricks (2016: 31-32) are willing to accept as instantaneous par claims within a margin of error.

Following our earlier line of thought, we suggest that the main purpose of a shadow money form's par claim is not simply to trade at par to deposits in particular or the next higher-ranking money form in general. Rather, the essential implication of the par criterion is that the instrument – through a chain of par claims – has a stable price relationship to the *unit of account* in which the instrument is denominated. Figure 2 visualizes this idea.

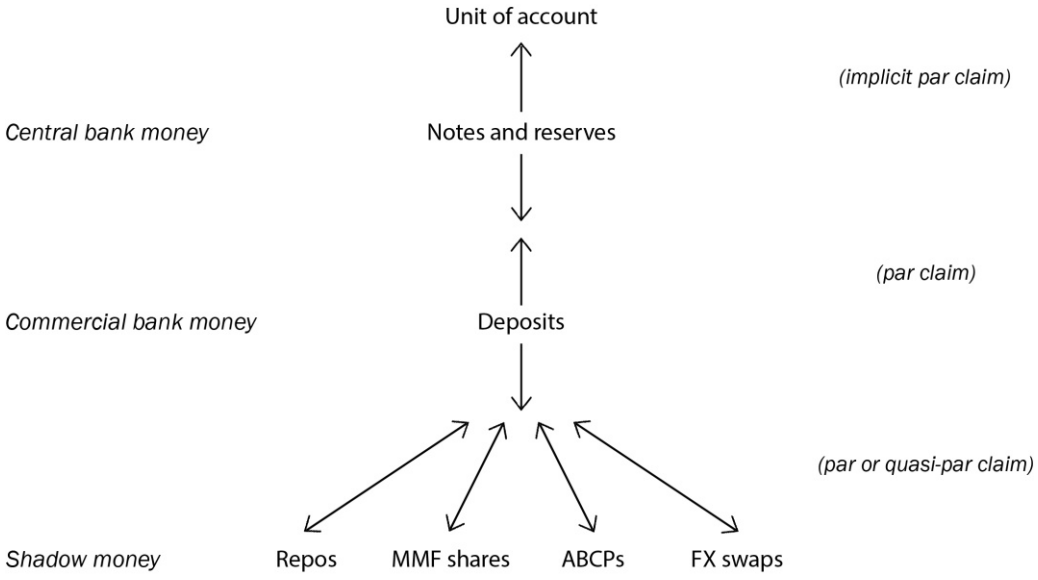

Figure 2. The chain of par claims towards the unit of account within a hierarchy of money.

Just as central bank and commercial bank IOUs require a stable par relationship in order to qualify as 'money' by definition, other IOUs at the edge of the monetary spectrum need to be embedded in a chain of par claims to the unit of account in order to qualify as 'money' (see Wullweber, 2020 for a similar idea). If this criterion is fulfilled, the US dollar created as an MMF share of Fidelity is a US dollar if it is numerically equal to a US dollar deposit created by JP Morgan and a US dollar note created by the Fed. Hence, all instruments are *promises to pay higher-ranking money* and claim to trade at par to the *unit of account*. This is established through a hierarchy of different monetary instruments, but one that is historically contingent and can change over time. In contrast to state-centered Chartalist ideas, which think of central bank money as the logically superior instrument by default (Hockett and Omarova, 2016; Wullweber, 2020), this perspective allows us to make sense of times when the hierarchically highest institution is *not* a public institution. It is an argument against treating central bank, commercial bank, and shadow money as belonging to fundamentally different categories.

Conclusion

In this forum contribution, we have fleshed out three points that we consider most important for a research agenda on money in critical macro-finance. First, critical macro-finance firmly

subscribes to a credit theory of money. This has significant implications for traditional central bank and commercial bank money. In particular, central bank money should not be seen as fiat money, but as public inside money which *formally* promises to pay higher-ranking money but *practically* can only deliver on this promise by paying itself. Second, critical macro-finance is the spirit in which the core shadow money discourse has taken place following the financial crisis of 2007-9, even though authors might not necessarily self-identify with this label and use concepts from a variety of intellectual traditions. Today, a crucial empirical question is how to make sense of FX swaps, which arguably have become one of the key shadow money forms. Third, we believe that there is potential common ground for a 'baseline concept' of shadow money which can be fruitfully applied in future critical macro-finance research. On one hand, this involves the notion of a hierarchy of money that establishes the promise of a par claim to the unit of account, which is merely an idea that gets manifested in instruments through denomination. On the other hand, it requires close attention to the inherent ambiguity of accounting mechanisms, which can represent the nature of credit money creation in different ways.

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Notes

1. Each central bank differs in their definition and calculation of monetary aggregates. The following is an overview of the way the money supply is defined in the United States: "The monetary base is defined as the sum of currency in circulation and reserve balances (deposits held by banks and other depository institutions in their accounts at the Federal Reserve)". It stood at $3.88 trillion as of 20 March 2020. "M1 includes funds that are readily accessible for spending. M1 consists of: (1) currency outside the U.S. Treasury, Federal Reserve Banks, and the vaults of depository institutions; (2) traveler's checks of nonbank issuers; (3) demand deposits; and (4) other checkable deposits (OCDs), which consist primarily of negotiable order of withdrawal (NOW) accounts at depository institutions and credit union share draft accounts. Seasonally adjusted M1 is calculated by summing currency, traveler's checks, demand deposits, and OCDs, each seasonally adjusted separately." Seasonally adjusted M1 stood at $4.87 trillion as of 20 April 2020. "M2 includes a broader set of financial assets held principally by households. M2 consists of M1 plus: (1) savings deposits (which include money market deposit accounts, or MMDAs); (2) small-denomination time deposits (time deposits in amounts of less than $100,000); and (3) balances in retail money market mutual funds (MMMFs). Seasonally adjusted M2 is computed by summing savings deposits, small-denomination time deposits, and retail MMMFs, each seasonally adjusted separately, and adding this result to seasonally adjusted M1." Seasonally adjusted M2 stood at $17.2 trillion as of 20 April 2020. M3 had traditionally included large time deposits, Eurodollars, Repo accounts, and institutional MMFs. However, since March 2006, M3 is no longer published by Federal Reserve. At the last time of publication, M3 stood at $10.3 trillion (13 March 2006). For comparison, M2 stood at $6.73 trillion on that date. All data and citations from: Organization for Economic Co-operation and Development, M1/M2/M3 for the United States, retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/M2>, 5 May 2020.

2. USD onshore deposits: $13 trillion as of Wednesday 25 September 2019; data taken from St. Louis Fed: <https://fred.stlouisfed.org/series/DPSACBW027SBOG/>. US repo: $2.5 trillion of average outstanding daily bilateral repo in 2019; data taken from SIFMA: <https://www.sifma.org/resources/research/us-repo-market-fact-sheet-2019/>. US MMF shares: $4.015 trillion MMF shares outstanding at the of end 2019; data taken from Federal Reserve Board: <https://www.federalreserve.gov/releases/efa/money-market-funds-investment-holdings.pdf/>. US ABCPs: $246 billion outstanding as of 25 September 2019; data taken from St. Louis Fed: <https://fred.stlouisfed.org/series/ABCOMP/>. Global FX swaps involving USD: $2.68 trillion per day in April 2019 ($6.6 trillion global FX trade, 49% of which involve FX swaps, 83% of which involve USD); data taken from BIS: <https://www.bis.org/statistics/rpfx19_fx.pdf/>. All data accessed 4 May 2020.

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