

Ehnts, Dirk H.

Working Paper

Liquidity, insolvency and the state

Working Paper, No. 74/2016

Provided in Cooperation with:

Berlin Institute for International Political Economy (IPE), Berlin School of Economics and Law

Suggested Citation: Ehnts, Dirk H. (2016) : Liquidity, insolvency and the state, Working Paper, No. 74/2016, Hochschule für Wirtschaft und Recht Berlin, Institute for International Political Economy (IPE), Berlin

This Version is available at:

<https://hdl.handle.net/10419/147519>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



Hochschule für
Wirtschaft und Recht Berlin
Berlin School of Economics and Law

Institute for International Political Economy Berlin

Liquidity, insolvency and the state

Author: Dirk Ehnts

Working Paper, No. 74/2016

Editors:

Sigrid Betzelt

Trevor Evans

Eckhard Hein

Hansjörg Herr

Birgit Mahnkopf

Christina Teipen

Achim Truger

Markus Wissen

Liquidity, insolvency and the state

Dirk H. Ehnts

Abstract:

The importance of liquidity and insolvency for nation states and banks has been highlighted by current economic woes in the eurozone and elsewhere. The concepts are grounded in monetary theory, which determine the way they are interpreted. Connected to the discussion of autometallism and Chartalism in the early 20th century, monetary economists of today have come full circle. Discussing some modern authors, it is argued that the concepts of liquidity and insolvency are connected. However, if the central bank functions as lender of last resort the link is cut. Also, fiscal policy has the potential to remove problems of illiquidity and insolvency in the financial system. Illiquidity and insolvency are signals of stress in the real economy. Their oppression through central bank policy might lead to the (wrong) perception that all is well in the economy.

Keywords: monetary policy, fiscal policy, balance sheets, autometallism, Chartalism

JEL classification: E5, E6, G21

Contact:

Dr. rer. pol. Dirk H. Ehnts
Lecturer at Bard College Berlin
Platanenstrasse 24
13156 Berlin
Germany
e-mail: d.ehnts@berlin.bard.edu

1. Introduction

In the aftermath of the Great Financial Crisis (GFC) we have seen a change in methodology in monetary macroeconomics.¹ The examination of balance sheets and the use of aggregates of private, public and external sectors seem to constitute a new monetary consensus, with authors like Mehrling (2012), Koo (2014), Wray (2012) and Lavoie (2014) at the forefront. Practitioners like Jan Hatzius of Goldman Sachs, a group of authors from the Bank of England and the chief economist of Standard & Poor's second this group.² One of the questions that these authors tackle is the role of liquidity and insolvency in the banking system. Mehrling (2012) puts the central bank at the center of his analysis of the inherent hierarchy of money. Koo (2014), Wray (2012) and Lavoie (2014) stress the fiscal component.

In this article, I discuss these two perspectives first in the context of the history of economic thought and then against the background of recent developments. Quantitative easing, austerity policies and other recent research focusing on the role of the payment system TARGET2 all reveal certain aspects of the functioning of the monetary system. Presenting balance sheets that highlight the functioning of the monetary system, it is examined what effect monetary policy – both conventional and unconventional – and fiscal policy have on liquidity and insolvency. Both central bank and government, controlling monetary and fiscal policy respectively, are creatures of the state. Since modern money is state money, it seems to be the proper framework around which the discussion should evolve.

Liquidity in the context of banks and other financial institutions can be defined as being able to pay all maturing debts. It is a property of a bank or other financial institution to be liquid. Since settlement of these institutions involves only central bank money (also called reserves), liquidity is tied to the actual or potential possession of reserves. Illiquidity in practice and theory coincide: a bank that cannot pay its maturing debts is illiquid. With insolvency, this coincidence of theory and practice does not arise. Insolvency, in this context, is understood as technically bankruptcy, meaning that the value of assets has fallen below the value of liabilities so that net equity is negative. Given that the laws governing the accounting rules are bound to change, the principle of insolvency is state-dependent. It critically hinges on accounting rules but also on the enforcement of these rules. Insolvency and illiquidity are connected because in both directions a single instance of one could trigger multiple instances

¹ See Ehnts (2017), forthcoming.

² See Hatzius (2012), Mc Leay et al. (2014) and Sheard (2013).

of the other. Both of these cases are theoretically connected to fallacies of composition and hence might be called systemic issues.

Given the definitions of the two concepts it is examined how the state's monetary and fiscal policies influence the state of illiquidity and insolvency of single banks or other financial institutions. It is found that the effects of these policies depend very much on the institutional arrangements and existing stocks of debt. The non-negligible role of expectations further complicates the issue. The use of monetary and fiscal policy in times of economic distress has different consequences for liquidity and solvency. Whereas (unconventional) monetary policy can remediate these issues directly, fiscal policy does so in a more indirect way. The advantage of the latter is that the improvement of the real economy is the driving force that solves the financial problems almost as a side effect. Financial distress can be seen as a symptom of trouble in the real economy. Like a fever being treated by physicians, fighting the symptom instead of the sickness might lead to unintended side effects. These can jeopardize the stability of both the financial and the real economy.

2. The role of state and the market in monetary theory

When it comes to the role of the state in monetary theory, there are two views that are the extreme cases of what probably is a spectrum. This is not to say that no actual modern currency occupies one of these extremes – quite the opposite, as we will see. On the one hand there is the idea that money is something that is private, so that the state is just another user of money. Von Mises (1912. ch. 4) wrote:

The position of the state in the market differs in no way from that of any other parties to commercial transactions. Like these others, the state exchanges commodities and money on terms which are governed by the laws of price. It exercises its sovereign rights over its subjects to levy compulsory contributions from them; but in all other respects it adapts itself like everybody else to the commercial organization of society. As a buyer or seller the state has to conform to the conditions of the market.

Von Mises continues to blame the state “for the most pronounced disturbances of the market”. He develops a legal concept of money that is based on the enforcement of contracts. Gold or other metal always backs up money, directly or indirectly. Given that von Mises wrote during the end of the golden era of the Gold Standard, his views are hardly surprising. His book,

though, is an attack on a contemporary economist who freed money from the link to gold: Georg Friedrich Knapp and his “State Theory of Money” (1973)[1905]. Knapp wrote about “chartal means of payment”, a tradition that goes back all the way to Adam Smith (1776, ch. 2):

A prince who should enact that a certain proportion of his taxes should be paid in a paper money of a certain kind might thereby give a certain value to this paper money, even though the term of its final discharge and redemption should depend altogether upon the will of the prince. If the bank which issued this paper was careful to keep the quantity of it always somewhat below what could easily be employed in this manner, the demand for it might be such as to make it even bear a premium, or sell for somewhat more in the market than the quantity of gold or silver currency for which it was issued.

Knapp (1924)[1905] agrees with this view, using almost the same words as Smith in his attack on autometallism.³ He describes the “pieces” used in payment as having “a legal significance” since “law lays it down that only pieces formed in such and such a manner are to be admitted as means of payment”(ibid, 27). Knapp (ibid. 39) writes:

The chartality of the means of payment arises in a similar way. The State as guardian of the law declares that the property of being the means of payment should be inherent in certain stamped pieces as such, and not in the material of the pieces. In this case also juridical reflection goes to work and creates the concept of the pay-token or ticket, not from caprice but because it must accommodate itself to the altered situation. Finally, the same holds good of autogenesis. The State, not the jurist, creates it.

These discussions from a century ago have recently returned in the writings of modern monetary theorists. Mehrling (2000a, 365) writes that “since state debt is just a promise to pay the legal tender money issued by the state itself, there is no possibility of default” except “in extraordinary circumstances such as during wartime.” Instead, “the quality of a state’s credit depends on the balance between expenditures and revenues” (ibid, 367). Mehrling starts his discussion of hierarchically structured monetary systems with a gold standard system. His thought seems to be a continuation of von Mises.

³ As Knapp (1924, 5)[1905] wrote: “The quantity of the material is measured in a merely physical manner; in the case of metal, by weighing. The exchange-commodity is always weighed out to the creditor.”

Liquidity, Mehrling (2010, 8) writes, is “at the same time both scarce and elastic”. He connects scarcity with the currency school and elasticity with the banking school. In this, he is more flexible than von Mises and advances on the branch of monetary theory that stresses scarcity of (central bank or private) money. “At every level of the [monetary] system, the availability of money from the level above serves as a disciplinary constraint that prevents expansion; credit is payable in money, but money is scarce” (ibid., 8). Mehrling, in a footnote at the end of this passage, invokes Minsky’s ‘survival constraint’. In Mehrling (2000b, 82), he writes that “one way for economic units to meet the survival constraint would be to keep their cash outflow strictly within the limits imposed by the cash inflow emerging from their ownership of non-financial assets.” Given that banks have almost no cash inflow from ownership of non-financial assets and that according to Torfasson (2014) they neither use nor understand their own cash flows there is something of a gap in the argument that scarcity of money restrains banks from issuing more credit.

While Mehrling stresses the supply of money and credit, other authors focus on the demand side. Koo (2009) stresses the role of loan demand in the economy. He seems to agree with Mehrling’s idea of scarcity, since he describes the problems resulting from an increase in bank lending with high levels of excess reserves in the aftermath. Koo (2009, 77) writes: “Banks may lend money against these reserves [resulting from quantitative easing], but only about ¥5 trillion in reserves is actually required under the law to sustain the current money supply and loans outstanding.” In the context of “Japan’s Great Recession” he claims that banks were willing to lend, but the private sector’s demand for loans collapsed. Koo hence stresses the demand side of money and credit, which collapses not due to scarcity of money but because real sector companies started to pay down debt (ibid., 47). He argues for “more proactive government moves to absorb and use private savings” (ibid., 293).

Alongside Koo, writers from the Post-Keynesian tradition have always stressed the endogeneity of credit money.⁴ For Wray (2012, 93-4), the success of a banking operation depends on creditworthiness and the bank’s capacity to acquire reserves at low costs given some circumstances. However, a lack of sufficient reserves does not constrain loans. Scarcity of central bank money is not a brake on credit creation, since “[i]n the very short run, the Federal Reserve has little or no choice of accommodating that demand [of reserves]. This is

⁴ See Moore (1988) for a modern classic.

for two main reasons: first, the central bank operates with an overnight interest rate target (when banks are short they bid the market rate above the target, triggering reserves provision by the central bank), and second, the central bank stands by to ensure that all checks clear at par (it needs to debit reserves of the bank the check is drawn against, so it lends reserves if the bank is short)” (ibid., 80). Wray discusses spending by the issuer of sovereign money and does not see scarcity as a problem. The government can impose taxes in its currency and therefore artificially creates demand for its money.⁵ Thus the scarcity of money depends on the ability of the sovereign to impose and collect taxes.

Lavoie (2014) in his compendium of Post-Keynesian economics has no entry for liquidity in his index.⁶ Discussing liquidity in the context of financial instability, Lavoie (2014, 252) writes: “The introduction of liquidity preference of banks thus enriches considerably the theory of endogenous money. First, it shows that the focus of our attention should be on the credit market, rather than on the money market [...] It is the expansion of bank loans that generates increases in the supply of money.” Like Wray and Koo, Lavoie does not seem to think that scarcity of money is a limiting factor of credit creation. He also focuses on credit demand rather than money supply as the critical issue of a modern monetary economy.

Certainly, monetary theory affects the way we perceive issues like illiquidity and insolvency in the modern economy. In the next section, we look at liquidity creation and destruction from a balance sheet perspective.

3. Central bank money and liquidity

The most famous treatise dealing with central bank money and liquidity is that of Walter Bagehot on the British money market at London’s Lombard Street. Bagehot (1873, ch. 7) writes about crises of liquidity:

And with the Bank of England, as with other Banks in the same case, these advances, if they are to be made at all, should be made so as if possible to obtain the object for

⁵ See Wray (2014) for the evolution from Knapp’s Chartalist approach to Modern Monetary Theory (MMT).

⁶ Keynes (1936) wrote in his Preface: “[W]hilst it is found that money enters into the economic scheme in an essential and peculiar manner, technical monetary detail falls into the background.” The recent work in monetary theory by Post-Keynesians probably builds more on Wicksell and Knapp than on Keynes. See Bibow (2015) and Ehnts (2015) for contrasting views and Bell (1998) for an extended discussion of the hierarchy of money from a Chartalist perspective. Cesaratto (2016) moves Post-Keynesians closer to MMT.

which they are made. The end is to stay the panic; and the advances should, if possible, stay the panic. And for this purpose there are two rules: – First. That these loans should only be made at a very high rate of interest. This will operate as a heavy fine on unreasonable timidity, and will prevent the greatest number of applications by persons who do not require it. The rate should be raised early in the panic, so that the fine may be paid early; that no one may borrow out of idle precaution without paying well for it; that the Banking reserve may be protected as far as possible.

This dictum is still in operation, even though it seemed to have been almost forgotten before the Great Financial Crisis reminded us of the lender of last resort (LOLR) function of central banks. Here is a stylized picture of the balance sheets of both banks and the central bank during good times:

Central Bank		Bank	
loans to banks	reserves	required reserves	loans from CB
t-bonds		t-bonds	equity
		loans to PS	deposits
		loans to banks	loans from banks

The central bank lends against collateral at the base rate. In times of emergency and following Bagehot, it lends at a penalty rate against collateral of a lesser quality. The interbank market has usually broken down in times like these, hence interbank loans are not an option anymore. They need to be replaced with other sources of liquidity provision. At the extreme, banks can liquify their whole asset side if the central bank accepts all outstanding loans, bonds and other assets as collateral:⁷

Central Bank		Bank	
loans to banks	↑ reserves	↑ reserves	↑ loans from CB ↑
t-bonds		t-bonds	equity
		loans to PS	deposits

In this case, the bank is able to pay out all deposits in cash. A bank run would not be successful. Liquidity provision by the central bank would validate all loans ex-post, regardless

⁷ Obviously, banks can also sell t-bonds to the central bank or use them as collateral for repo.

of quality of the loan. However, the actual behavior of central banks has been somewhat timid. Not all banks have been bailed out, with Lehman Brothers being the most prominent example in the US. Hence the view that access to reserves is crucial to ensure bank survival is correct. This is a microeconomic, not a systemic problem. There are enough reserves on a systemic level, but the distribution might be a problem for a single bank if it can't get any. It seems that scarcity is not a good term to describe the reality of the money market.

One case in point is the euro zone's interbank market, where disintermediation happened after 2008. Reserves of the ECB were scarce, but national central banks (NCBs) acting for the ECB successfully took over liquidity provision when surplus banks left the market. Since funding costs have increased for illiquid banks, this is a disadvantage that carries a cost. However, all of this matters ex-post, not ex-ante. Every bank has to make sure that they have enough reserves, but on a systemic level the ECB did not allow banks to fall into illiquidity. While the increase in bank lending in the euro zone confirms the idea that the banking system is elastic, reality shows that scarcity is not a factor during the downturn. Whatever causes the banking system to stop expanding its loan portfolio, it is not the scarcity of central bank money.

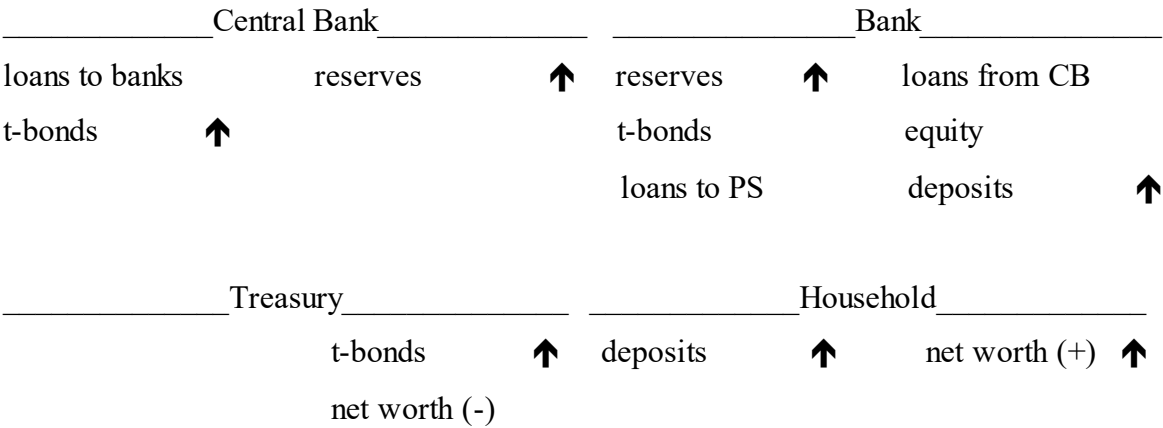
In the last couple of decades, many central banks have cut interest rate whenever the economy entered into a recession. They have accommodated liquidity demand and have thus removed scarcity of reserves, which would have caused the interbank market interest rate to rise. Setting the interest rates, central banks mostly did this while on autopilot.⁸ Price signals were not allowed to work. When the usual expansionary monetary policy, lowering interest rates, had failed, many central banks went to extraordinary length in order to supply the banking system with enough reserves. It is hard to argue that there is scarcity of reserves if US banks hold hundreds of billions of excess reserves.

Illiquidity is a purely individual problem, not a systemic one. This is because the way that the institutions are set up, central banks act as LOLR. If this would not be the case, the threat of bank failures causing money market loans to turn into bad loans would make the problem systemic. During the GFC the central banks avoided the mistake of the Great Depression era when banks were allowed to fail on a larger scale. The demise of Lehman Brothers was the defining moment this time around, and even though one might not be happy with the way that banks were bailed-out (for instance, no nationalization of banks and bailing out insolvent

⁸ Scarcity is always dependent on central bank intervention, which means there is no 'natural' scarcity of money or 'equilibrium' scarcity of money. The rules of a central bank cannot be perfect. See also Fullwiler (2008).

banks like in Spain), the banking system did not enter a period of sustained bank runs of depositors. Instead, bank runs occurred one level higher in the money market, where quality of collateral was downgraded and banks had to take more and more haircuts.⁹ This clogged up the money market until the central banks intervened.

Acting as LOLR, central banks can stop bank runs both on the money market and at the level of banks' depositors. What it cannot do is restart the monetary circuit based on bank deposits. Recent attempts at quantitative easing, while creating additional net deposits, have mostly failed to kickstart the respective economies, as Bernoth et al. (2015) find in a survey. An alternative route lies in expansionary fiscal policy. In order to spend, the Treasury has to acquire reserves. While there are many alternative routes, the balance sheets after an increase in government spending all look the same. The case of Canada, where the central bank directly finances the Government, is shown below:



Fiscal spending thus causes the quantity of reserves in the banking system to increase, alleviating the need to borrow them. Banks can now use them to repay loans from the central bank or acquire t-bonds from the central bank. Alternatively, they can lend out the additional reserves on the interbank market or put them into the central bank's deposit facility. The former will trigger a response from the central bank as the increased supply of reserves on the interbank market will push interest rates below the central bank's target. Open market operations, traditional or repo, might be necessary to stabilize the market rate at the policy rate level. Fiscal policy also alleviates concerns of insolvency as the private sector sees an increase in incomes and deposits. Some of these surely find their way to distressed borrowers,

⁹ See Gorton (2010) for a detailed description of the problems in the US money market in 2007.

which see their capacity to repay debt increase. This turns bad loans into good ones and improves the whole loan book.

Fiscal spending in the eurozone or the US would look a bit different. The central banks are not allowed to finance the government directly, so banks are used as intermediaries. They borrow from the central bank, then buy sovereign securities and receive back the reserves they lent when the government spends the money into the economy. In the end, the balance sheets look just like the one above, perhaps with the difference that banks hold additional t-bonds and not reserves. This would be similar to the situation in Canada after the central bank has intervened with open market operations to stabilize the short-term money market rate. However, selling t-bonds to the central bank would mean that banks in the US or eurozone acquire additional reserves.

4. Central bank money and insolvency

Illiquidity and insolvency are linked if the central bank does engage as a LOLR. A debt-deflation as described by Fisher (1933) can lead to fire sales by distressed financial institutions, resulting in lower prices of financial assets. This leads to further deteriorating balance sheets in the financial sector. A classical ‘fallacy of composition’ results. Attempting to increase the strength of their balance sheets, banks together act in a way that is self-defeating.

Recently, banks have acted as dealers of last resort, as suggested by Mehrling (2011). This ensured liquidity provision at an appropriate level. Given that the central bank can act as LOLR, it still needs to ensure that there is enough collateral around so that banks can borrow. This policy has led to quantitative easing, which made sure that all across the maturity structure bond prices went up and interest rates down. While this seems like a positive effect, Koo (2014) has pointed out that banks lose interest-earning assets. This points towards problems down the road, when the ability of banks to earn interest on their asset side is impaired by the fact that the central bank owns a significant share of t-bonds. Once again, expansionary fiscal policy brings some relief. As shown above, banks get additional reserves that they can spend on paying down debt or investing in interest rate earning assets.

The long-term situation of banks should improve in both cases. Either the bank replaces a loan from the central bank with deposits, which usually carry a lower interest rate, or it invests the reserves in some asset that allows it to earn additional interest income. If government spending is continued until inflation starts to increase above the central bank's target level, then the central bank might increase the policy rate. This would help the economy, since the private sector would hold new sovereign securities that now pay higher interest rates. Also, higher interest rates as a reaction to higher inflation very likely mean that private sector demand for loans has picked up again.

5. Conclusion

Illiquidity and insolvency are important issues. While they are not to be neglected, they constitute symptoms rather than causes of economic weakness. Solving the problems of illiquidity and insolvency is not likely to bring the real economy back to growth. The monetary circuit that drives the economy is that of bank deposits, not central bank deposits. While it is certainly possible and feasible to remove the financial distress from a policy perspective, the weakness of the real economy is likely to remain. Removing the signal of financial distress might be taken as an indication that 'all is well' so that 'business as usual' is just around the corner. If the central bank acts as dealer of last resort and policy makers decide that there is nothing else to do, this might jeopardize the recovery of the real economy. It would be a very high price to pay.

Expansionary fiscal operations would provide some help to banks because they would increase both the liquidity position and the profits, actual and expected. The resulting increase in income (and hence deposits) of the private sector should also lead to a rise in loan demand as uncertainty regarding future income recedes, thus restoring at least partly the demand lost during the time of crisis. In times of economic crisis, fiscal policy can solve real and monetary problems, which at the same time monetary policy cannot.

Bibliography

Bagehot, Walter (1906)[1873], “Lombard Street: A Description of the Money Market”, New York: Charles Scribner’s Sons

Bell, Stephanie (1998), “The Hierarchy of Money”, Levy Economics Institute working paper No. 231

Bernoth, Kerstin; König, Philipp and Raab, Carolin (2015), “Large-Scale Asset Purchases by Central Banks II: Empirical Evidence”, DIW roundup No. 61

Bibow, Jörg (2015), “Some reflections on the Keynesian roots of Modern Monetary Theory”, unpublished draft presented at the 2015 FMM Conference

Cesaratto, Sergio (2016), “The state spends first: Logic, facts, fictions, open questions”, *Journal of Post-Keynesian Economics*, 39(1), 44-71

Ehnts, Dirk (2015), “From Wicksell to Le Bourva to Modern Monetary Theory: a Wicksell Connection”, unpublished draft presented at the 2015 FMM Conference

Ehnts, Dirk (2016), “Modern Monetary Theory and European Macroeconomics”, Abingdon (UK): Routledge

Ehnts, Dirk (2017), “The balance sheet approach to macroeconomics – a new paradigm for the 21st century”, in: Decker, Samuel; Elsner, Wolfram and Flechtner, Sevnja (eds.), “Teaching Economics in the 21st century”, Abingdon (UK): Routledge

Fisher, Irving (1933), “The Debt Deflation Theory of Great Depressions”, *Econometrica*, 1(4), 337-57

Fullwiler, Scott (2008), “Modern Central Bank Operations – The General Principles”, <http://ssrn.com/abstract=1658232>

Gorton, Gary (2010), “Slapped by the Invisible Hand: The Panic of 2007”, Oxford: Oxford University Press

Hatzius, Jan (2012), “The US Economy in 2013-2016: Moving Over the Hump”, Goldman Sachs Economic Research Issue No: 12/48, 1-11

Knapp, Georg Friedrich (1924)[1905], “The State Theory of Money”, Clifton, NY: Augustus M. Kelley

Koo, Richard (2009), “The Holy Grail of Macroeconomics: Lessons from Japan’s Great Depression”, New York: Norton

Koo, Richard (2014), “The escape from balance sheet recession and the QE trap”, Hoboken, NJ: John Wiley & Sons

Lavoie, Marc (2014), “Post-Keynesian Economics”, Cheltenham: Edward Elgar

Mc Leay, Michael; Radia, Amar and Thomas, Ryland (2014), “Money Creation in the Modern Economy”, Quarterly Bulletin 2014Q1, 1-14

Mehrling, Perry (2000), “The State as Financial Intermediary”, *Journal of Economic Issues* 34(2), 365-369

Mehrling, Perry (2012), “The New Lombard Street”, Princeton: Princeton University Press

Moore, Basil (1988), “Horizontalists and Verticalists: The Macroeconomics of Credit Money”, Cambridge: Cambridge University Press

Sheard, Paul (2013), “Repeat After Me: Banks Cannot and Do Not Lend Out Reserves”, S&P’s RatingsDirect Economic Research

Torfasson, Asgeir (2014), “Cash flow accounting in banks – a study of practice”, Göteborg: BAS

Wray, L. Randall (2012), “Modern Money Theory: A Primer on Macroeconomics for Sovereign Monetary Systems”, Houndmills, Basingstoke (UK): Palgrave Macmillan

Wray, L. Randall (2014), “From the State Theory of Money to Modern Money Theory: An Alternative to Economic Orthodoxy”, Levy Economics Institute working paper No. 792

Imprint

Editors:

Sigrid Betzelt

Trevor Evans

Eckhard Hein

Hansjörg Herr

Birgit Mahnkopf

Christina Teipen

Achim Truger

Markus Wissen

ISSN 1869-6406

Printed by

HWR Berlin

Berlin October 2016