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The Politics of Shadow Money: Security Structures, Money Creation and Unconventional Central Banking

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ABSTRACT

For the first time in the history of central banks, the Federal Reserve has been pursuing monetary policies which allow shadow banks to access its reserves. The paper examines these policies in an analysis based on the concept of security structure. The aim is to facilitate a better understanding of complex institutional arrangements which convert credit claims into money or enable them to simulate the money-form. As the financial crisis reached its peak in September 2008, the Fed was not able to contain the impact precisely because the security structure existing between banks and the Fed did not extend to the shadow banking system, which had meanwhile become thebackbone of the global financial system. To address this situation, the Fed initiated new security structures that were designed to also give players in the shadow banking system access to liquidity and collateral. The concept 'security structure' serves as an analytical tool to explore dynamic forms of safety and liquidity generation and to distinguish between credit expansion and money creation. It also helps to differentiate between three qualitatively different stages of security: central bank money, quasi-money and shadow money. In this way, it foregrounds the politics of (shadow) money creation.

KEYWORDS

Unconventional monetary policies; shadow banking system; money creation; repurchase agreements; credit expansion

Introduction

> The financial system has changed fundamentally and permanently. (Gorton 2017, p. 574)
> [T]he outlines of the new are just emerging from the ashes of the old. (Mehrling *et al*. 2013, p. 1)

When the financial market collapsed after Lehman Brothers declared bankruptcy in September 2008, the Federal Reserve (Fed) made the historically unprecedented decision to create various facilities that made it possible for non-banks to access central bank reserves. Since the Fed took this step, shadow banking entities – large mutual funds, money market funds and asset managers among others – have received the opportunity to access the central bank's balance sheet via repurchase agreements (repos). The assessment of these monetary policies is currently a matter of strong debate.[1] The topicality of these discussions became obvious once again in September 2019, when the repo market was hit by another crisis. After the repo rate rose to a level not seen since the financial crisis, the Fed was forced to react by reopening its repo facilities for banks and shadow actors. The article claims that as a result of the measures, non-banks in the shadow banking system have come to be in the unique position of being able to access safe assets and – at least temporarily – to create quasi-money – a privilege which before now was exclusively reserved to banks. These measures established an extraordinary safety structure for the shadow banking system. In

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contrast to other studies (Ricks 2012, 2016) the paper claims that money creation in the shadow banking system was not possible until the Fed provided appropriate facilities. And although some studies treat the mechanisms by which both money and shadow money are created as similar (Stein 2012, Cooper 2015, Guttmann 2016, Ricks 2016), the paper holds that it is important to scrutinise the differences, without, however, denying the significance of these new forms of collateralised credit creation.

In order to support these assertions, the paper examines how the state, especially through its central bank, creates security structures for certain assets and selected financial players. The analysis is based on the assumption that while private financial players can produce promissory notes elastically and in any number of different forms, the ability to create tendentially crisis-resistant assets is first and foremost the result of political decisions and politico-institutional processes. While good times obscure the difference between the various forms of money and money equivalents (money-like assets) (Becker 2019), in times of crisis the ability to access safe assets and procure and create money becomes essential for private agents. From this perspective, not every highly liquid credit is a form of money or a safe asset. As will be argued below, in order to understand the dynamics of the global financial crisis and assess the novelty of some monetary policies, it is crucial to differentiate between money, money equivalents, and other forms of credit. This distinction is often blurred in economic analyses, largely because of a missing political perspective on the creation of money (Pozsar 2014, Ricks 2012, 2016). The paper aims to address this gap. It develops the concept *security structure* to account for the political dimension of money creation and to analytically differentiate between different forms of money. The concept security structure describes complex institutional arrangements which make it possible to convert specific credit claims into assets with a higher level of safety. Such arrangements allow private actors to create assets that seem to be as liquid and safe as money (shadow money). When security structures are introduced by the state or central banks, however, they can actually enable financial players to create assets that trade at par on demand with central bank money (quasi-money*)*. In the following analysis, the concept is used to gain a better understanding of the Fed's monetary policies, which, for the first time in monetary history, have entitled financial players from the shadow banking system to access reserves.

The global financial crisis has led to a renewal of the long-standing debate over questions about the nature of money. To describe the new developments within the realm of global finance, terms have arisen such as shadow money, credit money, money-like assets and cash equivalents. In an era of increasing financialization and the growing importance of the financial sector (Epstein 2005, Ertürk *et al*. 2008, Krippner 2011), and especially in the wake of the global financial crisis, the money-form has come to apply to all sorts of securities and financial derivatives (Cooper 2015, Bryan and Rafferty 2007, 2016, Murau 2017a). Since money by definition is liquid, a temporary liquidity of financial products is interpreted as representing a new form of money (LiPuma and Lee 2004, Bryan and Rafferty 2013, Allon 2015). The present paper problematises these views, the main claim being that in order to understand money it is first necessary to examine credit hierarchies, and, second, to complement the examination with a politico-economic approach that sheds light on the *political process* underlying the creation of money.

Based on the concept of credit hierarchy, the paper argues that all objects can be regarded as money which serve as general equivalents for all asset values at a lower level on the credit hierarchy (Mehrling 2013, Wullweber 2019a). In today's world, mostly central bank money (reserves and cash) and bank deposits constitute such general equivalents but also some digital currencies such as Bitcoin or precious metals such as gold. From a politico-economic perspective, the crucial point is the security structure underlying the money form, that is, the institutional structure safeguarding the promise to trade at par on demand. Although many different forms of money exist, some of which can be created outside the purview of the state, when a severe crisis occurs, it is still first and foremost the state via its central bank which acts as the ultimate stabiliser of said promise to trade at par and on demand. Historically speaking, this explains why sooner or later every developed

state has had to establish a central bank (Goodhart 1991).[2] In non-crisis times, on the other hand, being able to create *money equivalents* and to elastically expand credit claims in order to simulate the money form is just as interesting for financial players as having access to central bank reserves. Money equivalents, as distinguished from central bank money, constitute a *promise* to trade at par on demand without loss of value. The key question is what mechanisms exist to ensure this promise. It is accordingly important to scrutinise the various strategies and methods for producing money equivalents (Mehrling 2011).

Money equivalents such as derivatives, government bonds, or repos are often regarded as already constituting money (Ricks 2016). For Pozsar, the promise to trade at par on demand makes credit instruments money (Pozsar 2014, p. 9). In contrast hereto, and as an extension to studies that treat various forms of credit as money-like assets (Krishnamurthy and Vissing-Jorgensen 2015), I argue that it is necessary to differentiate, on the one hand, between central bank money and money equivalents, and, on the other, between two qualitatively very different forms of money equivalents which I call shadow money and quasi-money. Both shadow money and quasi-money promise par convertibility with central bank money on demand. While for some credit forms (quasi-money) this convertibility is guaranteed by the state via specific security structures, other credit forms (shadow money) *promise* to guarantee the convertibility by providing various private mechanisms and different means of collateral. This private simulation of state security, however, only functions in non-crisis times (Gorton 2017). Differentiation is accordingly important not only for the conceptual understanding of money but also for the concrete assessment of financial stability. Shadow money can be produced internally, that is, through security structures among private financial actors, but its status as a money equivalent depends on market valuations. The creation of quasi-money works differently. Quasi-money can be created because the state, via its central bank, provides a security structure which enables par clearance with central bank money. In times of financial crisis, shadow money loses its status as a money equivalent while quasi-money remains a stable equivalent.

The paper argues that when the financial system was threatened with collapse, the Fed generated new security structures for stakeholders in the shadow banking system so as to give them access to the central bank balance sheet. In this way, the state guaranteed par convertibility of specific credit forms from the shadow banking system with central bank money and collateral on demand. Temporarily, shadow money became quasi money. This monetary decision was decisive for stabilising the financial system. Although a number of studies have meanwhile examined the significance of the shadow banking system in the global financial system (Hardie *et al*. 2013, Cooper 2015, Nesvetailova 2015, Ban and Gabor 2016, Bryan *et al.* 2016, Helgadóttir 2016, Ertürk 2017, Murau 2017a), fewer research studies have been conducted on the new possibilities to access central bank reserves that were established through central bank monetary policies (Mehrling *et al*. 2013, Gabor 2016, Gabor and Vestergaard 2016, Ricks 2016). Particularly lacking is an approach to analyse and evaluate the policies of central banking and money creation from a political perspective (Murau 2017a). I claim that the crisis policies adopted by the Fed not only stabilised and reinforced the status of repos in the shadow banking system (Pozsar 2014, Gabor and Vestergaard 2016, Moreira and Savov 2017). They also constituted a qualitative and radical new step in terms of monetary politics, money creation, and the stabilisation of the shadow bank system.

The paper begins by describing how specific credits become converted into forms of money. The argument is developed that the creation of money and money-like assets is based on security structures pre-established by state institutions or through private mechanisms. From this point of departure, the paper draws on the notion of credit hierarchy and expands on it by relating it to the concept of security structures. Introducing the terms *quasi-money* and *shadow money*, it goes on to present the core argument that while shadow money can be created through institutionalised internal financial market processes, central bank money and quasi-money are generated through a security structure which has been established through political processes. The discussion then turns to the historically institutionalised security structure that enables private banks to create quasi-money. Subsequently, the paper explores the production of money equivalents within the shadow banking

system. It investigates the reasoning behind the central banks' decision during the global financial crisis to create new security structures for the shadow banking system, and examines the monetary policy by which the decision has been implemented so far in a process that is still ongoing. Finally, it discusses the difference between bank money and repos and argues that as of the central bank intervention in 2008, some repurchase agreements can be described as a new form of quasi-money.

Security Structures

Different forms of money have always existed side by side (Anderson 1970, Zelizer 1995). It is not so much the object serving in the function of money that is important but rather the process by which that object has been chosen, enforced, and stabilised (Keynes 1971 *1930, p. 3; also Weber 1978, p. 108). The article suggests that the ability to create money and money-equivalents depends on security structures that have been established both inside as well as outside the realm of the state. Repurchase agreements serve as a prevalent and mostly privately generated security structure today. Practices such as the securitisation and the bundling of mortgages also constitute attempts to create security systems. In general, a successfully institutionalised security structure, whether it is privately or publicly organised, makes assets more safe and also tendentially more liquid: 'liquidity means insuring against the forced liquidation' (Gorton 2017, p. 556). The safest structures are deployed by the state or state institutions such as central banks. Such institutionalised structures are the result of political decisions which authorise certain forms of credits to become money or quasi-money. They represent a state guarantee for an asset to be traded at par on demand: 'By passing a suitable law, a state can turn any object into a "legal means of payment" and any chartal object into "money" in the sense of means of payment' (Weber 1978, pp. 167–8). In order to explain this process and other private forms of security generation in the financial system the article draws on the notion of credit hierarchy (Bell 2001). Mapping out the various grades of security makes it possible to point out qualitative distinctions in the diverse forms of credit (Mehrling 2013; see Figure 1).

Figure 1 illustrates the various grades of security in a hierarchy ranging from unsecure credits at the base line up through central bank money at the top. In a nutshell, how close an asset is to the top of the hierarchy depends on how reliable it is in terms of par convertibility on demand, and, ultimately, how readily it can be exchanged for central bank money. Security structures are arrangements which elevate certain assets to a higher position in the credit hierarchy. While in the credit hierarchy the emphasis is on the different grades of security, the notion of security structure shifts

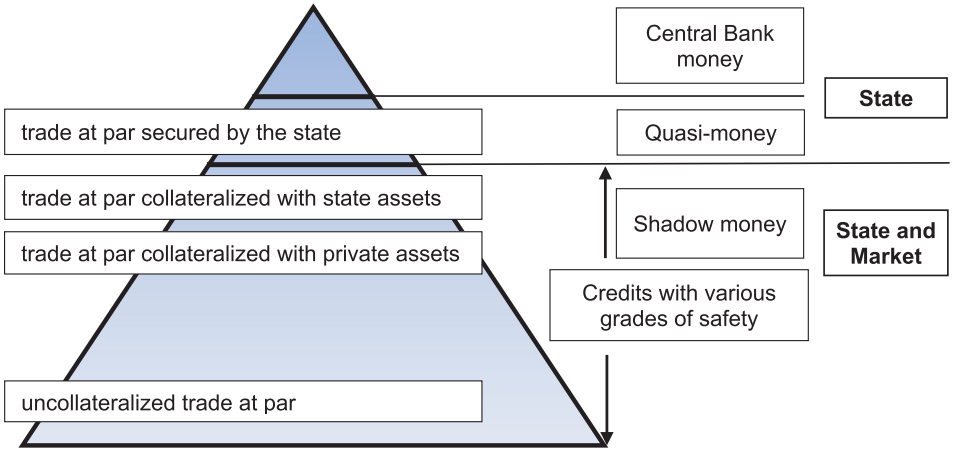

Figure 1. State, market and levels of security (to trade at par on demand).

the emphasis to the strategies or structures established by private or public institutions to increase the security of certain assets. The crucial point here is that a qualitative difference exists between security structures in terms of their ability to produce assets which trade at par on demand. This is reflected in the concepts quasi-money and shadow money (see Figure 1). Assets classified as *shadow money* are credits which promise to be readily convertible into money or at least to significantly facilitate access to money. In this conceptual framework, the category shadow money represents the highest possible level of privately generated security. In contrast, the category *quasi-money* describes assets for which the state via its central bank guarantees convertibility with central bank money on demand and at par. Even though quasi-money is not central bank money, such assets rate higher than shadow money because they can be liquidated with central bank money at any time without loss of value (see also Wray 1990, p. 16, Bell 2001, Mehrling 2013, Pozsar 2014, Gabor and Vestergaard 2016). While shadow money *promises* par convertibility on demand through specific privately organised collateral and security frameworks, such as the repo transactions discussed below and swaps, quasi-money stands for credit forms where par convertibility on demand is guaranteed by the central bank (see again Figure 1; similarly Schumpeter 1986 *1954, p. 305).[3]

During non-crisis periods this difference bears little relevance. Moreover, in a growing economy, where there is a constant search for innovative asset streams via new privately-created security structures, the production of and trade with shadow money assets tends to be much more profitable (Leyshon and Thrift 2007, Aitken 2011). In times of economic upswing, many assets seem to be highly liquid and credits and shadow money in particular can be rolled over, meaning they can be replaced by new credits without any need for settlement in money. Nevertheless, when confidence over the future value of assets is replaced by uncertainty, their liquidity decreases (Gorton 2017, Moreira and Savov 2017). This prompts counterparties to demand settlement. Payment is only possible, however, in the form of money (or quasi-money), that is to say, with credits which occupy a higher position in the credit hierarchy. Whether financial institutions suffer liquidity constraints depends on their ability to access the next higher credit level: 'In a liquidity crisis, everyone wants money and no one wants credit' (Mehrling 2013, p. 401; see also Minsky 1982a). For this reason, while various forms of security structures can be created by private financial players, and although these security structures seem to produce highly safe assets, they are not able to transcend the ceiling to the next level (quasi-money). The only security structures which can bridge the step to the next layer and provide confidence in the asset's liquidity even in times of crisis are those created by state institutions (Gorton 2017, p. 660). For this reason, the certainty to trade at par on demand with (central bank) money is ultimately granted only by virtue of politically created security structures: 'Safety is […] an outcome of an institutional and legal framework' (Cœuré 2016).

The different levels of security help to visualise the hybrid relationship between the state and the market in the realm of liquidity generation, par convertibility, and money creation. They highlight the fact that the position which a security occupies depends not only on its current market value, but also on political-economic structures and policy decisions. Especially the transformation of credits into quasi-money is based on political decisions and cannot be explained by practices of actors internal to financial markets alone.

The Security Structure for Bank Credit

The monetary financial system is a hybrid entity where public and private spheres are interwoven. It developed as the credit and debt systems of commercial trade became integrated into state money systems. In a historically uneven process, security structures were created linking specific privately-produced debt tokens to the money issued by the state through state-guaranteed convertibility schemes (Wullweber 2019a, Wullweber 2019b). Today's par convertibility of bank credit with state money is the result of this process (Ingham 2004, Murau 2017b; see also Weber 1978). Hence, a particularly interesting aspect about capitalist economies is the historic institutionalisation of non-state

as well as state-authorised forms of security structures which allows not only the state, but also privileged private actors to create money: 'The *differentia specifica* of capitalism lies in banks' endogenous creation of new deposits of credit-money *ex nihilo*' (Ingham 2004, p. 63, italics original; see also Chick 2013, Keynes 1971 *1930, pp. 19–23). Private banks can create quasi-money because security structures by the state guarantee the exchange of debt issued by private banks with central bank money at par and on demand, granting banks access to the next level in the credit hierarchy (see Figure 2). For this reason, private banks enjoy the 'extraordinary legal privilege' (Ricks 2016, p. 5) of issuing deposit obligations in the form of bank deposits which have the status of money (Bell 2001, p. 160).

Bank deposits, however, still occupy a lower level in the credit hierarchy than central bank money. Money claims between private banks cannot be settled with quasi-money (bank credit), but only with central bank money. Although by issuing loans, private banks can create quasi-money elastically via their own balance sheet operations, to settle money obligations with other banks they depend on central bank money. Hence, what constitutes their ultimate survival and liquidity constraint is their ability to refinance themselves with central bank money from the money market, and, as ultima ratio, by trading directly with the Fed (Mehrling 2011).

The possibility of par clearance on demand does not imply, as suggested by the money multiplier model, that banks can only create money which has been provided by central banks. Par convertibility is not an obligation but a possibility secured by the state. Apart from their minimum capital and reserve requirements, banks do not have to hold reserves. This means that the money that banks lend is not central bank money. When a bank grants a loan and thereby creates new deposits, it records the deposits as a liability against itself (McLeay *et al.* 2014a). In this manner, the state-backed system of money creation can react with a high degree of elasticity to the demands for money: '[W]hat the banker does with money cannot be done with any other commodity […] for no other commodity's quantity or velocity can be increased in this way' (Schumpeter 1986 *1954, pp. 304–5). Central bank money enters the stage when reserves are paid out as cash, or when deposits have to be transferred to the account of another bank. In such cases, private banks have to acquire reserves which are provided by the central bank through institutionalised security structures (McLeay *et al.* 2014b). Whether the convertibility of deposits into money is a stable condition, however, is not a factor of state acceptance alone. Chick (2013) speaks of the challenge to manage convertibility risk. In order to guarantee convertibility, special mechanisms are necessary to stabilise the security structure. A complex institutional framework has been created to ensure the exchange of deposits at nominal value, such as deposit protection schemes, monetary policies, money markets, etc., thereby minimising the

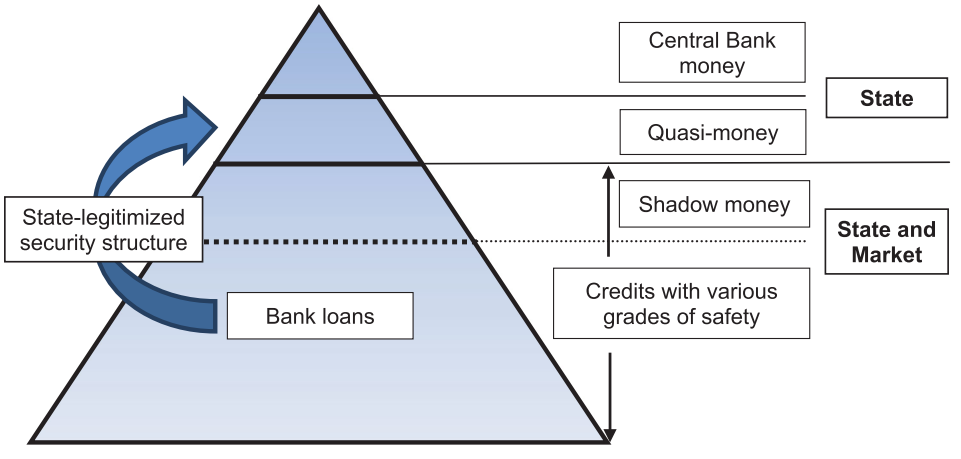

Figure 2. Bank credit and quasi-money.

risk of convertibility (Goodhart 1989). Central banks in particular, in their function as lender of last resort, serve to provide banks with liquidity and in so doing guarantee convertibility at par. However, under the state deposit guarantee scheme deposits are only insured up to a certain limit (USA: $250.000; EU: €100.000; UK: £85.000). Any amount above this limit is considered unsecured, and, as such, no longer enjoys the status of quasi-money (Mehrling 2013, Ricks 2016). During the global financial crisis, the existing security structure proved to be inadequate to stabilise the financial system. While providing the traditional banking system with sufficient access to reserves, it excluded the shadow banking system which had become an increasingly important source of funding.

The Financial Crisis, the Shadow Banking System and New Security Structures

As a result of a series of financial innovations that were widely used before the financial crisis, the liquidity of many assets increased by way of privately organised security structures, often at the encouragement of state institutions. By means of securitisation, for example, illiquid and non-tradable assets (mortgages) became tradable (Gorton 2017, pp. 564–5). From the perspective of the system as a whole, mortgages are traded and ownership can change hands several times. The process of securitisation in each trade transaction has the simultaneous effect of distributing the risks, exposures and interest payments (Carruthers and Stinchcombe 1999). Furthermore, mortgages, but also other assets, were bundled into packages of asset-backed securities, and risks were divided into tranches (Leyshon and Thrift 2007, Martin 2007, MacKenzie 2011). These strategies were able to produce various forms of shadow money (see Figure 3): 'The elasticity of credit thus offers a degree of freedom that relaxes the constraint posed by the scarcity of money' (Mehrling 2013, p. 399).

This production of new forms of assets and security structures took place for the most part in the shadow banking system, whose key players include investment banks, broker-dealers, money market funds, private equity companies, hedge funds and special purpose entities (Pozsar 2014, FSB 2017a, pp. 19–22). Liquidity provided in the shadow banking system is largely unregulated (FSB 2013). In the years before the financial crisis, shadow banking had become the mainstay of the financial system because it offers liquidity with significantly fewer restrictions and at more favourable conditions than in the loan-based credit system (Hardie *et al*. 2013, BIS 2017, FSB 2017a). While in the banking system it is the banks which provide financial means via loans, in the shadow banking system funds are provided through broker-dealers via legal contracts by financing capital market-

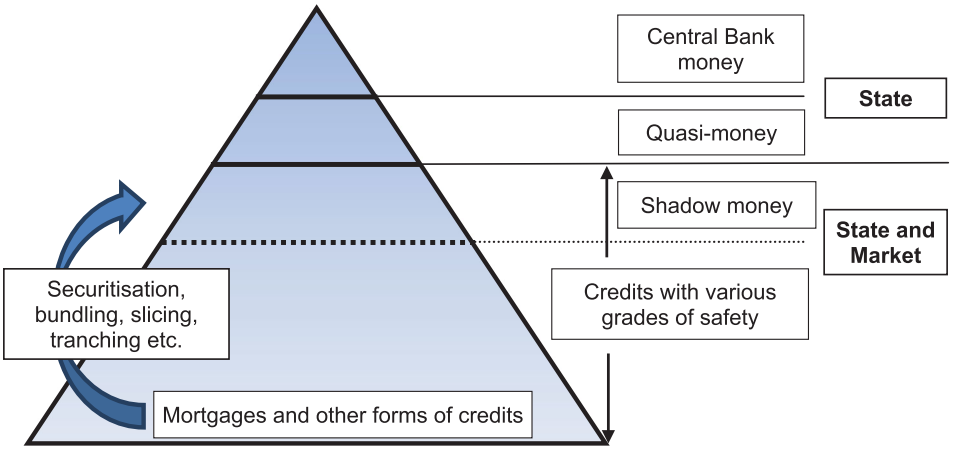

Figure 3. Privately generated security structures.

based loans via the money market.[4] In contrast to the loan-based banking system, it is regarded as a market-based credit system (Mehrling *et al.* 2013).

Repurchase agreements (repos) play a core function in this system (Gorton and Metrick 2012a). They enable the creation of a new, privately organised security structure. For the most part, repos are short-term contracts for the sale of securities at an agreed price with a commitment by the seller to repurchase the same securities at a predetermined price plus interest at the end of a set term (Golec and Perotti 2017). Although the securities formally belong to the buyer (who is effectively the creditor), the seller (debtor) continues to receive all interest payments on them. As the legal owner, the buyer is entitled to resell the underlying securities (the repo contract itself cannot be traded). If the seller becomes insolvent and cannot repurchase the securities, the buyer can resell them on the market. Therefore the securities serve as collateral (Pozsar and Singh 2011). One party to the agreement, normally the debtor, must pay a charge on the securities, an amount known as a *haircut*. This charge is intended to ensure that (in the event of default), even if the market value decreases, it will still be possible to sell the securities on the market without taking a loss. Furthermore, the value of the securities is calculated on a mark-to-market basis, which means that it is constantly being adjusted on a daily basis to its current market value. If the value changes, each side is entitled to make a margin call and to demand more security (if the value decreases) or funds (if the value increases). In addition, most repos are collateralised with government bonds because they are considered to be the safest securities (safe assets). However, there is always a shortage of government debt. For this reason, financial players have increasingly come to rely on privately created collateral (FSB 2017b, Gorton 2017, Singh 2017).

Repo transactions suit different interests. Some agents, such as money market funds, asset managers, or other institutional investors, search for possibilities to invest money at low risk (Golec and Perotti 2017, p. 3; Bank of England 2015, p. 6). On the other side there are commercial banks, hedge funds and other financial players which use repos to avoid a shortfall of capital reserves and for short-term profit making. In between there are security dealers who quote a two-way market for securities, themselves financed via repo transactions (Mehrling 2011). Repo transactions therefore intertwine agents with demand for secure but flexible and profitable investments with venturesome financial players who use the capital for other financial activities such as short sale, hedging, or rehypothecation. In the 2000s the repo markets became the main transaction tool, a gigantic refinancing market for short-term debt. Today, the shadow banking system accounts for around 200 trillion dollars in traded financial assets with an annual increase in volume of around 7% (FSB 2019). Repo transactions eventually were held to be as liquid as money, despite the fact that the safety of their liquidity was only protected by private mechanisms.

Until the financial crisis hit, almost no one realised that the shadow banking system had not only evolved as a strong alternative to the loan-based credit system but had also become systemic to the rest of the financial system (Gorton and Metrick 2012a). Market players were able to significantly raise their debt level via repo transactions. But the liquidity of the securities used as collateral depended on their market value. During the global financial crisis, however, the market value of securities fell sharply and the leverage collapsed (Adrian and Shin 2010). Within a short period of time, value losses amounted to approximately 1.5 trillion US dollars (Adrian *et al.* 2017, p. 5). The crisis peaked in September 2008, when bankruptcy proceedings were initiated by Lehman Brothers – at the time, one of the world's major market makers in the repo markets. The Fed reacted with a set of well known emergency measures: It lowered the key interest rate to 0.25 per cent, embarked on a programme of quantitative easing and provided a massive amount of liquidity as lender of last resort. In this way, the Fed strengthened the security structures for the banking system in order to drastically lower the access barrier to Federal reserves. It was possible for the Fed to do so because central banks are at the very top of the credit hierarchy. They are the only institutions in the financial system which can create money without restraint, at least in their own currency (Mehrling 2011). Despite these efforts, it was not possible to stabilise the financial system, the reason being that it was only possible to provide security structures for the traditional banking system, but not for

the shadow banking system. The global financial crisis, however, was primarily a crisis of the shadow banking system. Hence, the problem with the safety system in place at the time was that that the shadow banking system had no access to the security structure existing between banks and the Federal Reserve (Ricks 2011, FSB 2013, 2017b, Mehrling *et al*. 2013).

The Lehman Brothers bankruptcy and the collapse of the American International Group (AIG) created panic on the repo markets, triggering a chain reaction: Security prices fell, market players raised haircuts and margin calls on collateral, and security values dropped even lower. This marked the temporary end of the privately established security structure. The money market collapsed and demand suddenly disappeared for repo transactions, first for repos with private collateral, but soon after also for repos collateralised with government bonds. No one wanted to give away their safe assets (Gorton and Metrick 2012b, FSB 2017b, pp. 11–12; Gorton *et al.* 2018). This completely changed the status of repos as a shadow money. Repo lending came to a halt. Security dealers were cut off from their funding schemes and could no longer perform their market maker function at the intersection of the capital market and money market. As a result, both markets virtually disappeared. It became obvious during the crisis that the market liquidity of assets, in the last instance, depends on the shiftability of these assets to the Fed, and funding liquidity ultimately hinges on access to reserves (Mehrling 2011). As the entire financial system threatened to collapse, the Fed reacted with a number of historically unconventional steps by establishing repo facilities that also gave non-banks access to central bank reserves. In this way, the Fed created new security structures for repo transactions with actors from the shadow banking system (see Figure 4).

These security structures were not tied to one specific facility. Instead they consisted of various very different Fed facilities, each of which was intended to solve specific liquidity problems: the *Term Securities Lending Facility* (TSLF), already created in March 2008, in response to the collapse of Bear Stearns, enabled investors to borrow US Treasury securities against non-Treasury securities in order to facilitate and revive repo lending in capital markets based on government bonds. The *Primary Dealer Credit Facility (*PDCF) provided liquidity (Fed funds) directly to primary dealers, both banks and non-banks. With the *Commercial Paper Funding Facility* (CPFF), which was established in October 2008, the Fed intervened in the commercial paper market by trading directly with investors, allowing them to access the Fed's discount window. The Fed's *Money Market Investor Funding Facility* (MMIFF), also created in October 2008, provided liquidity directly to U.S. money market funds which had come under massive stress after the Lehman bankruptcy. Finally, with the *Term Asset-Backed Securities Loan Facility* (TALF) initiated in March 2009, the Fed moved directly into the capital market with the goal of reviving private trading through the issuance of asset-backed securities

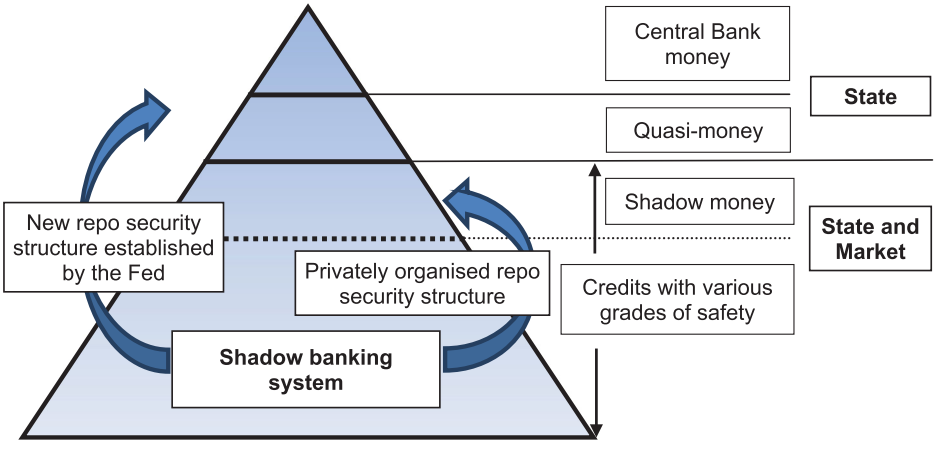

Figure 4. Repo security structures generated by private financial players and the Fed.

collateralised by consumer loans and mortgage-backed securities (Adrian *et al.* 2009, Adrian *et al.* 2011, Mehrling 2011, pp. 119–23, Domanski *et al.* 2014, Gorton *et al.* 2018).

These new facilities enabled shadow banking actors to receive central bank money and collateral (Treasuries) through repo transactions. At the outset it was only investment-grade securities that were accepted as collateral, but the Fed soon began to conduct repurchase transactions on all available securities regardless of the credit rating and even on unrated securities (Pozsar 2014, p. 22). The move to build up security structures for the shadow banking system was driven by the recognition that a major crisis was threatening the entire financial system. However, the decision was a political one. Although the measure seems reasonable from the standpoint of financial market logic, other strategies did exist, but were not implemented, for example, paying outstanding mortgage loans, or providing long credit lines to the homeowners to prevent foreclosures. Furthermore, rather than deciding to regulate the financial system much more strongly, and to let capital owners pay for the crisis to a much greater and sustainable extent, decision-makers opted to stabilise the shadow banking system by granting these institutions access to the Fed balance sheet as the safety measure of last resort (Domanski *et al.* 2016, Tooze 2018, Adkins *et al.* 2019).

Bank Credit and Repos

The foregoing considerations raise a number of questions: What is the difference between the security structure for the banking system and the security structure for the shadow banking system? Is, as Gorton (2010, p. 15) claims, shadow banking 'real banking'? Does, as Ricks holds (2016), money creation also take place in the shadow banking system? When a bank issues a loan, (quasi-)money is created. The process is a simple balance sheet operation by which the bank expands both the asset (the loan) as well as the liability (deposit) side of the balance sheet by the same amount. The balance sheet of the creditor (e.g. a household) shows the same entries but on the reverse sides (see Figure 5a). Through this operation, banks can also create money for themselves by way of leverage (Sgambati 2019). All these procedures amount to the creation of money *ex nihilo* (McLeay *et al.* 2014b). Repo transactions, however, work differently. Shadow dealers require securities as collateral.

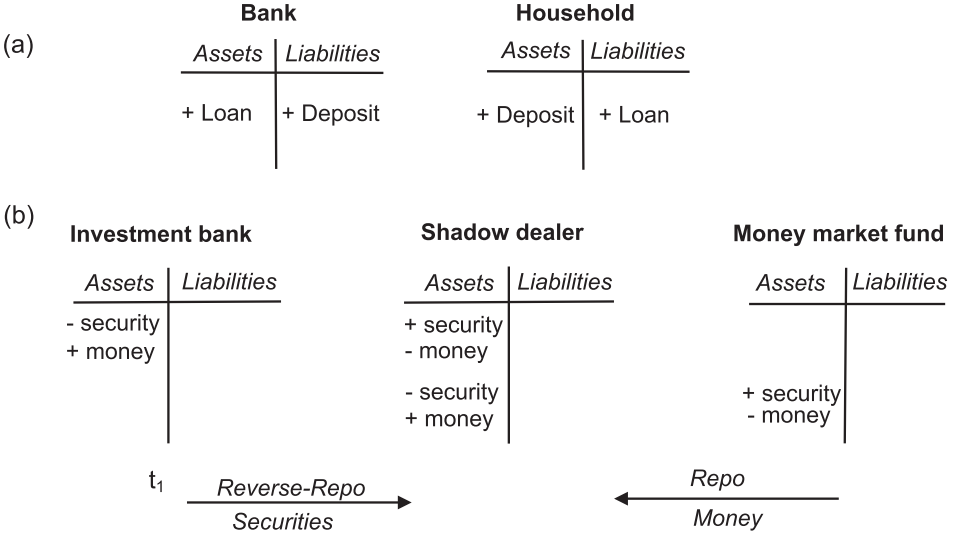

Figure 5. Stylised comparison between the loan-based credit system and the market-based credit system.

Note: Note that this is a stylised model which is intended to show conceptual differences rather than exhaustive balance sheets. Moreover, each trading position can be occupied by various actors. In some instances, one actor – a European universal bank with its various subdivisions for example – can occupy all three positions, at the same time with different counterparts (Mehrling *et al.* 2013).

They cannot create these securities by themselves. The dealers purchase the securities via repos from entities such as investment banks with funds that they borrow via reverse repos from a third party, e.g. a money market fund. In this operation, no money is created (Figure 5b). The dealers simply transfer – or trade – money from the money market fund to the investment bank and the security from the investment bank to the money market fund (see t_1 in Figure 5b).[5] As traders, the shadow dealers make profit by bidding a lower price when buying the securities than the price they ask for when selling them (the *bid-ask spread*).

Both operations (the creation of a bank loan and the creation of a repo) can involve balance sheet expansions. From 2008 to 2009, with the various central bank facilities in place for the shadow banking system, it was indeed possible for shadow dealers to create quasi-money. Even during this period, however, money creation was possible only in trade transactions conducted directly with the central bank's new emergency facilities. What is more, the money created in this way was not ex-nihilo because it still required securities as collateral. Nevertheless, this constraint is highly elastic when a dealer is highly leveraged, in other words when the same securities have been reused to support multiple repo transactions (*rehypothecation*). Repo transactions between private actors, however, never created quasi-money. Even though the various privately created security structures increase the liquidity of assets, they remain within the same level in the hierarchy (shadow money). The dealer receives money from the fund, and not from its own balance sheet operations (see again Figure 5). Private credits only become quasi-money when they enjoy guaranteed convertibility with central bank money on demand and at face value through a state-institutionalised security structure: 'Until private credit-money was incorporated into the fiscal system of states which commanded a secure jurisdiction and a legitimacy, […] it remained […] a dead end' (Ingham 2004, p. 122). Such a dead end presented itself for prime money market fund shares and asset backed securities during the financial crisis when the US government refused to support these financial instruments (Murau 2017a). This illustrates that what makes a promissory note issued by a bank special is the fact that through an institutionalised security structure, the specific banknote is recognised by the central bank as a general debt claim: 'Bank money is simply an acknowledgment of a private debt expressed in the money of account which is used […] to settle transactions' (Keynes 1971 *1930, p. 5).

Furthermore, in contrast to bank deposits, repos cannot serve as the final settlement of monetary claims; they only defer final settlement.[6] A repo does not represent a *promise to pay* but both a *promise to pay back* and a *promise to buy back,* respectively (Pozsar 2014, 2015). Unless the central bank is involved, trading repos at par on demand highly depends on the quality of the securities used as collateral, with government bonds as the most sought-after assets, and ultimately, on the overall macroeconomic environment. The cost of this promise (margin calls, haircuts and the repo rate) is proportional to the magnitude of a crisis. As a crisis grows, the price of this promise rises, driving the aforementioned downward asset price spiral. This, in turn, can lead to liquidity shortages throughout the financial system and, ultimately, to its breakdown. Repos between private actors can therefore only function as 'close substitutes for deposit instruments' (Ricks 2016, p. 4) as long as no deep crisis occurs. Accordingly, shadow banking is not 'the mere continuation of traditional banking by other means' (Murau 2017a, p. 806) unless the state provides a security structure designed for these credit forms.

In the shadow banking system, assets pledged as security for repo transactions serve the same function as deposit insurance does for bank deposits. Both insure the deposits or assets in the event of default (Gabor and Vestergaard 2016). The big difference, however, is that deposit insurance is guaranteed by the state. In non-crisis times, the difference is negligible, especially since the value of the securities underlying the repos are valued on a mark-to-market basis. In times of crisis, however, the difference is decisive considering that the situation can reach a point where no buyers can be found for securities or where the securities can only be sold significantly below the regular market price. This is why when Lehman declared bankruptcy it only became possible to halt the 'run on repos' (Gorton and Metrick 2012a) when the Fed established security structures to which the

shadow banking system also had access. The step was taken based on the assessment that like the banking system, the shadow banking system requires state protection (see Table 1). The Fed reinforced its ad hoc decision in 2013 by establishing of a permanent overnight repo facility (Federal Reserve 2015).

This *Overnight Reverse Repurchase Agreement* (ON RRP) facility functions in a way that is similar to a discount window but is intended to accommodate the demand for securities instead of the demand for money: it provides securities to banks and shadow banks at par and on demand in full allotment – that is, on an unlimited basis (Frost *et al.* 2015). Through this facility, the Fed provides a state guaranteed safety net for the repo market, which requires safe assets as collateral. In effect, this means that the Fed has become a *seller of last resort* (see Figure 6). The ON RRP was conceived for the shadow banking system as a necessary tool to complement monetary policy (Ihrig *et al.* 2015). Initially, the ON RRP facility was intended only as an emergency option. However, it has meanwhile developed into a kind of reserve account for shadow bank dealers in securities, considering that it has remained a permanent institution since 2013, and, further, that the former cap of 300 billion dollars was repealed in 2015:

> Reverse repos – effectively grant shadow banks – dealers and money funds – a checking account at the Federal Reserve for the very first time in US monetary history, similar to how reserves held at the central bank function as a checking account for traditional banks. (Pozsar 2014, p. 22)

The Bank of England has meanwhile followed the example of the Fed and has introduced its own similar monetary policy changes (Bank of England 2015).

Even though the new facilities give nonbank institutions access to Fed funds (Frost *et al.* 2015), there is another important difference that remains between nonbanks and banks in terms of money creation. This is because the Fed's ON RRP facility only allows nonbanks to *buy* assets from the Fed (in the form of money lending), but not to sell them (money borrowing). Hence, since the closure of the other emergency facilities shadow dealers were not able to directly access central bank money until September 2019, when the repo market suffered another crisis. Nevertheless, during the interim when access to emergency facilities was not available, shadow dealers were still in a position to create (quasi-)money indirectly by using the balance sheets of their trading counterparts. When a dealer purchases securities from the Fed and sells these securities to a bank, the bank creates new quasi-money to buy the securities (see Figure 6). Since the Fed provides securities in full allotment, as long as dealers are able to make a profit, they can create quasi-money via private bank balance sheets. Moreover, dealers can expand credit on their balance sheets and become highly leveraged, accessing much more money for the same amount of securities. In such cases, (quasi-)money can be created through shadow dealers' balance sheet operations. Most importantly, this security structure provides the shadow banking system with the privilege of unlimited access to safe assets, which constitutes a safeguard for shadow-money.

It is not unlikely that monetary policy will move further into uncharted territory (Borio and Zabai 2018). As a direct response to the repo market crisis end of 2019, the Fed reopened its repo facility,

Table 1. Protection schemes for bank money and repos.

	Par convertibility secured by the state	*Par convertibility secured by market mechanisms*	*Backstop*
Bank money	Marginal lending facility of the central bank (discount window)	–	Minimum capital requirements + deposit insurance provided by the state + lender of last resort
Repos before the financial crisis	–	Mark-to-market, margin calls, mostly short maturity	Haircuts, various types of collateral and private hedges such as credit default swaps (CDS)
Repos since the creation of the new security structure	Standing facilities by the Fed = collateral 'insurance' via ON RRP	Mark-to-market, margin calls, mostly short maturity	Haircuts, various types of collateral and private hedges such as credit default swaps (CDS); + market maker of last resort

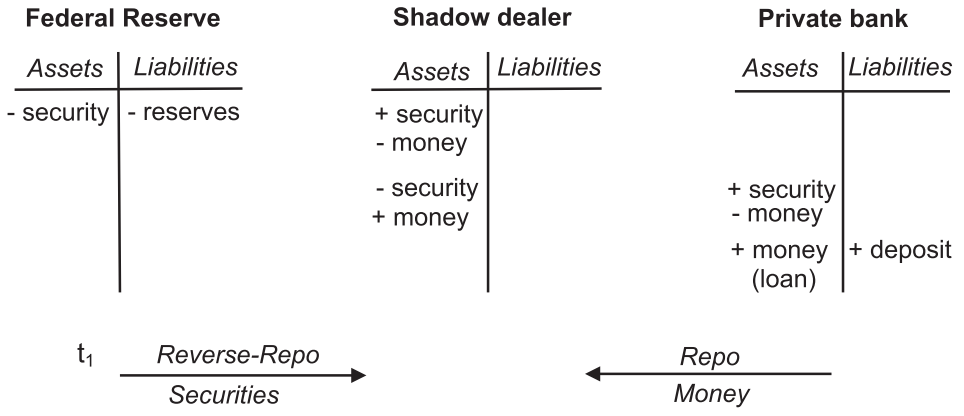

Figure 6. The Fed's *Overnight Reverse Repurchase* (ON RRP) facility.

Note: Until now, only banks have been permitted to hold reserve accounts at the Fed. Shadow actors have access to the Fed's balance sheet via a clearing institution, currently the Bank of New York (Pozsar 2019). The sale of Treasury bonds and the receipt of reserves shrinks both the assets as well as the liabilities sides of the Fed's balance sheet (for the Fed, reserves are liabilities).

complementing the reverse repo facility for shadow players (Financial Times 2019, Tett 2019). In the long run, time will tell whether this facility will remain uninterruptedly available to the relevant stakeholders. If so, it would permanently allow shadow institutions to create credit which would be tradable at par and on demand with central bank money. Shadow credit would become quasi-money, and this, in turn, would imply that shadow banks would be regularly able to create money on their own. As of now, it is not possible to foresee what consequences this might have.

Conclusion

The paper has outlined three levels of institutional safety mechanisms underlying different forms of money: central bank money, quasi-money and shadow-money. The position of a specific asset in the credit hierarchy is not pre-given, but depends on existing security structures, the market situation, politico-economic conditions, privately organised security systems and systems of incentives and protection by the state. The concept of security structure highlights the entanglement between politics and money with respect to the generation of liquidity and the provision of security. An asset can only become money or quasi-money when its convertibility with central bank money at par on demand is guaranteed by specific and highly complex politico-institutional arrangements such as central bank reserve facilities, marginal lending facilities, deposit insurance, and lender of last resort. This implies that money and politics are inextricably related. Private banks can create quasi-money because they can access security structures which bridge the step to the next higher security level, enabling them to trade their credits at par on demand with central bank money. Until the financial crisis, this type of par convertibility was a privilege reserved to private banks. Since the crisis, however, the Fed has extended the range of financial players with access to the central bank balance sheet to include non-banks from the shadow banking system.

It was demonstrated that different ways exist in which it is possible to create money. As a response to the financial crisis, the Fed established new security structures enabling actors from the shadow banking system to access safe securities and create quasi-money by conducting repo transactions. The article contended that by pursuing such transactions as dealers between the central bank and private banks, shadow banks are able to temporarily convert the underlying securities into quasi-money. Moreover, considering that repos can be rolled over and renewed repeatedly, and that leveraging allows for collateral elasticity, it maintained that their temporary nature only restricts money creation to a limited degree. These developments underline the significance of the shadow banking system as the backbone of the financial system. Shadow banking players – and likewise

also many conventional banks – have emerged from the crisis stronger than before. And the shadow banking system continues to grow in importance not least because of the global savings excess and rising corporate profits relative to stagnating or even falling wages (Pozsar 2014, BIS 2017, FSB 2017a, 2018, 2019).

The ability to react flexibly to the demand for money is a characteristic specific to modern market economies. Following Keynes, capitalism can be called a monetary production economy (Minsky 1982a, p. 78). The factors that determine the special features of today's monetary system are the elastic and dynamic ways in which the system responds to the demand for liquidity and the ability to create new security structures. Post-crisis times require central banks to actively intervene in the shadow banking system in order to stabilise the financial system. In the long run it remains to be seen how this new form of monetary policy will affect the financial system as a whole. Some scholars argue that the new security structure could enable central banks to set minimum reserve requirements for shadow dealers, thus opening up new control options (Pozsar 2014, 2015). The Fed itself assesses the effect of the offering rate on its ON RRP facility similar to the effect of interest rates on excess reserves. They enable the Fed to stabilise the money market and the financial system as a whole (Frost *et al*. 2015, Ihrig *et al.* 2015). The new monetary approach further enables central banks to determine which securities are accepted as collateral in repo transactions (Gabor and Vestergaard 2016, pp. 24–6). The Financial Stability Board accordingly hopes that it will be possible to transform the shadow banking system into a resilient system (FSB 2017b).

At the same time, however, the new security structure has made it much easier to access the Fed's balance sheet. In this way, the system receives much more elasticity to expand credit. This could lead to even higher risk taking and larger risk-return positions than before the crisis. And the shadow banking system still remains much less regulated than the traditional banking system: 'That is, all capitalisms are unstable, but some capitalisms are more unstable than others' (Minsky 1982b, p. 36). Also, it remains to be seen to what extent monetary policy intensifies the unequal distribution of wealth (Piketty 2014, Konings 2018). It is difficult to anticipate what impacts and consequences might result from the central bank monetary policies. Further research will be required to monitor and analyse future developments so as to determine what implications the new security structure will have for the financial system and the global economy as a whole. It is a kind of ongoing *in vivo* monetary experiment. A political understanding of money creation is essential to engage with today's multiple challenges.

Notes

1. See Pozsar (2014); Cooper (2015); Bryan *et al.* (2016); Gabor and Vestergaard (2016); Ricks (2016); Murau (2017a).
2. Whether state institutions and central bank money are perceived as safe depends, of course, on the political and economic situation in the country in question and the overall stability of the state.
3. The credit hierarchy can, of course, be further expanded to include the different currencies, beginning with the U.S. dollar as global currency reserve at the very top, followed by the currencies of the leading central banks that have established swap lines with one another (Mehrling 2013).
4. Banks are also active in the shadow banking system, especially via special investment vehicles but they also provide credit lines, for example, to shadow dealers (FSB 2018).
5. At t_2 (not shown) the dealer repurchases the security from the money market fund, returning the money (plus interest) to the money market fund.
6. Nevertheless, the delay or postponement of payment through credit or other financial instruments is an important feature of the financial system and the profit-oriented market economy as a whole.

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