

Profit opportunities for the banking system due to deposit money creation and potentials of a sovereign money reform

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Abstract

This master thesis explores profit opportunities for the banking system due to banks power to create deposit money. Generally, extremely little research has been done on this issue and this thesis is trying to fill this gap and analyze, discuss and if possible quantify the different channels for profit for the banking system at large.

Potential profit channels under investigation include firstly, exceptionally cheap funding through deposits for banks, secondly implicit government guarantees and subsidies due to unsafe bank deposits and the too big to fail problem, thirdly profits linked to the formation of asset bubbles and fourthly potential gains through creative accounting to disguise losses and to overvalue assets.

It is found that these profit channels constitute a source of extensive income for the banking system and thereby might offer an explanation for the striking levels of profit and income that the banking and financial system exhibits.

As these profit opportunities for banks could be interpreted as an inappropriate subsidy for the banking system, central aspects of a so called sovereign money reform, proposing to end banks deposit money creation, have been outlined. A discussion of potentials and criticism concludes with an overall promising assessment for the reform.

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1 Introduction

„Money is perhaps the mightiest engine to which man can lend an intelligent guidance. Unheard, unfelt, unseen, it has the power to so distribute the burdens, gratifications and opportunities of life that each individual shall enjoy that share of them, to which his merits or good fortune may fairly entitle him, or, contrariwise, to dispense them with so partial a hand as to violate every principle of justice, and perpetuate a succession of social slaveries to the end of time.“

- Alexander Del Mar, monetary historian

Whereas most mainstream economists use to neglect the institutions of money and debt for their concept of a dichotomy between nominal economic variables (money, prices, inflation) and real ones (output, capital, employment), economic history and recent events proved them fatally wrong. Since 1970 there have been 147 banking crisis with devastating consequences for economic prosperity and well-being (Laeven & Valencia, 2012) and the enduring financial crisis of recent times has highlighted the importance of the monetary system and the financial industry for the functioning of the whole economy. Unfortunately, the architecture of the financial system at present does not seem to serve the needs of our society. There is regular boom and bust, overshooting debt and many banks are so big that they have to be rescued by the government in case of failure, ridiculing the economic principles of a market economy. These costs for public bank rescue programs are particularly huge and shortly after the outbreak of the financial crisis in 2008 totaled already €5 trillion or 18.8% of GDP for the 11 major industrialized countries (Faeh et al., 2009).

At the same time, banks are profit machines for their shareholders and employees. Bank managers receive exceptionally high levels of income and bonuses, often ranking them highest among all income groups and about a quarter of all dividend payments in the U.S. accrues in the financial industry (U.S. Dept. of Commerce, 2015). It seems that banks have acclaimed a position of great power and importance, with business and government alike depending on their credit.

A crucial explanation surrounding these issues might be the power of banks to create deposit money. While the government and the central bank are in charge of the creation of cash (coins and bank notes), the greatest part of a modern economies' money supply is made up by the money in bank accounts. These deposits though, are not created by some public institution but instead by private banks. Whenever a bank grants a loan or buys up assets from a non-bank, new deposits come into existence (McLeay, Radia, & Thomas, 2014). And whereas the public sector derives some income, or "seigniorage", from the creation and emission of coins and banknotes, there is no seigniorage for the public from

the money in bank deposits. While this clearly implies a huge foregone income for the public, it should be wondered if instead it is the banking system that receives some kind of profit from its power to create deposit money. This is the topic and central research question of this thesis.

Historically, the term seigniorage defined the income that came to the *seigniore*, the sovereign or king, due to the creation of new coinage. This income was based on a markup on the metal value that the coins contained in relation to the nominal value of minted coins. As new coins would be spend into circulation by the sovereign, this seigniorage would directly contribute to public income and historically represented an important source of government revenue (Zarlenga, 2002). With the evolution of the monetary system, eventually paper money emerged, which featured much lower production costs compared to coins. However, paper money is usually only lent into circulation so that there is no seigniorage in the original sense but what Huber (2014a, p. 87) terms an “interest-seigniorage” due to the regular interest inflow. A similar interest seigniorage accrues for the central bank due to the lending of central bank reserves to commercial banks but there is no seigniorage for the public on the creation of deposit money. Quite a few authors state that instead banks receive seigniorage income from the creation of deposit money and that this would imply huge illegitimate gains for the banking system. For instance Huber and Robertson (2000, p. 79) speak of “*special banking profits*” and Doorman (2015, p. 18) writes that “[...] *all the benefits of the privilege of creating money (with a technical term, seigniorage) end up with the aforementioned small group of people: bankers, traders, and bank shareholders.*”

But while it seems apparent, that the power to create money is connected with great privileges and profit opportunities, the mechanism behind this is much more complicated and indirect than the government seigniorage due to the creation of cash. As banks cannot just create and spend deposit money as they wish, there is certainly no seigniorage in the original sense. Also, there is only limited interest seigniorage from lending money because deposits also receive some interest. Concerning this, Sauber and Weihmayr (2014, p. 904) go so far to argue that there is no seigniorage for banks at all as every bank asset requires funding in form of a liability and as competition between banks should eliminate any extra profit. But even if there is no seigniorage in the usual sense, it seems premature to preclude that there is no gain from the privilege to create money at all. Instead, there might be more complicated and indirect channels for profit, some “quasi-seigniorage”.

Despite an increasing interest by economists in recent decades in the topic of money, banks and financial markets, astonishingly, the question if there is a seigniorage for the banking system has been severely neglected. Some potential benefits for the banking

sector through their power to create money have been explored on partially or indirectly but apart from considerations at some detail by Huber (2014a) and Glötzl (2011) and a few quick remarks from other authors, not a single comprehensive scientific treatise on the issue could be found.

This thesis is meant to fill this gap and provides a comprehensive discussion and analysis on profit opportunities for the banking system due to its power of deposit money creation. Potential profit channels that are examined include:

- The opportunity of exceptionally cheap funding through deposits
- Implicit government subsidies and guarantees due to the too-big-too-fail problem
- Profits linked to the formation of asset bubbles
- Potentially illegitimate gains through creative accounting to disguise losses and to overvalue assets.

The research question is limited to profit channels that can be linked to banks' power to create deposit money and would not exist if banks were mere intermediaries of savings. Generally, compared to the traditional concept of a seigniorage, the channels implying a quasi-seigniorage for banks are rather indirect and complicated and pose some room for discussion and interpretation.

The research question is not posed on a specific country but for the monetary system in general as it is functioning in pretty much all countries in the world as of today. Therefore, examples will cover various developed countries depending on data availability and eligibility but mostly covering Germany, the UK and the U.S., for these countries are important economies with institutions that are representative for many other countries.

Evidence for considerable quasi-seigniorage for the banking system would provide a part of the explanation why banks are so profitable for shareholders and employees. At the same time though, it would hardly seem justified that the banking sector should receive an income that is equivalent to a "free lunch". Any positive findings would therefore imply some good reason for respective financial reform.

In general, the concern of this thesis is to be seen in a wider quest for understanding and improving the functioning of the monetary and financial system. As the financial crisis and its enduring impact have highlighted the need for fundamental financial reform, banks' power to create money is seen by some scholars as the underlying structural problem of the financial system. For instance, it is argued that pro-cyclical money creation by banks and a lack of direct control of the money supply by the central bank enabled the formation of financial bubbles as a major cause of the financial crisis, that the fractional

reserve system leads to insecurity of bank deposits and the danger of bank runs, eventually resulting in expensive government bail-outs and that it causes general over-indebtedness and growing inequality due to the impaired seigniorage for the government (Huber, 2014a). Therefore, potential illegitimate quasi-seigniorage profits for banks might represent only one problem among many others.

Given these problems and the findings of this work, this thesis concludes with an exploration of potentials of monetary reform, precisely of a sovereign money reform. Sovereign money reform is proposing to take the power to create money away from private banks and, instead, confer it to the central bank and democratic control. This should eliminate any quasi-seigniorage for the banking system and transfer all seigniorage income to the public so that it can serve the greater interest of all people.

Proponents argue that the reform would realign the financial sector's activities with the real economy, stop the need for public bailout and end the problem of overshooting debt, especially government debt. During the last years, citizen's initiatives promoting a sovereign money reform have popped up all over Europe and started a growing debate in media and science. In this regard, key elements of a sovereign money reform will be characterized and potential advantages, widespread criticism and potential challenges will be examined.

The thesis is structured as follows:

As a theoretical foundation for the rest of the thesis, section 2 addresses the functioning of the current monetary system. A short history of the origin of money is outlined, some terms and definitions of money are addressed and the functioning of the fractional reserve system is explained in general terms. In particular, money creation in theory and in practice is illustrated. Building on this framework, section 3 deals with various weaknesses and criticisms of the contemporary monetary and financial system in regard to banks' power to create deposit money. In section 4, before starting the main analysis, some facts and statistics regarding banking sector income and profits are presented. The main part of the thesis is section 5, where four different potential profit channels are discussed, analyzed and if possible quantified. The section concludes with an overview over the channels and results. Section 6 deals with the so called sovereign money reform as a potential monetary reform to prevent banking income attributable to deposit money creation. Finally, a conclusion discussing core findings, implications and scope for further research is presented.

2 The current monetary system and money creation

“The study of money, above all other fields in economics, is one in which complexity is used to disguise truth or to evade truth, not to reveal it. The process by which banks create money is so simple the mind is repelled. With something so important, a deeper mystery seems only decent.”

- John Kenneth Galbraith, 1975

2.1 The origin of money

In today’s world, money is such a fundamental part of our society that few people ever wonder about the origin of money. This section addresses this topic, namely the history of money and the evolution of our monetary system.

The history of mankind is in many ways a history of money. Monetary institutions changed remarkably over the course of our economic ascent and the design of our modern monetary institutions is often not the result of bottom up logical design but rather the outcome of enduring trial and error and constant revision. Therefore, engaging with the history of money is very instrumental in understanding today’s financial institutions and the workings of our monetary system.

However, already more than a century ago, the monetary historian Alexander Del Mar (1895, p. 60) wrote: *“As a rule, political economists do not take the trouble to study the history of money; it is much easier to imagine it and to deduce the principles of this imaginary knowledge.”*

And it seems that up until today not much has changed:

The view of mainstream economists, also prevalent in economics textbooks, states that money originated in markets to overcome the inconveniences of barter and the so called “coincidence of wants”. Before, people had been trading goods directly by ways of barter and the invention of money greatly facilitated trading. Money was based on scarce metals in the form of coins, as these fulfilled the functions of 1) Medium of exchange, 2) Unit of account, 3) Store of value (Mankiw, 2012).

This view is mostly based on classical thinkers who conceived this theory from deduction and reasoning such as Carl Menger (1892) but might even date back to Aristoteles. However, there are no anthropological or historical findings to support this theory (Graeber, 2011). Interestingly, Graeber (2011) instead finds that ancient societies relied on comprehensive debt systems to accommodate their trading whereas barter never played a great role. Therefore, the existence of debt preceded the existence of money.

On the real origin of money though, monetary historians have come up with very different theories:

- 1) Laum (1924) argues that the origin of money is strongly intertwined with religious rites and only an overabundance of coins in temples eventually led to the use in trade and markets. This theory has recently been picked up by Türcke (2015).
- 2) Based on Knapp (1921) there is a strong argument that money originated from the state. Of great relevance for the recognition of an official currency and its general acceptance in markets and trading is the denotation as official legal tender for tax payment. Further, the wider distribution of money might be based on the necessities of standing armies when payment in coins for the mercenaries enabled a whole local economy to work for the support of the soldiers. This theory is intertwined with the concept of chartalism, and has been supported by Keynes (1930).
- 3) The Wergeld Hypothesis based on Grierson (1977) proposes that before the widespread distribution of coinage, the concept of a unit of account emerged from the legal system where standardized penalties or fines came into use.
"[...] but where societies have developed the notion of money as a general measure of value, it will, I believe, most often be found that a system of legal compensation for personal injuries, [...], lay behind them." (Grierson, 1977, p. 19)

While the discussion regarding the origin of money remains unsettled today, there is largely a consensus regarding the historical facts of the development of monetary systems.

The first gold and silver coins dating back to about 600 BC were found by archaeologists in Lydia, around the area of modern-day Turkey (Ferguson, 2009, p. 23). Eventually, especially the Roman Empire contributed to a wider distribution of coinage in the world. The first paper money has been found in about 1100AD in China, probably to finance war efforts. However only in the 16th century, paper money reached a widespread use in Europe. By then, paper money was usually made up by depositors' bank receipts for their treasured savings, and these receipts started circulating as paper money. The first banks evolved from goldsmiths that deposited their customer's money for safety purposes and eventually started extensive transaction networks. As banks realized that most customers rarely withdrew their balances, they started to lend out a share of their deposits – the fractional reserve system was born (Zarlenga, 2002). To account for deposits of their customers, banks made entries in their books what marked the emergence of sight deposits.

In 1661 the Bank of Sweden was created as the first western central bank of money issue but only the creation of the by then privately controlled Bank of England in 1694 marked the true birthmark of central banking (Zarlenga, 2002, p. 277). From then on, more and more central banks were institutionalized, nationalized and eventually gained the monopoly for paper money creation. The German Reichsbank for instance was created in 1875 and from then on only gradually became the sole issuer of paper currency in Germany.

Eventually, the technological progress and digitalization led to the ascent of digital money in sight deposits and leaves cash with only a dwindling role in today's monetary system (as depicted in Figure 1). Some scholars have recently even proposed to abolish cash altogether to remove the central banks zero lower bound when fighting deflation and to fight money laundering and criminal activity (Rogoff, 2014)

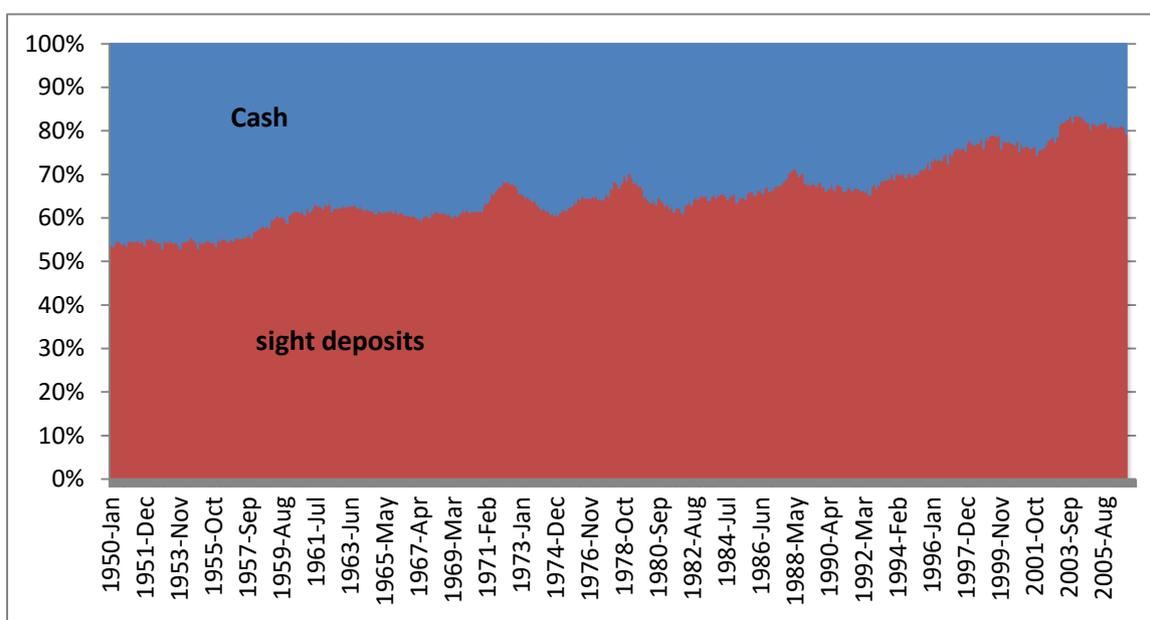


Figure 1: The currency/deposit ratio in Switzerland.
Data: Swiss National Bank, Historical Time Series, No.1, Feb 2007, 2.3.

2.2 Money creation in theory

Especially in the aftermath of the recent financial crisis, the role of banks and money creation has received increasing interest among academics. The common textbook view that banks are mere intermediaries of credit is increasingly questioned whereas endogenous money views are getting more and more popular. This section will cover different theories on how banks operate and how money is created².

² An excellent overview on the different theories and their prevalence over time is given by Werner (2014).

Basically, there are three different theories on how money is created, that will briefly be presented in the following:

A) Banks as intermediaries and deposit lenders

According to this view, all money is created by the central bank or at least some public institution, whereas banks are mere intermediaries, that take deposits and lend them forward to creditors: *“Banks use depositors' funds to make loans and to purchase other assets ...”* (Krugman & Obstfeld, 2000, p. 659). This is probably how most laypersons conceive banking and is quite prevalent in the press as well.

B) The money multiplier

According to the money multiplier view, banks cannot create money individually. However, the banking system as a whole can systemically “multiply” central bank reserves and thereby create money. *“The banking system as a whole can do what each small bank cannot do!”* (Samuelson, 1948, p. 324).

For instance, if a bank receives €100 of additional central bank reserves and the reserve requirement is 10%, it can lend out €90. The next bank receiving these €90 can again lend out now €81 and so on, resulting in up to €900 of new deposits (Mankiw, 2012). Therefore, the monetary base, which is controlled by the central bank, is multiplied by the banking system depending on the specific reserve requirement rate. This implies that the central bank can control the money supply by adjusting the reserve requirement or setting the amount of reserves.

C) Credit creation theory

The credit creation theory states that individual banks can and do create deposit money. Whenever a bank extends a credit or purchases some security, the bank accordingly creates new money. It is not that banks lend out their depositors money but quite the other way around, that banks create deposits when they make a loan. *“Whenever a bank makes a loan, it simultaneously creates a matching deposit in the borrower's bank account, thereby creating new money.”* (McLeay et al., 2014, p. 1)

Interestingly, Werner (2014) finds that there has been much fluctuation among economists as to which theory has gained predominance. Historically, until about the 1920s, the credit creation theory has been predominant with early proponents being Schumpeter (1912) and Wicksell (1898). However, this view seems to have been gradually replaced by the money multiplier view and eventually in the 1960s by the notion that banks are mere intermediaries. In some instances, the development of economists changing view on money can be retraced through the analysis of economic textbooks. For instance, the editions of Paul Samuelsons popular „Economics“ textbook received various revisions to adopt to the changing prevalent view of the time and even Maynard Keynes

seems to have held all different views successively. Recently and especially in the aftermath of the financial crisis though, the credit creation theory is experiencing a revival - especially among Postkeynesians as part of the endogenous money view and modern money theory (Ehnts, 2015; Wray, 2012). However, Werner (2014, p. 16) notes that, “[...] such works have not yet become influential in the majority of models and theories of the macro-economy or banking.”

2.3 Money creation in practice: The fractional reserve system

The modern monetary system as it is operating in pretty much all countries in the world today is a so called fractional reserve system. This section will outline the functioning of this system and describe the reality of money creation in practice³.

The money creation process differs for coins, paper money and bank deposit money. Coins are usually coined by a government agency and then bought by the central bank for full value. That way, the government account at the central bank gets increased and the resulting seigniorage income can be spend into circulation in the form of public expenses. In recent years, the annual income for the German government due to coinage was a bit above €300 million (Source: German Federal Budget Plan 2013).

The central bank is in charge of the creation of paper money. Depending on the country, the central bank might print the notes itself or outsource the task. New notes and reserves are then lent to banks (or exchanged for central bank reserves) which use the notes to fulfill their customers demand for cash (in exchange for deposit money). Similar to the creation of paper money is the creation of central bank reserves. Central bank reserves are deposits of commercial banks with the central bank that can be exchanged for cash. There are various channels to increase the amount of central bank reserves but simply put, they are lent to commercial banks against interest. The interest income from this lending of cash and reserves accrues to the central bank and is used to cover general expenses. However, any remaining annual surplus flows to the government, amounting in Germany in recent years on average to about €4 billion annually (Source: Bundesbank annual reports).

Against the widespread view that the state is in charge of all money creation, deposit money is in fact created by commercial banks. In line with the credit creation theory as outlined in the preceding section, whenever banks make a loan they create new deposit money as a matching liability. Werner (2014) proves this process by examining bank

³ This section will mainly be based on the descriptions by Ehnts (2015) and McLeay, Radia, and Thomas (2014).

records of a bank in Germany during a controlled lending process. Generally, whenever a bank pays out money to a non-bank, for instance, when a bank hands out a credit, pays its employees or buys securities, new deposit money is created. At the same time, bank deposits disappear whenever a non-bank pays deposit money to a bank, for instance when a credit is paid back or when some bank fee is paid up. The process of deposit creation by a bank during the allocation of a loan is depicted in Figure 2.

<i>Bank A, period 1: Set-up</i>	
Assets	Liabilities
Reserves 50	Deposits 200
Loans 100	Equity 50
Securities 100	

<i>Company X, period 1: Set-up</i>	
Assets	Liabilities
Investments 200	Debt 100
	Equity 100

<i>Bank A, period 2: Granting of a loan</i>	
Assets	Liabilities
Reserves 50	Deposits 300
Loans 200	Equity 50
Securities 100	

<i>Company X, period 2: Getting a loan</i>	
Assets	Liabilities
Investments 200	Debt 200
Deposit at Bank A 100	Equity 100

Figure 2: Balance sheet demonstration of the deposit money creation process. Own representation.

Practically, there are different factors that set a limit to the credit creation of an individual bank such as the amount of available reserves and equity. But the quantity of money creation also depends on various market conditions such as sufficient demand for credit. However, according to Huber (2014a) in the long term there is no absolute limit to the money creation by banks as long as all banks coordinate their credit creation to some degree and move forward in line.

Now, that the money creation process has been sketched, the rough functioning of the monetary system should be described.

Whereas money was traditionally made up of or at least backed by gold, today's money is so called fiat money. It is not backed by precious metals but instead by trust and its purchasing power given by law.

Generally, the system can be described as a two tier system with one monetary circuit mainly using central bank reserves between banks and the central and with a second monetary circuit between banks and the general public using bank deposit money and cash (as depicted in Figure 3).

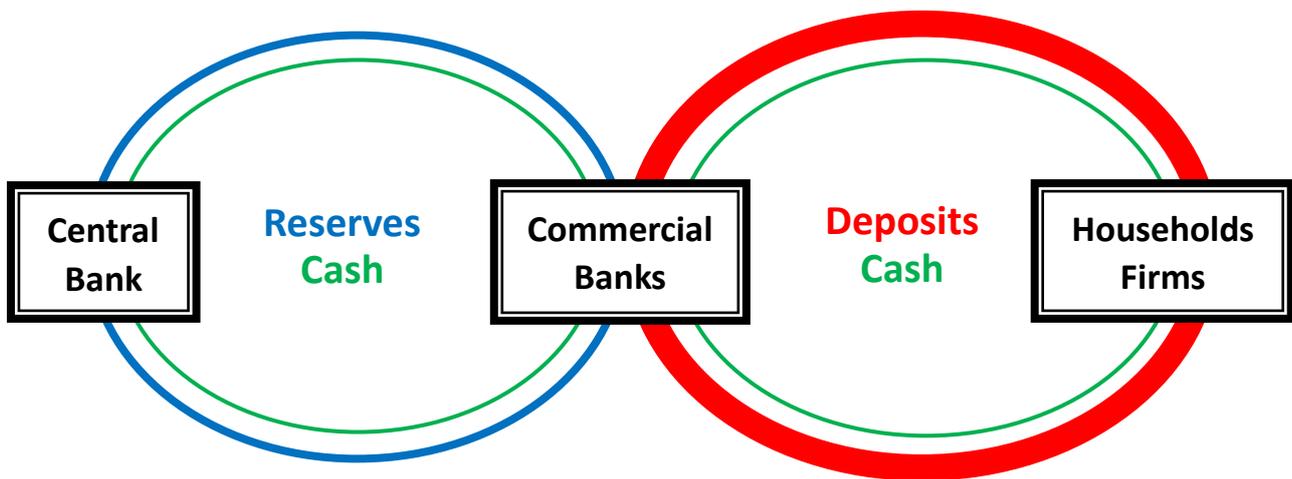


Figure 3: The two monetary circuits.
Own representation.

It should be noted, that in most countries only cash is official legal tender whereas deposit money is only a promise by the bank to pay out cash. As this promise can practically not be fulfilled if all depositors would at the same time try to redeem their deposits, there is a danger of bank runs. Over time, most governments have installed public deposit insurance systems to guarantee for depositors money in the case of bank default to prevent these bank runs.

Related to this issue, banks usually have to back up their deposits fractionally with a certain share of central bank reserves. This fraction differs between different jurisdictions and it is currently just 1% in the Euro-system and 10% in the United States. However, in some countries such as Australia or the UK, there is no reserve requirement at all (O'Brien, 2007).

Transactions between banks are usually settled with central bank reserves. Usually, banks employ a settlement system for their transactions so that only the net of all due payments has to be paid up in reserves. For instance, if bank A has to pay €10 million of reserves to bank B, while bank B has to pay €8 million to bank A, this would net out to a transfer of €2 million of reserves from bank A to bank B. In the Euro-area this settlement is carried out by the TARGET 2 system.

The sum of reserve requirements and reserves needed to fulfill their due transactions makes up banks' total reserve holdings.

Additionally, there are various regulations for banks regarding financial reporting and accounting and the amount of required minimum equity but going into more detail here is beyond the scope of this thesis.

2.4 Money - terms and definitions

Among economists, there is no consistent definition on what exactly constitutes money. Instead, there are different notions and definitions, ranging from money as mere cash to more inclusive concepts also taking into account longer termed deposits or even debt instruments. The most popular definitions among economists are the monetary base M0, M1, M2 and M3. Figure 4 gives an overview of what usually constitutes money according to these different concepts.

Monetary aggregate	Definition
M0, " <i>Monetary base</i> "	Currency in circulation (coins and notes) Central bank reserves
M1, " <i>Narrow money</i> "	Currency in circulation (coins and notes) Overnight deposits
M2, " <i>Intermediate money</i> "	M1 + Deposits with an agreed maturity up to 2 years Deposits redeemable at a period of notice up to 3 months
M3, " <i>Broad money</i> "	M2 + Repurchase agreements Money market fund (MMF) shares/units Debt securities up to 2 years

Figure 4: Money – terms and definitions.

Source: ECB (2015) (ECB, 2015).

To give an impression of the growth rate and the relationship of these different concepts, Figure 5 presents M1, M2 and M3 for the Euro area from 1980 until 2015. It can be seen that the three concepts are closely related and that generally, there was an extensive growth of the money supply, usually doubling every 10 years. Figure 6 presents the development of the supply of cash, the monetary base, M1 and M2 for the U.S.. In the U.S. the money growth rate has also been quite large as M2 doubled approximately every decade. However, compared to the Euro area, in the U.S. M1 and M2 seem to be related to a much lower degree.

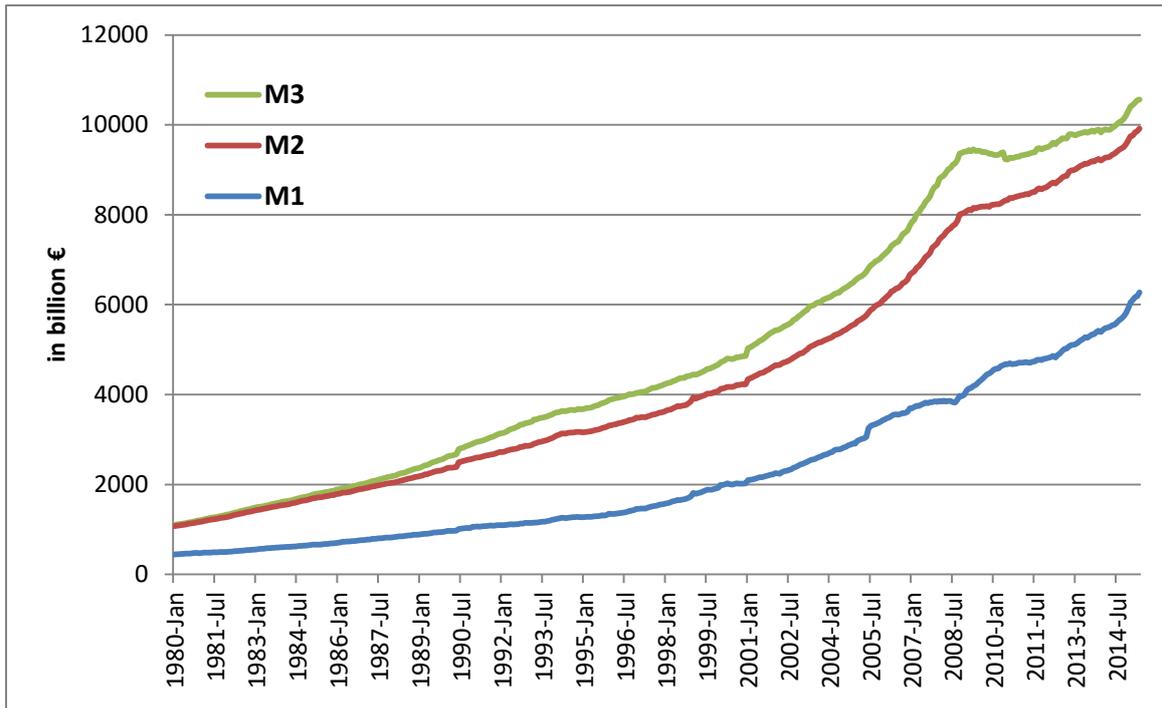


Figure 5: Monetary aggregates in the Euro area.

Data: ECB Data Warehouse, Monetary and Financial Statistics, Monetary aggregates M1-M3, Euro area (changing composition), Outstanding amounts at the end of the period (stocks), Working day and seasonally adjusted".

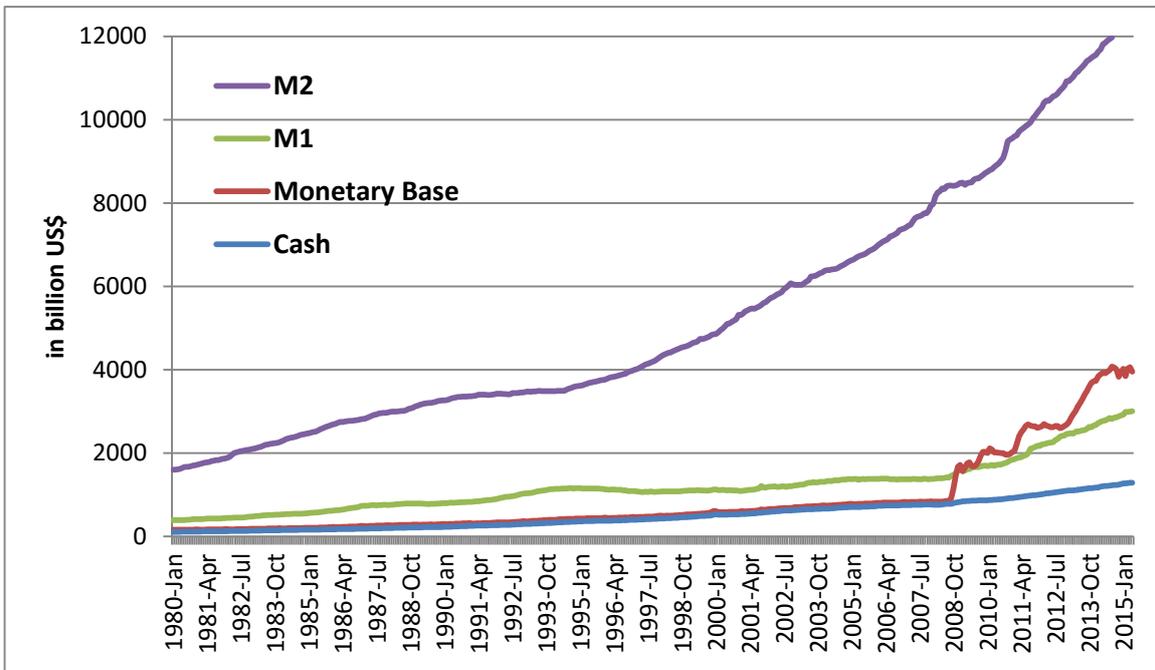


Figure 6: Monetary aggregates in the US.

Data: Board of Governors of the Federal Reserve System (US), Total Monetary Base, Currency Component of M1, M1 Money Stock, M2 Money Stock, monthly, Seasonally Adjusted.

3 Problems and criticism regarding the monetary system

“Of all the many ways of organizing banking, the worst is the one we have today.”

- Mervyn King, 2010, former Governor of the Bank of England

The monetary system constitutes an institution of fundamental importance for the functioning of our economy and society. In the last years though, the contemporary monetary system has received growing criticism and is seen by some people as a leading cause of many economic and social grievances. This section will give an overview over the most prevalent objections that are put forward by critics.

3.1 Excessive complexity

Especially after the Financial Crises, the monetary system has been blamed for many malfunctions and shortcomings and among these, an excessive level of complexity.

Some public polls on people’s understanding of the money system prove that most citizens have a completely wrong conception regarding the workings of the monetary system. For instance, Nietlisbach (2015, pp. 65–69) finds that 73% of the people in the poll of 1146 people in Switzerland think that the majority of today’s money is created by a public institution while 68% do not know that banks create money when they extend a credit. Interestingly though, in the same poll, 60% of the people think that they have a good understanding of the money system.

A different poll of 2,000 members of the British public obtained similar results. It was found that 74% of the people think that they are the legal owner of the money in their deposit account while 66% of respondents answered “don’t know” when asked what proportion of their current account was used in various ways by their bank” (Aprile, Ayan, Baryla, Ravera, & Sibilla).

As described in the preceding sections, there are many misconceptions and wrong theories regarding the functioning of the money system even or especially by economists. However, if economists themselves have difficulties to grasp the system, how are politicians supposed to understand and appropriately regulate it? This extremely high level of complexity and the wide incidence of misconceptions on how the monetary system works is certainly difficult to align with meaningful regulation and our democracy (Huber, 2014a, pp. 67, 68).

3.2 Danger of Bank Runs, need for deposit insurance, moral hazard

As customer deposits are part of bank’s balance sheets and only fractionally backed by reserves and cash, banks cannot practically comply with their promise to exchange all

customers' deposits for cash. Therefore, especially in times of crisis and instability, if customers in great numbers begin to draw on their deposits, banks can quickly get into liquidity difficulties. To get more liquid funds, they might then be forced to start with fire sales of their assets, what can quickly turn a liquidity problem into a solvency problem. As depositors are creditors of the banks and therefore potentially liable for bank losses, they have an incentive to try to be the first to draw out their money before the bank turns bankrupt. This creates an inherent systemic instability and the potential for self-fulfilling prophecies in cases where customers' expectation of a banks' default can in itself result in a bank run that eventually turns the bank insolvent even though the bank might not even have had any substantial problems in the first place (Diamond & Dybvig, 1983).

Further, the insolvency of a systemically important bank can lead to the breakdown of the payments system with great negative consequences for the functioning of the economy. This danger of a frozen payment system might have been a major reason for bank bail outs in the recent financial crisis (Huber, 2014a, pp. 97–99).

And thirdly, it is argued by some people that it cannot be justified that depositors loose substantial amounts of their savings in a banking crises that they have not caused. Especially for small savers it is hardly reasonable to expect them to check the financial standing of their bank.

The danger of bank runs destabilizing the banking system, the need for a functioning payments system and the goal to protect peoples savings have led to the widespread installation of federal deposit insurance. In Germany for instance, all deposits up to €100,000 are protected by the government (§ 4 Abs. 2 EAEG). Deposit insurance as in effect in most developed countries though, involves moral hazard and the all too known too big to fail problem. If banks know that the government will cover their losses, they might take up excessive risk and if depositors know that their savings are save from bank default, they might be less inclined to screen their bank (Stern & Feldman, 2004). Then, as it happened in the recent financial crisis, governments are left with the choice of either accepting a collapse of the banking system or having to spend public money to save the banks.

3.3 Ineffective monetary control

While the central bank has full and direct control over cash and central bank reserves, it lacks direct control over the amount of deposit money, which makes up the majority of the money supply in a modern banking system. The central bank can only indirectly stimulate or dampen banks credit creation. Therefore, critics argue that there is a lack of direct and effective control trough the central bank resulting either in too much elasticity

of credit money creation and therefore asset bubbles in the boom or deflation and depression in the bust (Huber, 2014a).

“During periods of economic stability, banks are naturally eager to lend to the extent that they eventually create too much money, which eventually leads to instability.” (van Lerven, Hodgson, & Dyson, 2015, p. 25)

3.4 A growth imperative

According to Binswanger (2009) the current monetary system is the main cause of our economy’s dependence on growth. This growth imperative means that there is either growth enabling prosperity or, if there is no growth, then a depression, but no possibility of a well-functioning, full-employment economy that does not at the same time feature growth. The argument is that due to the tight connection of money and credit, to allow for sufficient interest payments on the existing amount of debt, there is a requirement for additional new credit to enable these interest payments. However, if the economy is not growing and therefore no additional credit extended, debt payments cannot be met, firms go bust and the economy falls into depression and unemployment.

Wenzlaff, Kimmich, and Richters (2014) counter that if all interest income is spent back into the economy, the system could theoretically function and enable interest charges without requiring growth. Only the non-consumption and saving of interest income would lead to the growth imperative dynamic.

However, the same study finds that usually the income on savings and capital is flowing to the well-off and only partially consumed due to their relatively low propensity to consume.

3.5 Increased inequality and general indebtedness

Some scholars argue that the current banking system enables extra profits for high wage earners and the well-off at the expense of society and government. Therefore, the current monetary system is seen as a central cause of increasing inequality.

Huber (2014a, pp. 79–86) argues that there is a direct relationship between deposit money creation, asset bubbles and excessive government debt. The monetary systems dependence on debt is causing over-indebtedness of the public and expensive interest payments for the taxpayers on that debt while investors’ overaccumulation of financial capital enables asset bubbles and a considerable redistribution to the rich. Generally, the credit money system is based on regular interest payments from the not-so-well off to the well-off. Further, the system would require the government to bail out banks and at

the same time to finance these bailout packages with new debt that is lent from those same banks.

Also Hodgson (2013) argues that bank money creation is a central factor in explaining increasing inequality and top incomes in the banking industry. His analysis is focused on a vicious cycle of credit expansion and increasing household indebtedness leading to increasing debt servicing costs resulting in reduced real income leading again to increased demand for credit. Further, it is argued that banks credit expansion led to asset price bubbles that increased income for the wealthy and top earners.

Levy and Temin (2007) find that deregulation of the financial sector coincided with increasing income inequality. While this certainly cannot prove that less regulated money creation is the structural source in this relationship, it might be an indicator.

3.6 Impaired seigniorage for the government and illegitimate banking privileges

Reinforcing the problem of inequality and public over-indebtedness, it could be argued that in the current monetary system the government misses out on substantial seigniorage income.

As outlined earlier, the government only earns seigniorage on cash but not on deposit money. Huber (2014a) argues, that this implies huge foregone income opportunities for the government. He estimates that if the government would earn an interest on the whole money supply and not just on cash, this would generate an additional annual income of €25 to €37 billion for Germany or €85-125 billion for the EU17. Additionally, he calculates that the government misses out on an original seigniorage due to the creation of new money spent into circulation. In terms of this, he estimates an annual amount between €50-120 billion for Germany and €180 – 250 billion for the EU17 (Huber, 2014a, pp. 92, 93). He argues that in the current system it is banks that can earn a quasi-seigniorage and substantially profit from their power to create deposit money instead of the government (Huber, 2014a, pp. 87–94).

However, as this aspect of criticism concerns the main question of this thesis, the analysis will not go into more detail here as this topic is analyzed at length in section 5.

4 Banking sector income and profits

"Bankers are just like anybody else, except richer"

- Ogden Nash

If banks can manage to earn an extra profit from their power to create money, it should certainly be reflected in banking sector profits, wages and dividends. This section will compile some banking income statistics and descriptive data on this topic to form a basis to build the following analysis on.

4.1 Banking and Finance industry key data

Banking assets have been growing substantially over the last decades (see Figure 7) and in the U.S. are currently comparable in size to the whole GDP. However, the number of banking institutions has declined substantially from 21,000 banks in the U.S. in 1999 to less than 16,000 in 2009. In Germany the number has decreased from 2,800 in 1999 to 1,800 in 2009. In 2010, about 689,000 people in Germany, that is 1.9% of the workforce worked in the finance industry. The corresponding number for the U.S. is about 2.5 million people, or 1.8% of the workforce. In 2009, the share of total output of the financial sector (financial service activities, except insurance and pension funding) has been about 3.1% in Germany and about 4% in the U.S (Source: OECD, STAN structural analysis statistics).

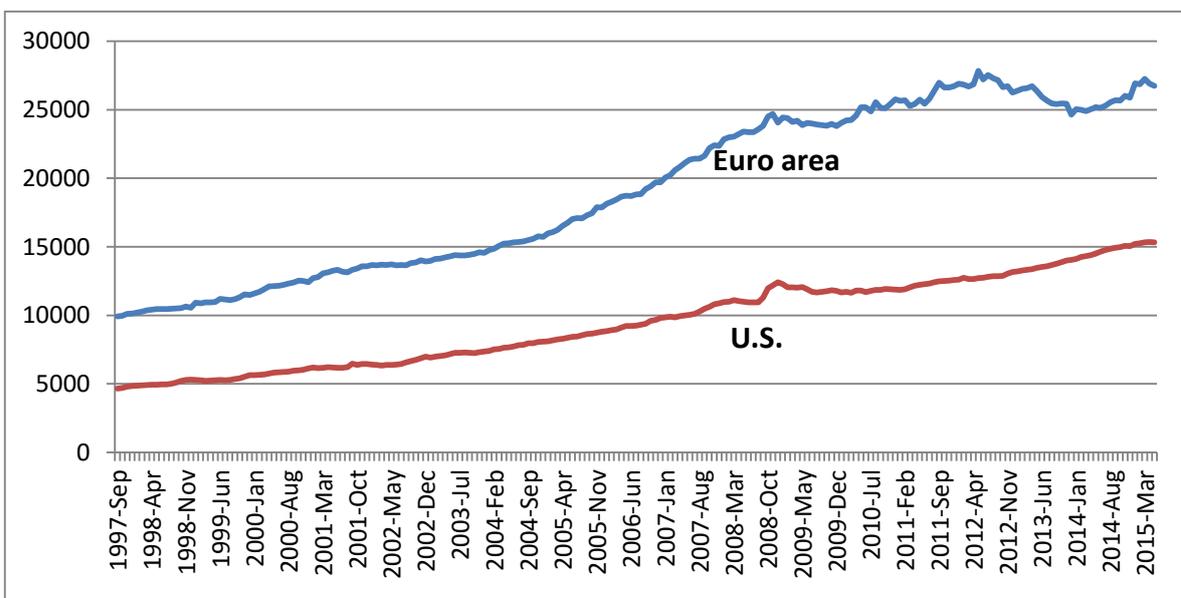


Figure 7: Total Banking Assets in the U.S. and Euro Area.

Data: Euro area: Deutsche Bundesbank, Consolidated balance sheet of monetary financial institutions (MFIs), All Commercial Banks in billion €; U.S.: Federal Reserve Bank of St. Louis, Total Assets, All Commercial Banks [TLAACBM027NBOG], in billion U.S. dollars.

Typically, the interest margin makes up the majority of banking income. In the U.S. in 2009, the net interest income amounted to about US\$420 billion compared to US\$250 billion of income in net non-interest income (fees and commissions, profit/loss on financial operations etc.) whereas in Germany in 2009 the net interest income was about €80 billion compared to about €20 billion of net non-interest income (as depicted in Figure 8). These ratios are relatively stable over time.

In 2015, corporate profits of the whole financial industry made up US\$536.6 billion of the US\$2,229.5 billion in total US Corporate Profits, amounting to 24% of all profits (U.S. Dept. of Commerce, 2015). Banking profits decreased substantially after the beginning of the financial crisis but peaked in 2006 amounting to about US\$140 billion in the U.S. and €20 billion in Germany, as depicted in Figure 9.

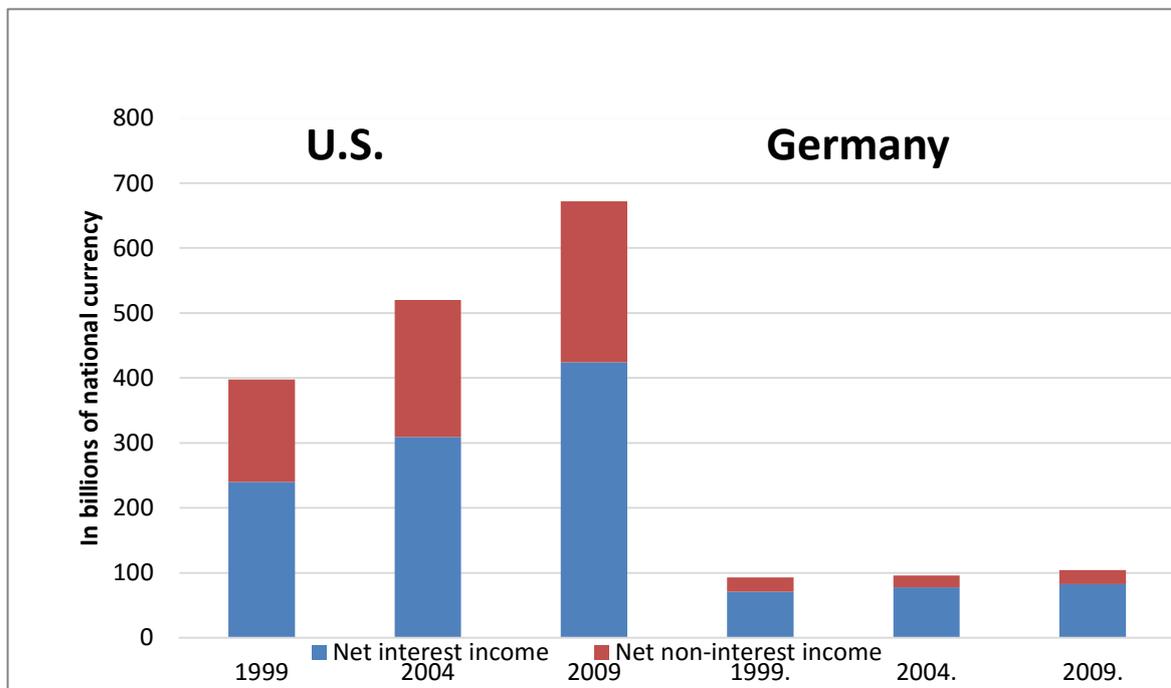


Figure 8: Development of net interest vs. non-interest income for banks in the U.S. and Germany.
Data: OECD, Bank profitability statistics.

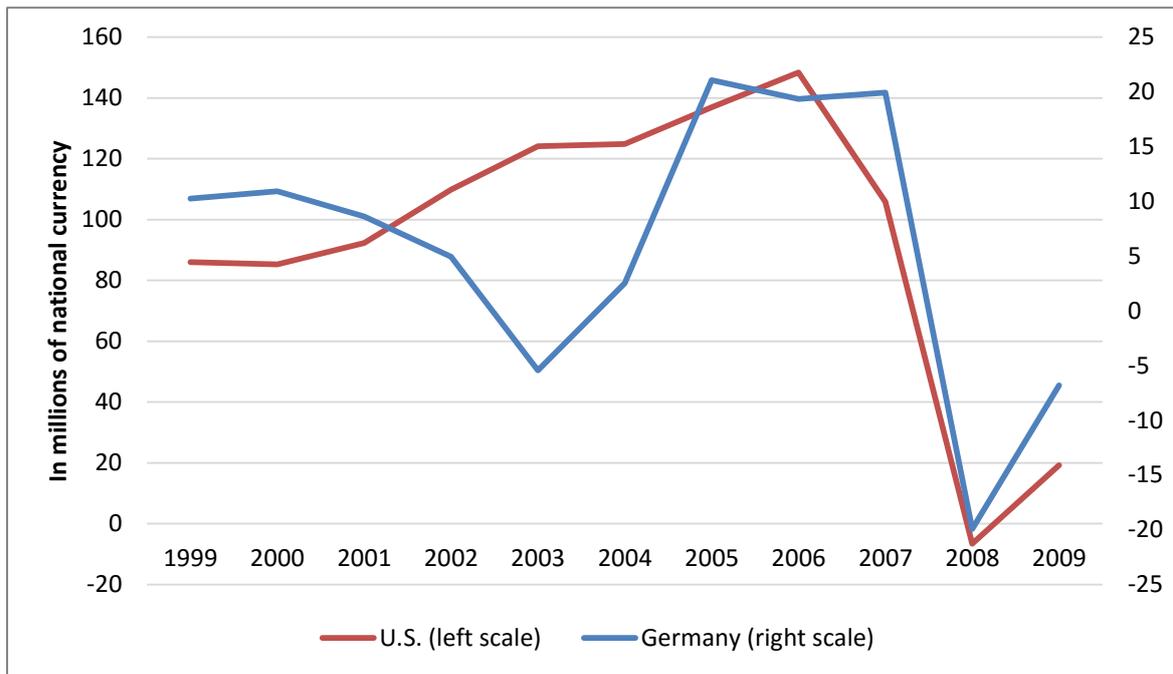


Figure 9: Banking profits (income after tax) in the U.S. and Germany.
 Data: OECD, Bank profitability statistics.

4.2 Employee income

It is common knowledge that a job in finance and banking is usually a job with good pay. Just how high that pay is, is the topic of this section.

According to Gehaltsreporter (2015), a platform on wages in Germany, the banking and financial industry has the highest average wages compared to all other sectors, 15% above average. In the U.S. the average wage per full-time employee in the financial industry is US\$95,586 compared to only US\$56,554 as the national average. Within the industry, a job in the securities business seems especially profitable and pays on average US\$205,206 what is the highest wage in the U.S. among all job categories (U.S. Dept. of Commerce, 2015).

Especially bonus payments have been a widely discussed topic recently. Figure 10 shows the development of total Wall Street bonus payments. Notably, bonuses have declined since the outbreak of the financial crisis but probably not as much as one might have expected and in 2014 the average Wall Street bonus amounted to US\$172,860 (Office of the State Comptroller, 2015).

Philippon and Reshef (2009) find a peculiar trend. At the beginning of the 20th century, financial regulation was low while wages in the financial industry and the relative education in the sector used to be high above average. This trend stopped in the 1950s

when financial regulation rose sharply and as a result financial wages and average education went down to more normal levels. However, the old situation reemerged in the 1980s when there was a wave of financial deregulation: *“The financial sector became once again a high skill, high wage industry. Strikingly, by the end of the sample relative wages and relative education levels went back almost exactly to their pre-1930s levels.”* (Philippon & Reshef, 2009, p. 3)

They interpret these findings as clear indicators for rent extraction by a deregulated banking system and calculate an historical excess wage of the financial industry that indicates that financial wages are abnormally high.

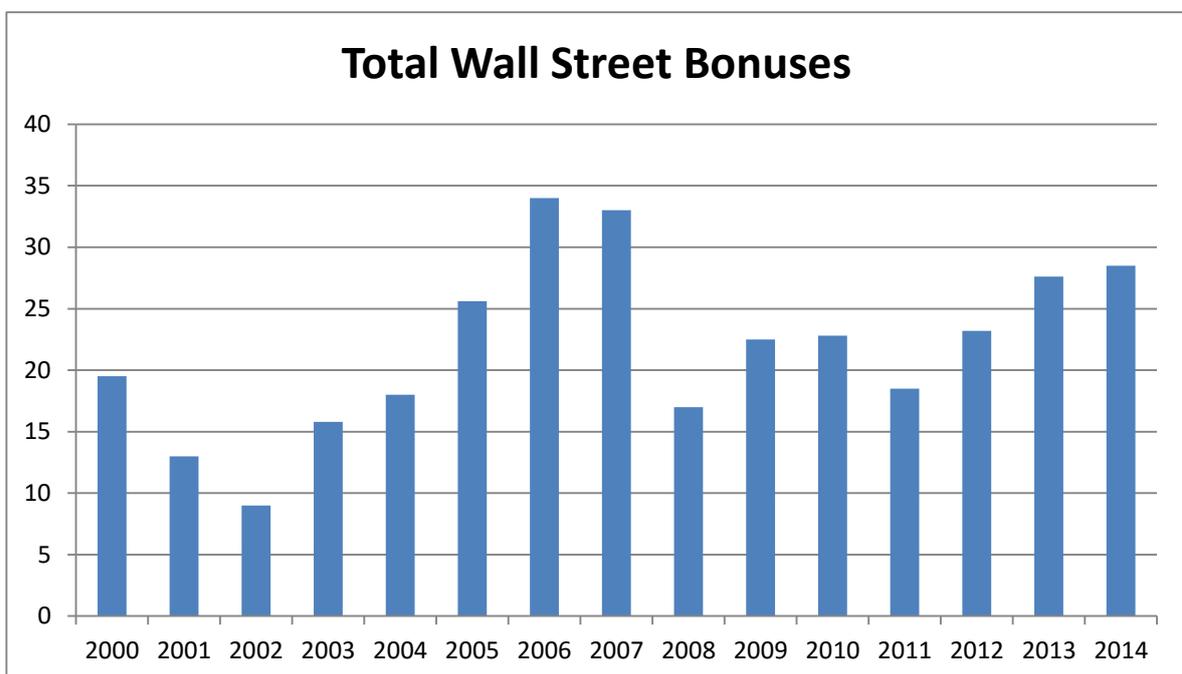


Figure 10: Total Wall Street bonuses, 2000-2014.
In billions of US\$.
Data: Office of the State Comptroller, New York City Securities Industry Bonus Pool, March 11, 2015.

4.3 Shareholder income

In 2013, dividend payments in the U.S. in the finance and insurance industry made up US\$233,594 million, thereby amounting to nearly a quarter of all U.S. corporate dividend payments (U.S. Dept. of Commerce, 2015).

Figure 11 depicts the average return on equity for financial institutions in Germany, the U.S. and the World. Obviously, the industry has taken a hit after the financial crisis but before its outbreak, returns between 10-15% seemed normal. Joseph Ackermann, the former CEO of Deutsche Bank is famous for his ambitious goal of a 25% return for

shareholders and was quick to resume this goal even after the financial crisis hit (Böcking, 2011).

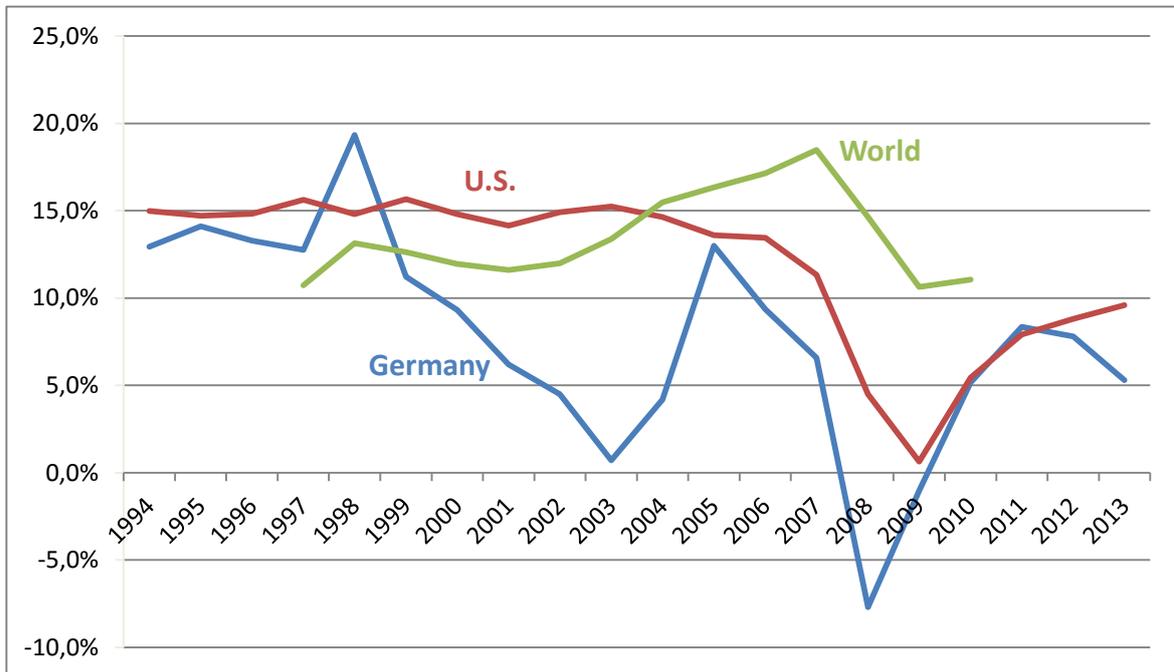


Figure 11: Return on Equity for financial institutions.

Data: Germany: Deutsche Bundesbank: Die Ertragslage der deutschen Kreditinstitute; U.S., World: FRED, Bank's Return on Equity.

In conclusion, it seems that wages and profits in banking are indeed exceptionally high. The following section will analyze if banks' power to create deposit money might constitute an explanation for this phenomenon by implying special profit opportunities and subsidies.

5 Profit opportunities for the banking system due to deposit money creation

“The best way to rob a bank is to own one”

- William Black

5.1 General Considerations

The goal of this section is to identify various profit channels for the banking system that only exist due to the power of banks to create deposit money. Generally, the term profit is not to be interpreted in a narrow sense as profit on the financial statement but in its general sense as a financial gain for someone.

The analysis is strictly limited to profits that only occur due to this privilege. For instance, if the banking industry would receive special profits or certain subsidies due to other circumstances such as a lack of competition, these channels should not be part of the analysis. However, if the lack of competition was somehow caused by banks' power to create deposit money, it should be part of the considerations here. In this regard, theoretical considerations will take a sovereign money system, as characterized in the following section 6, as a reference for a system without banks' money creation. Therefore, if it could be argued that some profit would not occur in a sovereign money system, then the profit is attributed to banks' power to create deposit money.

So what exactly could constitute an extra profit in this regard? As shown in section 2.3 banks cannot spend newly created deposit money as they like and do not receive an original seigniorage, nor is there a simple interest seigniorage comparable to the lending of banknotes.

Huber (2014a, pp. 87–94) argues that there are special profits for the banking system of three kinds: First, an interest seigniorage on loans. Second, interest or investment income due to investments financed with newly created money and third, an original seigniorage when banks buy real goods or services. He states that these profits are usually not found in balance sheets or income statements as explicit gains but rather imply reduced or avoided financing costs. He calls these extra profits a “free lunch” for the banks.

However, as every loan also creates a deposit that usually receives some interest, there is arguably not a full interest seigniorage. Critics could object that the resulting interest margin is just the cost for banking service and not to be seen as a seigniorage alike extra profit. Even if banks were simple financial intermediaries, they could still obtain an interest margin to cover their expenses. The same problem concerns the financing of investments or the purchasing of goods.

But although deposits might not be a free source of funding, they usually receive very little or no interest and seem to be an extraordinary cheap liability which is not open to non-banks. This is the first profit channel which will be discussed in section 5.2.

Additionally, it could be argued that banks systemic importance as holders of deposits and creators of money enables them to receive implicit government subsidies. This is linked to the problem of bank runs and public deposit insurance as well as the systemic importance of the banking industry and banks that are too big to fail in particular. This is the second profit channel and covered in section 5.3.

Thirdly, some authors state that banks credit creation enables them to fuel asset bubbles and profit from the boom while having only limited liability in the bust. This is the third potential profit channel that will be analyzed in section 5.4.

And lastly it could be argued that banks can make special profits by using creative accounting to inflate their assets and income. In this context, banks' power to create deposit money effects that there is no systemic liquidity barrier for the banking system as a whole when employing this practice. This will be discussed in section 5.5.

Figure 12 gives an overview over these different potential profit channels and how they can be related to banks' power to create deposit money.

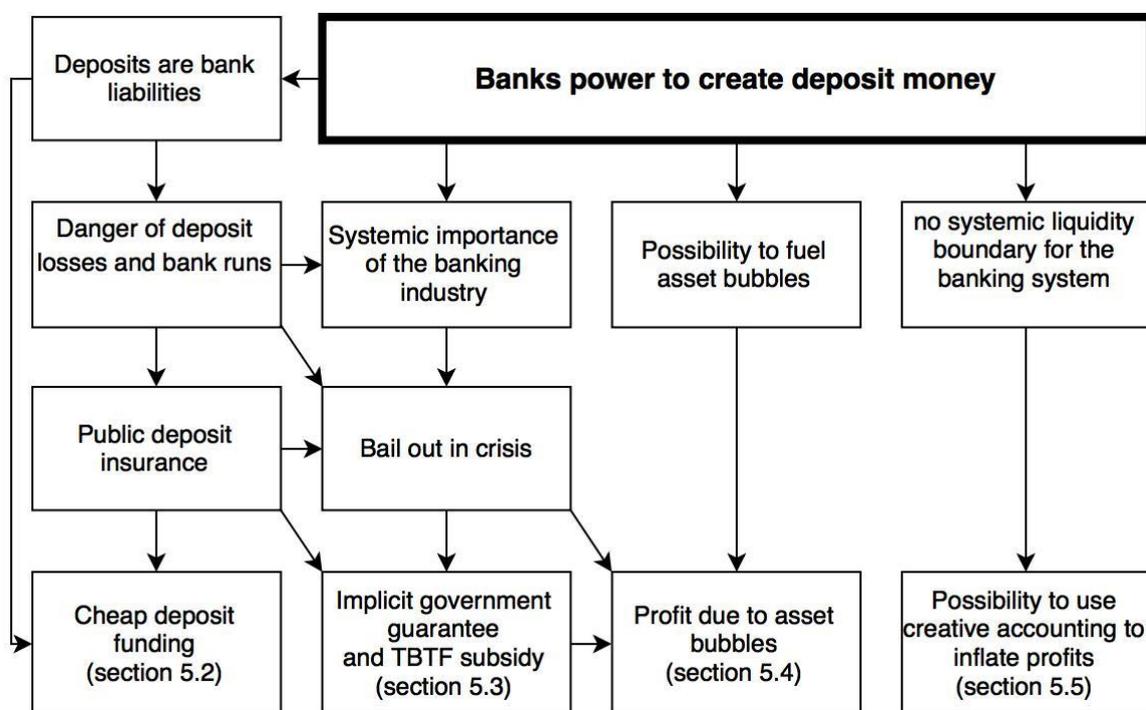


Figure 12: Overview of different channels for profit opportunities for the banking system. Own representation.

But prior to the analysis, a few questions should be discussed.

Firstly, what is meant by banks - only commercial banks or also other financial entities, such as shadow banks?

The main focus of this thesis rests with official commercial banks, as only these institutions are able to create deposit money and to take deposits that classify as money. However, if there are special profits due to deposit money creation that occur in cooperation with other financial entities, then these relationships should be uncovered and discussed.

Secondly, who profits - the banking industry in general, or only shareholders or employees?

Generally, the aim of this thesis is to identify general profit channels and not limited to certain share- or stakeholder groups. Depending on the profit channel and circumstances, financial gains might accrue to bank managers, enable high dividends for shareholders or just cause a bloated financial industry. Usually, if special profits occur, probably most stakeholder groups will benefit in some way, but there might be cases in which a certain stakeholder group can profit at the expense of other groups. For instance, bank managers might receive special profits at the expense of shareholders and creditors. Therefore, concluding each potential profit channel analysis, a discussion will follow on stakeholder groups that typically benefit the most.

5.2 Exceptionally cheap deposit funding

Some authors argue that bank deposits make an especially cheap source of funding for banks. The crucial factor here is that bank deposits usually do not receive interest while as a whole still being a relatively reliable source of funding for banks. Compared to non-banks that have to refinance their whole investments through the more expensive money market or credit instruments, banks seem to have a clear funding advantage. Therefore, the interest rate differential between bank deposits and the money market might be classifiable to some degree as a seigniorage-alike banking sector income.

For instance, Huber (2014a) calculates that in Germany for 100 units of deposit money, banks only need to finance 3% with central bank reserves from the money market (1.5% minimum reserve + 0.1% excess reserves + 1.4% cash) and for the remaining 97% they generally only need to pay the deposit interest rate which is much lower than the money market interest rate. He finds that in Germany in 2007 there were deposits summing up to €790 billion and an interest rate spread in regard to the money market of about 3%. Therefore, as a rough first estimate, the annual financing advantage sums up to €790

billion * 0.97 * 0.03 = €23 billion. He compares these numbers with the situation in 2011 when the crisis had hit and computes with the same approach for that time a financing advantage of at least €17 billion (Huber, 2014a, pp. 90, 91).

However, his assumption that all deposits are not remunerated seems very strict.

While generally discussing if lower interest rates strengthen or lower bank profitability, Bindseil, Domnick, and Zeuner (2015, p. 31) write in an official ECB paper that *“Seignorage of central banks is essentially equal to banknotes in circulation times short-term interest rates. For banks, overnight deposits can be regarded as playing the same role as banknotes do for central banks – a quasi non-remunerated liability which is a key factor for the institutions’ structural profitability.”*

When discussing the effect of the current zero interest policy by the ECB, they write *“What banks tend to lose as seignorage income on sight deposits, depositors tend to save as opportunity costs.”* and interestingly therefore directly employ the term “seignorage” in the context of this income (Bindseil et al., 2015, p. 33).

Bindseil et al. (2015) calculate that for the euro area with outstanding deposits amounting to €4.6 trillion and an interest rate differential of about 4% in normal times, this structural income amounts to about €184 billion per year. This amount is compared to other banking income sources and they conclude that these findings suggest that this source of income is making an *“important difference for the profitability of the European banking system.”* (Bindseil et al., 2015, p. 32)

Glötzl (2013) employs a similar approach as Bindseil et al., using the interest rate differential between overnight deposits and the yield on bank bonds. With this approach he calculates an annual „monetary benefit“ of about €4 billion for Austrian banks and projects an estimation of €40-50 billion for German banks and €120-150 billion for banks in the Euro area, given the corresponding higher amounts of bank deposits in these areas (Glötzl, 2013, p. 9). Further, he differentiates between banks’ deposit funding for credit services on the one hand and funding for proprietary trading on the other hand. While competition between banks should marginalize any funding advantage in the sector of credit services and forward it to creditors in the form of lowered interest rates, he states that there is imperfect competition in the segment of proprietary trading. Here, banks compete with non-bank financial institutions that cannot revert to deposit funding. Therefore, regarding proprietary trading these funding privileges remain a source of profit for the banking industry. He argues that this „monetary benefit“ represents an illegitimate privilege for the banking system, distorts fair competition and is in conflict with the Treaty of Lisbon of the European Union regarding public subsidies.

However, it can be questioned if the level of competition in the sector of credit services is sufficient to nullify any funding privileges there. Hutchison and Pennacchi (1996, pp. 399–

400) find that „Significant market power can exist in retail financial markets. [...] Retail deposit rates tend to be lower, and adjust more slowly and less completely to changes in competitive market interest rates, in more highly concentrated markets.“. They cite numerous studies strengthening this case.

Also, Huber (2014a, p. 139) argues that the current monetary system enables the creation of an oligopoly structure as big banks require less reserves than smaller banks, resulting in a distortion of competition in the banking industry.

However, as all these calculations appear relatively crude, following are more elaborate considerations to quantify the amount of the deposit funding advantage for German banks.

To calculate the deposit funding advantage, deposit interest costs should be compared to the “normal” funding costs for a bank. Figure 13 gives an overview of the liability positions of German banks in 2014 and it can be seen that in addition to deposits of non-banks, the interbank market (=deposits of banks) and bank debt securities each make up sizeable parts of the banking systems total funding. Therefore an interbank interest rate or alternatively the servicing costs for bank bonds might be a good reference point.

Assets	Amount in bn €	Liabilities	Amount in bn €
Cash and central bank reserves	114 (1.5%)	Deposits of banks	1,721 (22%)
Lending to banks	2,551 (32%)	Deposits of non-banks	3,339 (43%)
Lending to non-banks	3,902 (50%)	(of which overnight)	(1,631 (21%))
Other assets	1,286 (16%)	Bank debt securities	1,148 (15%)
		Other liabilities	1,181 (15%)
		Capital	465 (6%)
Total	7,853	Total	7,853

Figure 13: Total liabilities of German banks (excluding Deutsche Bundesbank) as of December 2014.
Data: Deutsche Bundesbank, Principal assets and liabilities of banks (MFIs) in Germany (1807 reporting institutions).

Figure 15 shows the EURIBOR rate, as the average funding cost for the interbank market, the average yield on bank bonds, the interest on household’s deposits with maturity of up to two years and the average interest on overnight deposits from households and from non-financial corporations. It can be seen that the interest rate on overnight deposits seems to be structurally 1-2% lower compared to the other interest rates, at least up to the beginning of the financial crisis in 2008. When the crisis hit, interest rates generally dropped and the spread decreased though the yield on bank bonds remained substantially higher. Therefore, it can be confirmed that overnight deposits make a substantially

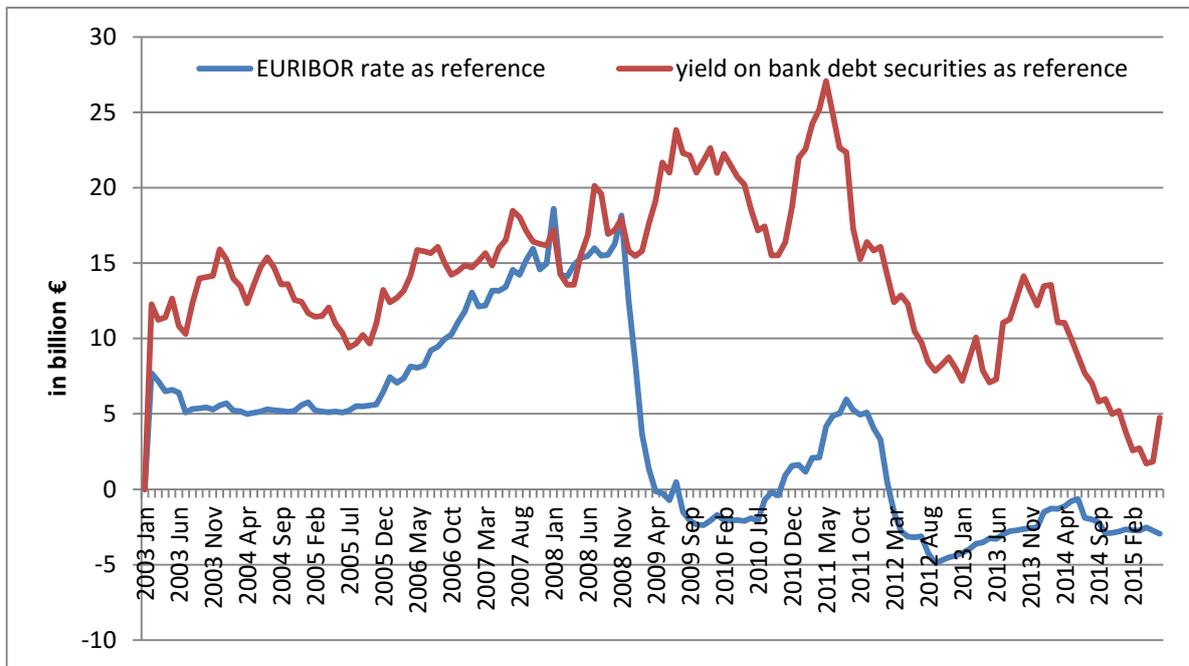


Figure 14: Annualized funding advantage for German banks.

Own calculations: Interest spread between volume weighted averaged sight deposits rate of households and NFCs referenced to LIBOR or bank bond interest rate times the volume of sight deposits.

Data: Deutsche Bundesbank, MFI interest rates, effective interest rates of German banks on households and non financial corporations overnight deposits (BBK01.SUD107, BBK01.SUD101); Money market rates – EURIBOR (BBK01.SU0310); Bank debt securities, Monthly average (BBK01.WU1032).

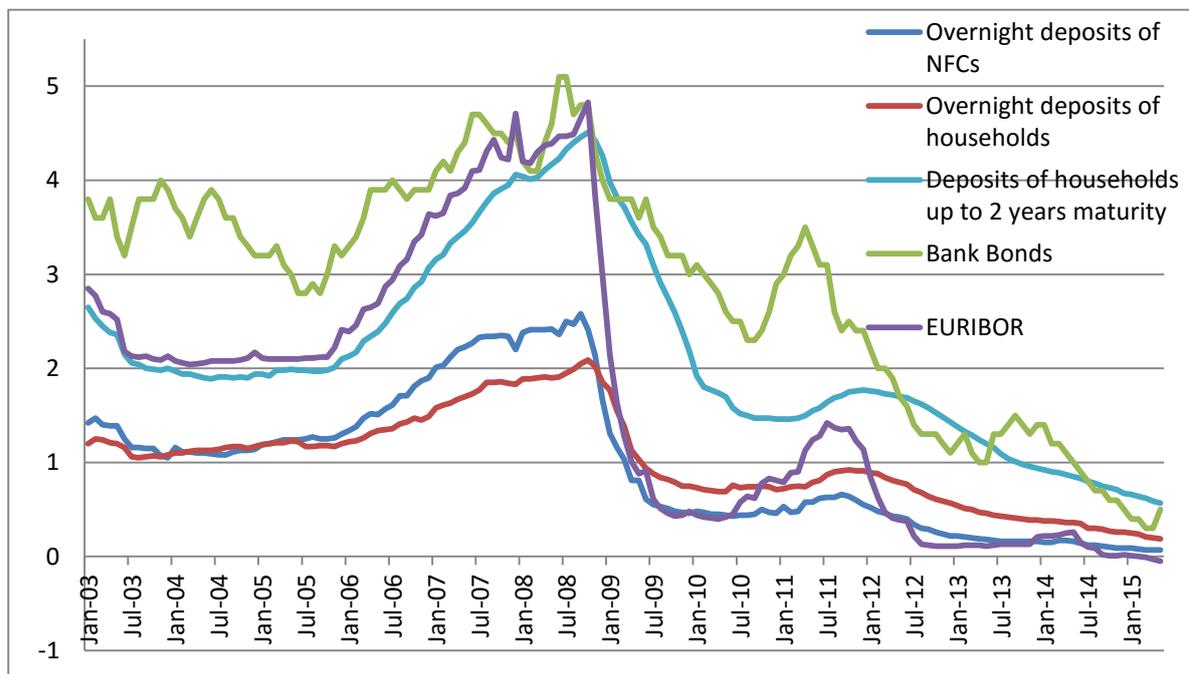


Figure 15: Interest rates on bank liabilities for German banks.

Data: Deutsche Bundesbank, MFI interest rates, effective interest rates of German banks on households and non financial corporations overnight deposits (BBK01.SUD107, BBK01.SUD101); Effective interest rates on households' deposits with an agreed maturity of up to 2 years (BBK01.SUD001); Money market rates – EURIBOR (BBK01.SU0310); Bank debt securities, Monthly average (BBK01.WU1032).

cheaper source of funding compared to other liabilities. However, this finding does not extend to deposits with a longer maturity as these receive an interest rate that is higher and more in line with the other liabilities.

Given these findings, Figure 14 shows the amount of the funding advantage as the sum of the overnight deposit interest spread once referenced to the EURIBOR rate and once referenced to the bank bond yield, times the amount of non-bank overnight deposits at German banks. The annualized funding advantage in regard to the bank bond yield has been around €15 billion annually for German banks in the last decade but decreased substantially with the general descent of interest rates after the crisis. In contrast, the funding advantage referenced to EURIBOR has been fluctuating much more around €5-15 billion per annum before the crisis and is fluctuating around zero in recent years. These findings are somewhat lower than the estimates of other authors but the size is still considerably and implies a huge funding advantage for banks.

What can be objected about this approach is that deposits might receive lower interest for they come with higher management costs for the banks and therefore reflect prices of deposit services (Hutchison, 1995). On the other hand though, deposit management costs are nowadays pretty low as most financial services are digitalized and as still many depositors pay a regular fee for the management of their deposit account that should be sufficient to cover the deposit costs (Gudehus, 2014). It could also be argued that customers with deposits are more likely to use other costly bank services so that there exist economies of scope that make deposits even more profitable for banks.

Lastly, it might be objected that deposits receive less interest for they are a too unreliable source of funding but Sheehan (2013) finds that deposits usually have a maturity of around 10 years and concludes that “[...] *core deposits have considerable value to financial institutions, often dramatically more than regulators have allowed*” and that “*The financial health of most banks and thrifts is intimately linked to the volume and value of their core deposits*” (Sheehan, 2013, pp. 197, 198).

In general, the funding advantage should permit lower costs and therefore higher income for banks so that the main beneficiaries should be banks’ shareholders and employees. To some degree and depending on the extent of proprietary trading of banks and the competition between banks, some part of the reduced funding costs might also be forwarded to borrowers in the form of lowered interest rates on loans.

To conclude, it seems likely that sight deposits make an exceptionally cheap source of funding for banks and imply a structural financial advantage in the size of €10-40 billion annually for German banks (depending on author and estimate). These findings should in general be transferable to other countries as well but a survey over several further

countries is beyond the scope of this thesis and would require further research.

5.3 Implicit subsidies due to systemic importance

A second potential profit channel concerns implicit subsidies for the banking system due to banks' systemic importance for the functioning of the economy and this might be linked to banks' deposit money creation.

Normally, a failing business in a market economy should lead to the company's insolvency and liquidation. But during the course of the recent financial crisis, banks have instead been saved with government bail-outs of historically unseen magnitude. On a vast scale, the event of bank failure has led governments to step in and use tax money or additional debt to pay for the banks' losses. The magnitude of corresponding rescue programs can give an idea of the dimension of the financial losses that occurred when the bubble burst. Faeh et al. (2009, p. 5) find that *"[...] the magnitude of the actions taken to support the banking system has been unprecedented. The overall amount of resources committed to the various packages by the 11 countries examined totaled around €5 trillion or 18.8% of GDP [between September 2008 and June 2009]."*

The primary reason for bank bail-outs has not been to save jobs or to protect some industry's special positive spillover effect but the banking industry's systemic importance for the functioning of the whole economy. In this regard, especially large banks have been described as being systemically important or alternatively as too big to fail due to their size, complexity and systemic interconnectedness (Financial Stability Board, 2010). If the banks had not been bailed out, the result might easily have been a breakdown of the payments system, huge losses for depositors and potentially even a collapse of the whole economy (International Monetary Fund, 2014, p. 102).

Adding to this argument, Amel, Barnes, Panetta, and Salleo (2004, p. 2500) find that *"research on the existence of scale economies in retail commercial banking finds a relatively flat U-shaped average cost curve, with a minimum somewhere around US\$10 billion of assets [...] efficiency gains from the exploitation of scale economies disappear once a certain size is reached and that there might be diseconomies of scale above some threshold"*. Obviously, typical banking institutions are way above this threshold (i.e. Deutsche Bank has total assets of €1,709 billion in 2014 (Deutsche Bank, Annual Report 2014)) and if the size of these institutions cannot be explained by lower costs due to economies of scale, the too big to fail advantage might be the explanation.

There are three arguments that can link the too big to fail issue to banks' power to create deposit money:

Firstly, it could be argued that deposits being a bank liability in combination with the fractional reserve system means that depositors have to be bailed out in the case of bank default in order to save depositors' savings what fosters moral hazard. On the one hand, this is because depositors hardly have a choice but to have a bank deposit if they need the advantages of cashless money transfer. There is currently simply no option to deposit money electronically as if it was in a digital safe because citizens and businesses are not permitted to maintain a deposit at the central bank.

And because many people are not even aware that their sight deposit is a bank liability and finances banks investment activities (as has been shown in section 3.1), they cannot be expected to appropriately assess the risk of their bank and actively intervene in the case of excessive risk taking by their bank. However, if banks had not been bailed out, these depositors would have suffered considerable losses what does not seem justifiable under these circumstances. Also, as most countries have installed deposit insurance systems, governments would still bear high costs if they would not bail out banks directly. In some cases, it might even be cheaper to prevent a bank failure than bearing the cost of all realized deposit losses.

Of course it could be argued that it would be possible to take away public deposit insurance and that bank bailouts are a political failure but no necessity (Sauber & Weihmayr, 2014, p. 902) but this seems slightly naive given these circumstances.

Secondly, huge losses of deposits would not merely result in redistribution but directly decrease the amount of deposit money, thereby the money supply and therefore would potentially dampen effective demand as well. This could lead to deflation and potentially depress the economy. The argument goes for smaller banks as well, but especially more sizeable banks above some critical threshold seem systemically important in this regard.

Thirdly, widespread bank failure would crash the functioning of the payments system and could therefore threaten the functioning of business and endanger the economic system.

Fourthly, it could be argued that the current monetary system fosters an oligopoly structure due to lower financing costs for big banks because of lower effective total reserve requirements. Due to the law of large numbers, for larger banks it will generally be more likely that interbank cash flows cancel each other out and that therefore on average there is less fluctuation of their reserves and their in- and out-flows of cash resulting. This in turn means lower effective reserve requirements and thereby lower costs.

In contrast, in a counterfactual sovereign money system, a bank failure would not threaten depositor's money nor the payments system. Therefore, in such a system there would be no need for deposit insurance and these extreme negative externalities from

bank defaults for the general economy would not exist. Therefore bank bail-outs can be linked to a great degree to the design of the fractional reserve system.

All in all, the implicit too big to fail subsidy leads to three types of distortion (Noss & Sowerbutts, 2012, p. 4):

Firstly, investors that know about the issue pay less attention to the banks activities as they feel their deposits to be safe due to the government safety net. This distorts prices in the form of reduced financing costs for the systemically important banks (SIBs).

Secondly, as these banks know that in the case of failure, the government would step in for rescue, there is potential for moral hazard and this leads to excessive risk taking.

And thirdly, the implicit guarantees for the banking sector increase the size of the financial industry in general and divert funds away from other parts of the economy.

Noss and Sowerbutts (2012) make an extensive literature review and discuss various approaches to estimate the implicit subsidies. There are mainly two approaches to estimate these subsidies:

On the one hand, there are “funding advantage” models that compare the theoretically lowered funding costs for banks with the counterfactual undistorted costs. As some credit rating agencies even issue separate ratings for banks including or not including the implicit state guarantees, many authors directly compare these different ratings to estimate the funding advantage. Using this approach, Noss and Sowerbutts (2012) calculate a subsidy of about £120 billion for banks in the UK in 2009.

On the other hand, “contingent claims” models estimate the expected payment from governments to banks by calculating the probability of bank default using various econometric techniques and summing up the expected amount of government funds necessary to prevent bank failure. Under this approach, Noss and Sowerbutts (2012) estimate a subsidy of £25 to £120 billion in the UK for 2010.

It should be noted though, that the calculated subsidies fluctuate strongly depending on the respective year and peaked in the years after the crisis. Averaged over the last 40 years, Noss and Sowerbutts (2012) estimate an annual subsidy of about £20 billion for UK banks. Other estimates for the annual subsidy in the UK range from £6 billion (Oxera (2011)) to over £100 billion (Bank of England, 2010, p. 51).

For the U.S., Anginer and Warburton (2011) find a subsidy of about US\$160 billion each in 2008 and in 2009 by analyzing the credit spreads on bonds issued by SIBs. An extensive IMF study using the contingent claims approach finds a 60-90 basis point subsidy for SIBs in Europe, adding up to about US\$90-300 billion in value in 2013 (International Monetary

Fund, 2014, pp. 101–119). Figure 16 gives a good overview over the study’s different estimates for different geographical areas and in different time periods.

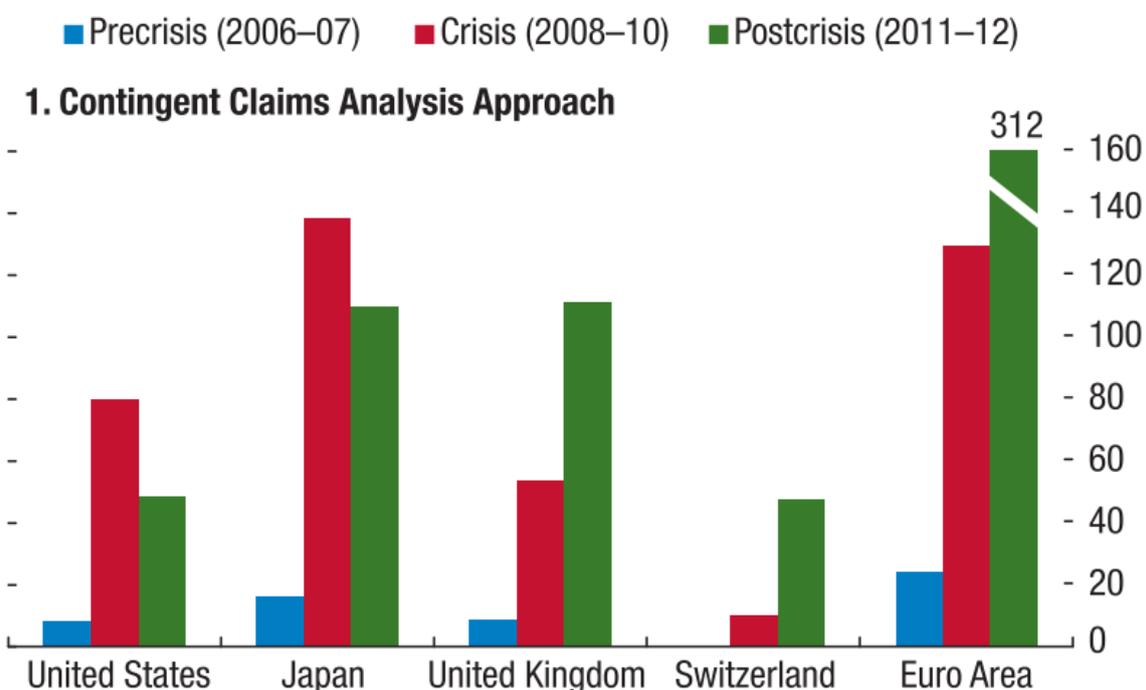


Figure 16: IMF estimates for implicit banking subsidies.
Taken from International Monetary Fund, 2014, p. 119.

All in all, the implicit subsidy increases the size of the banking industry in general and beneficiaries are bank employees, shareholders and creditors. The combination of high risk-taking and low funding expenses means that these banks can compensate their shareholders and employees with high returns, while a great part of the downside risk is borne by the government. But also creditors in general, that is pretty much all people with a bank deposit account, eventually profit from the government guarantee because of the safety of their deposits. The specific distribution of the subsidy depends on the structure and competitiveness of the banking industry and the effectuated change of incentives (Noss & Sowerbutts, 2012, p. 4).

In addition to the implicit subsidy, it could be argued that in times of crisis, banks potentially receive special treatment due to the systemic importance as suppliers of credit and deposit money. Sound bank balance sheets are crucial to restore a normal functioning of financial intermediation and especially in times of crisis when effective demand is low combined with an imminent danger of deflation, extensive bank credit creation is seen as urgently needed to stimulate the economy (Faeh et al., 2009). These circumstances might not only be reason to bail-out endangered banks but also to actively support their business. For instance, in the contemporary crisis in Europe, one could

argue that banks have received special treatment by the ECB that actively worked to strengthen the banks' balance sheets to facilitate their lending. This has been done by lowering the interest rate, by programs like quantitative easing, where illiquid assets have often been bought above market value and by the lowering of the reserve requirement ratio from 2% to 1%.

Supporting this line of reasoning, Wray (2011, p. 11) describes how Goldman Sachs got access to the FED's discount window when they had trouble to refinance their positions during the crisis and how this effectuated a US\$21 billion subsidy for the bank.

Also Helmedag (2013) writes that currently due to the extremely low interest for central bank reserves to stimulate bank lending, banks are able to buy securities at virtually no costs and terms this as a bank enrichment program.

Lastly, it could also be argued, that even in non-crisis times, an economy's need for credit to enable sufficient demand might result in an economy where there is necessarily much more debt and credit than in a counterfactual world where the money supply would not depend on banks' credit supply. Therefore, the banking system bears such systemic importance that it might be generally larger than a banking industry that would just intermediate credit. If this was the case, the result would be a generally oversized banking and credit industry with many employees, a larger share of GDP in banking and relatively strong political influence.

5.4 Profits linked to the formation of asset bubbles

Many authors have cynically described the course of the financial crises as "*privatizing profits and socializing losses*" (Carney, 2014). This section will analyze if banks' deposit money creation enabled special profits in the course of the formation of asset bubbles whereas the costs during the crash could be dumped on society.

The first question is, if this process of asset bubble formation was enabled or at least greatly facilitated by banks' power to create credit. Or asked in a different way, could banks have profited in the same way from the formation of asset bubbles and gotten away from the paycheck in a system with banks as mere intermediaries?

Kindleberger and Aliber (2011), providing a comprehensive overview of historic financial crisis, find that the formation of asset bubbles has usually been connected with unusual credit growth and increases of monetary aggregates. Supporting this, Schularick and Taylor (2009) find that credit growth is the most effective variable to explain financial crises and Lowe and Borio (2002) identify a strong relationship between credit growth and asset prices. Further, Caginalp, Porter, and Smith (2001) have shown with economic laboratory experiments with small groups that liquidity is a key factor in explaining the

formation of asset bubbles and that valuation of assets tends to be highly influenced by market liquidity instead of bare rational value considerations.

Keen (2011) as well emphasizes the importance of debt in the formation of asset bubbles. However, he finds that the change of debt, what he calls the credit accelerator and not the level of debt to be the important characteristic. *"We borrow money to gamble on rising asset prices, and the acceleration of debt causes asset prices to rise"* (Keen, 2011, p. 37)

And according to van Lerven et al. (2015, p. 24): *"By creating extra spending power, private banks artificially increased demand for the assets within these markets, and thus their prices went up."*

To sum up, there seems to be a strong relationship between banks' credit creation and an increase of asset prices/asset bubbles. Next, it should be discussed in how far banks can actively push this process or are just passively meeting a growing demand for credit of an overshooting economy.

A first counterargument might be that asset bubbles are fueled by expectations and herd behavior, which is independent from the monetary system. Financial bubbles already happened a few centuries ago, with the most prominent historical example being the tulip bubble in Amsterdam in 1636/7 (French, 2009).

But given a counterfactual sovereign money system where money is in full control by the central bank and the credit supply limited to the supply of savers providing credit, it seems much more difficult to fuel an asset bubble. Firstly, the credit demand could not be met with newly created credit but would need to be financed with additional savings. This would raise interest rates and would make asset speculation more and more expensive and thereby less profitable. Secondly, an outflow of money from the real economy into asset markets would quickly result in scarcity of money in other sectors, thereby also depressing the economy to some degree and stop overoptimistic speculation. Alternatively, even if the central bank would notice the money drought and actively increase the money supply to counter this, this would make a strong early warning signal.

However, it seems likely that banks are not independently able to push credit and create an asset bubble. Rather, it requires a fertile ground of general optimism in the economy that banks can actively support and supply with credit. For instance, before the financial crisis, when the economy was generally running well, banks could actively advertise cheap credit and approach potential lenders and investors. But now after the financial crisis has hit, most businesses and households are trying to pay down their debt and are very cautious to take on new loans so that it seems impossible for banks to start a new lending boom in this climate. Nevertheless though, once the crisis is over and optimism is spreading again, banks can certainly support a new mania by supplying cheap credit,

actively advertising their lending and also driving up asset prices by acting as buyers themselves. Therefore Steve Keen concludes that “[...]the ultimate responsibility for debt bubbles lies not with the irrational exuberance of borrowers, but with the credit-creation practices of lenders” (Keen, 2009, p. 350)

Importantly though, banks are not necessarily planning to fuel an asset bubble. Instead, it rather seems that most individual decisions of cheap lending are driven by a general optimism and can be considered “rational” to some degree given the optimistic environment so that the sum of all individual decisions forms the bubble without a greater plan behind it.

Additionally, some degree of financial deregulation is necessary to provide banks with enough freedom for credit creation. *“The problem began with financial intermediaries— institutions whose liabilities were perceived as having an implicit government guarantee, but were essentially unregulated and therefore subject to severe moral hazard problems. The excessive risky lending of these institutions created inflation - not of goods but of asset prices.”* (Krugman, 1998)

All this is also the reasoning behind Hyman Minsky’s famous “Financial Instability Hypothesis”. According to Minsky (2008), our financial system exhibits cycles of growing optimism and deregulation resulting in bubbles and crisis followed by financial prudence, tighter regulation and credit crunch until it starts all over again. In this process, the dynamism of banks credit creation plays an important role.

All in all, it can be concluded that banks’ power to create deposit money is a fertile prerequisite on which an asset bubble can easily unfold given that other necessary preconditions such as deregulation and general optimism are met, as depicted in Figure 17.

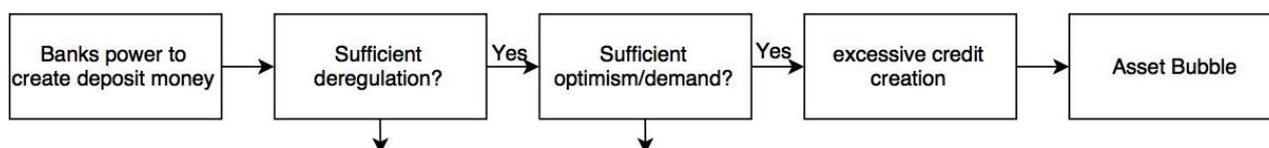


Figure 17: Relation and causation of deposit money creation and the formation of asset bubbles. Own representation.

The next question is, in how far banks are able to benefit from an asset bubble.

Generally, there seems to be little doubt, that banks or rather their employees and some investors made incredible fortunes during the buildup of the recent financial crisis. For instance, before the recent financial crisis, when the asset bubble was expanding, most

participants in financial markets were able to generate huge profits due to soaring asset prices and could pay their shareholders and employees large dividends and bonuses. Banks either profited from rising prices of their own investments or fee income from more and more ever-larger loans and credit contracts (Zeise, 2010).

In this regard, Blair (2010, p. 1) states that, *“Asset bubbles create the illusion that the financial sector is adding substantially more value to the global economy than it really is [...] too much of society’s resources go to compensate the people in the system who are causing this to happen.”*

Also Peukert (2012) emphasizes this channel for extra profits and gives a numerical example how this snowball and Ponzi system can create an “alchemistic asset effect”. According to him, this game can be played as long as more and more credit is granted to finance ever growing asset prices.

Figure 18 depicts the rise of housing prices in various countries to give a dimension of price increases. For instance in Ireland in the ten years between 1997 and 2007 house prices increased more than fourfold. Naturally, such an environment offers lots of opportunities for banks to provide credit services and to gain from their own financial investments.

However, the crucial aspect is that when an asset bubble bursts, banks can only partially be held accountable for the downside risk because losses cannot be stemmed with the banks’ limited equity. *“The creators of the bubble, in fact, keep much of the wealth and income they capture during each cycle of bubbles, even after the bubbles burst.”* (Blair, 2010, p. 5)

Figure 19 presents the equity to total assets ratio for banks in various countries in 2007, right before the outbreak of the recent crisis. Clearly, these ratios were extremely low, often around 4%. It should be kept in mind that these ratios are calculated for the whole banking system, implying that individual banks had even lower ratios. Therefore, when the financial crisis hit, many banks quickly became technically insolvent, meaning that creditors and depositors had to bear losses. As discussed in the preceding section, to prevent these losses for depositors (which the government was bound to cover due to public deposit insurance in any case) and a complete breakdown of the financial system, governments all over the world bailed out their financial institutions in trouble. At the same time, the bank managers and shareholders who had already received and possibly spend their income, bonuses and shares, could not be held accountable for those losses any more or be forced to return their bonuses.

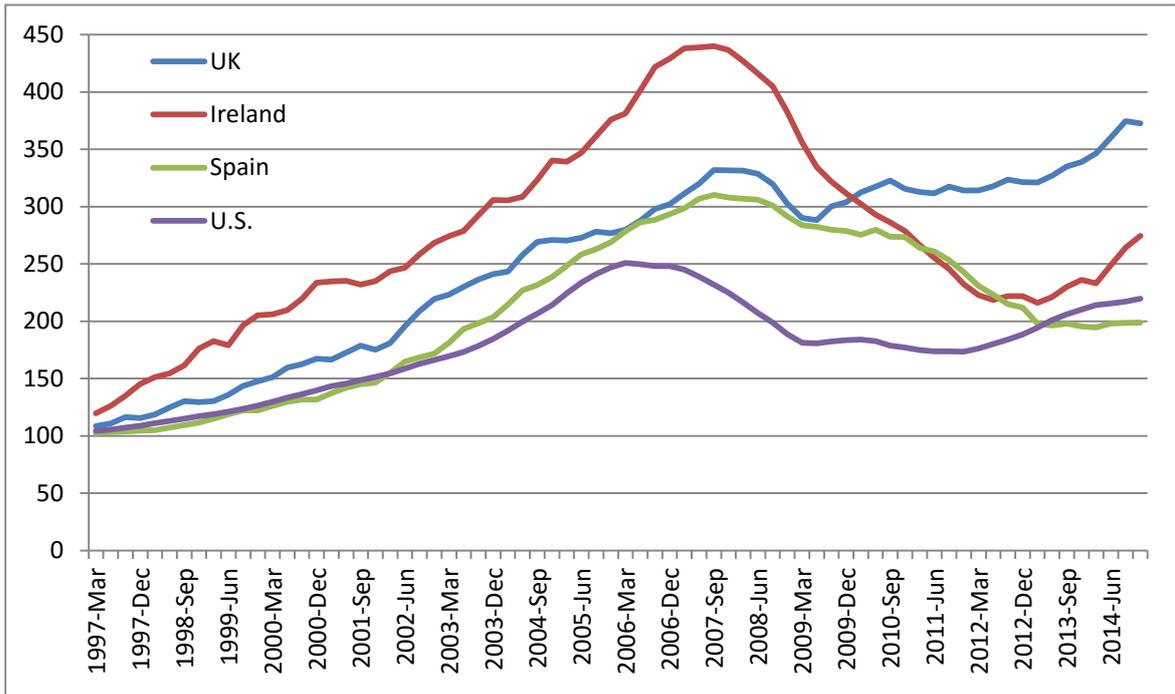


Figure 18: Development of housing prices.

Referenced to 1997=100.

Source: BIS Residential Property Price database, National sources.

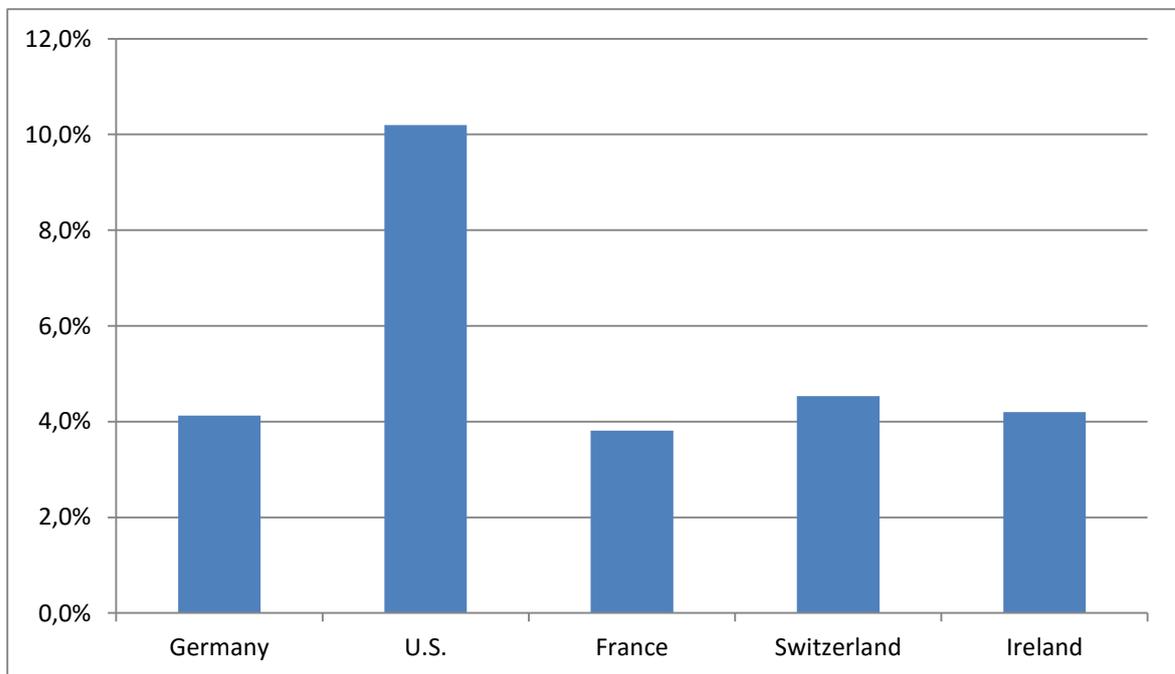


Figure 19: Average total equity to total assets for banks in different countries.

Data: OECD, Bank profitability statistics.

This section has shown that banks' power to create deposit money and connected with this, the status of deposits as a bank liability can render asset bubbles a profitable event for banks. Whereas banks can make great profit during the formation of asset bubbles by credit service fees and value increases of their own investments, they do not fully bear the downside risk when bubbles eventually burst. Instead, losses can be dumped on depositors or the government that has to step in for rescue.

Main beneficiaries seem to be bank managers and employees among the whole financial system that can make a fortune in wages and bonuses during the boom while risking little of their own money, as well as investors and shareholders that happen to liquidate their own stakes in time.

Generally though, due to the complexity of the matter and lack of data, it is not possible to make a meaningful estimate for the amount of profit for the banking system that can be attributed to the formation of asset bubbles. However, the proportions of this income redistribution should be considerable.

5.5 Profit creation through creative accounting

There are scholars that argue that banks can employ creative accounting methods to directly inflate profits in their books and due to their power to create deposit money do not necessarily run into liquidity problems by doing this. In this section, the general possibilities for banks to manipulate their balance sheets to inflate profit shall be explored, supplied with some practical examples.

For instance, according to Glötzl (2011) banks can make use of various methods to inflate the value of their assets or to conceal losses. Eventually, this practice results in additional banking income that can be used to pay high bonuses to employees or dividends to shareholders. These disbursements do not necessarily cause liquidity problems because cash outflows for bank A are cash inflows for bank B and therefore, on the level of the aggregate banking system, there is no absolute liquidity frontier. This is depicted in Figure 20 with the example of two banks' using fictitious accounting to generate equity. When this fictitious income is turned into a bonus payout or later spend into the economy, this does not lead to a liquidity outflow for the banking system. Individual banks just have to be careful not to overplay it and if the whole banking system to some degree employs these practices, all banks can generate massive profits.

In stark contrast, non-banks employing this practice would experience a constant cash outflow when disbursing these fictitious gains and make them quickly run into liquidity problems. In the short-term, these liquidity problems might be manageable with new

loans but over time the growing interest costs for these loans should make the practice relatively unfeasible.

<i>Bank A, period 1</i>		<i>Bank B, period 1</i>	
Assets	Liabilities	Assets	Liabilities
Securities 100	Deposits 100	Securities 100	Deposits 100

<i>Bank A, period 1: Fictitious accounting</i>		<i>Bank B, period 2: Fictitious accounting</i>	
Assets	Liabilities	Assets	Liabilities
Securities 200	Deposits 100	Securities 200	Deposits 100
	Equity 100		Equity 100

<i>Bank A, period 3: Bonus payout</i>		<i>Bank B, period 3: Bonus payout</i>	
Assets	Liabilities	Assets	Liabilities
Securities 200	Deposits 100	Securities 200	Deposits 100
	Deposit Banker A 100		Deposit Banker B 100

<i>Bank A, period 4: Banker spends money</i>		<i>Bank B, period 4: Banker spends money</i>	
Assets	Liabilities	Assets	Liabilities
Securities 200	Deposits 150	Securities 200	Deposits 150
	Deposit Banker A 50		Deposit Banker B 50

Figure 20: No liquidity frontier for the banking system. Own representation.

The core problem with these overvaluations in banks' balance sheets are not the too optimistic evaluations given in the books. These fictional assessments are not the problem in themselves. Rather, if eventually the "fictional" profits in the books are distributed to employees or shareholders then as a result creditors' claims remain only insufficiently backed by assets. If, finally, these methods are exposed or if the bank fails (i.e., as a result of a general banking crisis), depositors' claims cannot be met and they suffer real losses. That means bank managers or shareholders can potentially employ these practices to illegitimately enrich themselves at the eventual expense of creditors (or the government in case of a bail-out).

Generally though, it should be kept in mind that it is much more difficult to agree on an "objective" evaluation for financial assets than it is for real goods. For instance, what is the "true" value of some complex derivative speculating on the price movements of a stock price? And even for marketable assets, does the buy price, the current market price or some subjective evaluation of the bank make up the best value assessment?

Therefore, financial institutions naturally have some scope in the value assessments of their balance sheets. At the same time, it is also very hard to determine, if some asset's value has intentionally been inflated or not and what marks a reasonable assessment and what marks an abuse. And then, even if it can be determined with some safety that there is intentional abuse, the practice might still be in perfect accordance with accounting standards and fully legal.

But despite all these complications, the interest here lies with potential gains from fictitious accounting that depart from "reasonable" value assessment, no matter if legal or not.

Some authors argue that the balance sheet is generally not suitable for banks to describe the true banking activities and that it would often obscure the "real" processes and flows of money (Schemmann, 2013). For instance, Seiffert (2014) states that due to banks' power to create money and liquidity, balance sheets do not work for banks and rather disguise the true banking operations. Rather, through manipulative accounting, balance sheets can be used to justify rent extraction for bank managers and shareholders.

Additionally, Torfason (2014) finds that banks' deposit money creation also makes cash flow statements of banks redundant. He finds that cash flow statements of banks cannot be interpreted in a conventional way and are generally not used in contrast to cash flow statements of non-banks. He argues that cash flows for banks function very differently due to banks' power to create deposit money and due to the netting of the operations of the payments system.

Glötzl (2011) provides several examples of methods and accounting techniques to inflate banking assets and profits or to hide losses:

- **Overvaluation of assets using scope in accounting regulations:** Banks can use ample of scope in the rules of the International Financial Reporting Standards (IFRS). In particular the "fair value-principle" leaves lots of room for banks to make a value assessment that inflates the value of assets.
- **Discounted cash flows:** With the principle of "discounted cash flows" some projects' prospective cash flows are discounted to calculate a net present value for the project and this net present value is accounted for as a cash flow at present. This allows ample of space for overoptimistic valuation of a project's prospects and to account for gains before and nevertheless if these actually get realized.
- **Use of Special Purpose Entities (SPEs) to inflate asset values or to conceal losses:** SPEs are legally independent entities created on behalf of a sponsoring institution, typically a major bank, finance or insurance company to fulfill a rather specific, narrow

objective (Basel Committee, 2009). Whereas a report of the Basel Committee (2009) on SPEs highlights their advantages for risk management and optimization of liquidity and funding needs, SPEs can also be used to inflate asset values by outsourcing “bad” assets to the SPE, to obscure the structure of the balance sheet or generally to hide ownership as an SPEs assets are usually not integrated in the parenting companies balance sheet. The use of an SPE is depicted in Figure 21.

<i>Bank A, period 1</i>	
Assets	Liabilities
Security 100	Deposits 100

<i>Bank A, period 2: Founding of SPE</i>	
Assets	Liabilities
Loan to SPE 150	Deposit of SPE 150
Security 100	Deposits 100

<i>Special Purpose Entity, period 2</i>	
Assets	Liabilities
Deposit at Bank A 150	Loan from Bank A 150

<i>Bank A, period 3: Sale of security for 150</i>	
Assets	Liabilities
Loan to SPE 150	Equity +50
	Deposits 100

<i>Special Purpose Entity, period 3</i>	
Assets	Liabilities
Security 150	Loan from Bank A 150

Figure 21: Using a Special Purpose Entity to inflate profits.
Own representation.

- **Repurchase Agreements (repos):** These are contracts where a seller and a buyer of a security additionally agree to a repurchase with a specified price and date. Effectively the seller of the security acts like a borrower and the price difference between the two sales makes an interest cost. Repos can be used to hide devaluation losses and to lower the leverage right before balance sheet publication dates by accounting for the repo as a true sale.
- **Derivatives:** Derivatives are versatile financial contracts that bet on the performance of some “underlying”. As these bets are extremely difficult to evaluate objectively, this leaves a lot of space for optimistic evaluations. According to the Bank of International Settlements, the worldwide volume of derivatives in 2014 has been US\$630 trillion in December 2014, marking them as very significant products.
- **Closed loop operations with equity:** If capital increases are bought back secretly in a closed loop operation, this can untruly declare liabilities as equity and thereby understate the true leverage ratio.

Additionally, Seiffert (2014) highlights the importance of offshore banks and shadow banks without or with very limited accounting requirements, to manipulate balance sheets and to obscure losses and ownership. He also emphasizes scope in accounting regulations to choose the most beneficial value assessments to inflate banking income.

Practical examples illustrating the application of these methods are very difficult to obtain for the very purpose of these practices to circumvent supervision and regulation. If they could easily be uncovered by investors and supervisors, these practices would probably not be accepted and prevented.

However, there are a few fortunate exceptions, which mainly became public as criminal cases, that will be drawn on to supplement the theoretical considerations above:

Firstly, the savings and loan crisis from the 1980s and 1990s, when a great share of savings and loan associations in the United State failed, gives some staggering insights into possible business practice. Black (2005) describes comprehensively how many savings and loan associations inflated income and hid losses through accounting fraud, scope in Generally Accepted Accounting Principles (GAAP) accounting regulations, dubious mergers or Ponzi schemes. He terms it as a control fraud how managers used these practices to turn effectively insolvent companies into “cash cows” to enrich themselves. *“The S&L control frauds used a fraud mechanism that produced record profits and virtually no loan defaults, and had the ability to quickly transform any (real) loss found by an examiner into a (fictitious) gain that would be blessed by a Big 8 audit form.”* (Black, 2005, p. 3). He argues that *“[...] a financially troubled industry, particularly one with an implicit or explicit governmental guarantee (e.g. deposit insurance), is most likely to abuse accounting practices and to restrain vigorous regulation.”* Eventually due to the institutions coverage with public deposit insurance, the government had to spend US\$124 billion to compensate for the losses.

A second example provide the findings of the Enron scandal, one of the largest bankruptcies in American history as illustrated by McLean and Elkind (2004):

Enron was a large American holding company doing business on energy, commodities, and services that went bust in 2001 and was found to have practiced in massive audit fraud. In the case of Enron, scope in accounting regulation had been extensively used to conceal asset losses and to generate balance sheet income that never really occurred. For instance, the company extensively inflated its income by employing a combination of SPEs, scope in accounting regulations and the discounted cash flows principle to account for potential future cash flows of projects that never took place as if these were real inflows. The higher executives at Enron in general knew well about these practices at the expense of investors that eventually had to bear the burden of the losses. When the company eventually failed, investors lost US\$74 billion in value (Friedman, 2005). Enrons

accounting company Arthur Andersen was found to have participated in the fraud as well as a couple of other financial corporations.

Whereas Enron was not a bank, this case proves and illustrates that it is generally possible and practicable for a financial company to employ questionable accounting methods to falsify the balance sheet and to give a wrong impression of the financial standing of the firm, thereby enriching employees at the expense of investors and creditors. If a non-bank can trick investors on such a scale, the opportunities for a bank must be even greater.

Thirdly, there are highly interesting findings from the Special Investigation Commission (SIC) in Iceland that was set up in the aftermath of the financial crisis to examine the causes and sequence of events of Iceland's banking crisis. The SIC was set up with extensive authority and expertise and therefore allowed unique insights into the workings of the Icelandic banking system and found that Icelandic banks extensively manipulated their books and employed a vast network of SPEs to conceal debt and ownership. Findings of the SIC are greatly summarized by Johnson (2014).

For instance, the banks massively manipulated their share prices by selling their own shares to SPEs, which bought those with money borrowed from the banks themselves to drive up their stock price. In this way, the Icelandic banks were in some instances responsible for over half the monthly stock market transactions of their own shares (Johnson, 2014, p. 146). Also, there existed closed-loop deals regarding the banks' equity, so that banks partly owned their own equity, thereby overstating the capacity to bear losses. In one case, through this practice a bank held a quarter of its own equity (Johnson, 2014, p. 150). Generally, the banks used scope in accounting regulations to falsify their books, misreport earnings and conceal losses. One case documents how a loss of 6 billion ISK was hidden through "fair value" accounting. *"This type of fair value assessment leaves a lot of room for judgment, especially when markets are in crisis."* (Johnson, 2014, pp. 163, 164). The three Icelandic banks compensated their CEOs between 2004 and 2008 with US\$84 million in wages and bonuses but when the banks eventually failed in 2008, they had to write down 62% of their assets or roughly US\$103 billion (Johnson, 2014, p. 192). Overall, the methods are described as "rent extraction" by the bank managers that took out excessive wages and bonuses with little connection to real performance. *"The impunists managed to risk next to nothing of their own money at the outset, creating a system where the upside of their bets was surely theirs, while downside risk was put upon the rest of society."* (Johnson, 2014, p. 196)

Fourthly, there are insights from the bankruptcy of Lehman Brothers in 2008 regarding the use of the so called Repo 105. Repo 105 is an infamous accounting maneuver that has been used by Lehman Brothers to "optimize" the balance sheet before publication. With

the maneuver, a repurchase agreement was classified as a sale so that the alleged earnings reduced the stated amount of debt and therefore the stated leverage in published reports. This way, in 2008 the company reduced the amount of debt in its balance sheet by US\$50 billion and this way appeared much healthier and financially stronger than it was (De la Merced, Michael de & Ross Sorkin, 2010). Wray (2011) also points out that Lehman hid its debt and wonders why accounting firms took part in this practice despite serious consequences if they were found out. *“First, it is possible that fraud is so widespread that no accounting firm could retain top clients without agreeing to overlook it. Second, fraud may be so pervasive and enforcement and prosecution thought to be so lax that CEOs and accounting firms have no fear. I think that both answers are correct.”* (Wray, 2011, p. 13).

Fifthly, after the financial crisis, the British bank Barclays employed a Special Purpose entity, codenamed *Potium*, to prevent billions of pounds of potential write-downs from assets amounting to \$12.5bn. This was accomplished by granting a loan of equivalent value to the SPE so that it could buy the assets from Barclays and enabled Barclays to not having to adjust the impaired asset values in its books as it could then instead account for the loan in full value. The SPE was managed by a small team of former Barclays executives, which managed to get considerable earnings in the process (Jenkins & Murphy, 2011).

All these cases demonstrate, that it is possible for financial institutions to extensively manipulate balance sheets in various ways to overstate income and hide losses. In these cases, the practice has usually been initiated by managers to justify huge wages and bonuses at the expense of creditors. Further, in all these cases, accounting and audit firms as well as rating agencies have neglected their responsibility to prevent these practices and instead have in many instances joined in the fraud.

Given these findings, it seems possible if not even likely that as of today, many banks are secretly engaging to some degree in the same or similar practices. Wray (2011, p. 14) even states that *“there is no question that fraud worthy of incarceration is rampant”*.

This would imply that currently bank balance sheets might be overstated to justify high wages and bonuses at the expense of creditors, depositors and the government that might eventually have to step in for rescue in case of a bankruptcy. Of course, it should be noted that generally it is difficult to objectively assess the value of assets and naturally there is scope in accounting. Therefore there is a blurred line between optimistic assessment and criminal fraud.

Certainly, the practice is not necessarily strictly limited to banks but can rather concern companies from the whole financial industry with rating agencies and audit firms

participating as well. However, banks play a crucial role to provide the liquidity necessary and might have it easier to prevent exposure for the theoretical non-existence of a liquidity frontier for the banking system at large.

It should be noted though, that the possibility of these practices does not just depend on banks' power to create money but also greatly depends on the institutional framework, accounting regulation and effectiveness of oversight. But given a sufficient level of deregulation and lax oversight, banks' power to create deposit money should greatly facilitate the practice.

Due to the complexity of the matter, it is beyond the scope of this thesis to provide a reliable estimate of the dimension and amount of this kind of manipulation as it lies in the nature of these information to be concealed and hidden from public oversight. However, the dimension might be considerable.

5.6 Summary of results and further considerations

While the preceding sections introduced the four main profit channels, in this section results will be shortly summarized, some further aspects and considerations discussed and the relation between the different channels will be examined.

Figure 22 gives an overview of the four different profit channels, main beneficiaries and results of profit estimates. In general, the profit channels that have been attributed to banks' power to create deposit money generate a great source of income for banks and certain groups in the financial industry.

The following example might give a quick idea over the four different profit channel and how these add up:

A bank can use its customers' deposits as an exceptionally cheap source of funding and thereby saves interest costs (1. profit channel).

Additionally due to implicit government insurance, investors expect less risk and require less interest for holding the bank's debt obligations what further reduces funding costs for the bank (2. profit channel).

Thirdly, the banking system can fuel an asset bubble by extensively extending cheap credit and can thereby drive up asset prices. This increases the quantity of credit contracts on the one hand and boosts the value of the bank's assets, increasing profits (3. profit channel).

Lastly, the bank could employ questionable accounting methods to inflate the book value of its assets without necessarily running into liquidity problems, also increasing profits (4. profit channel).

It should be wondered, if these channels simply add up or partly overlap and how they interact with each other.

The first two channels, cheap deposit funding and implicit subsidies should mostly add up as both decrease costs for different funding channels. Actually, the implicit subsidies for bank securities might even decrease our estimate for the deposit funding advantage if funding costs for bank bonds are generally lower due to the implicit government insurance thereby decreasing the interest rate spread in regard to deposit costs.

The third and fourth channel, profitable asset bubbles and creative accounting, are probably rather connected, overlap and reinforce each other. The formation of an asset bubble might make overoptimistic accounting easier justifiable and high profits due to accounting techniques might help to spur an asset bubble mania. However, no useful estimates for the profits attributable to these two channels could be calculated.

Also, both cheap funding sources might make the formation of asset bubbles easier.

Generally, the underlying issue for all these profit channels seems to be the failing principle of liability so that banks are not fully held accountable for losses that are eventually born by creditors or the government.

Given the profit opportunities for the banking system due to their power to create deposit money, it should be wondered if there is a possibility to reform the monetary system in a way that these profit opportunities disappear and potential seigniorage income accrues in its entirety as a government income to the benefit of the public. This will be the topic of the next section.

Profit Channel	Functioning	Main beneficiaries	Profit estimates, annually
Exceptionally cheap deposit funding	Sight deposits make an extremely cheap source of funding for banks compared to other liabilities such as bank bonds or the money market.	Bank shareholders, bank employees, creditors	Euro area: €184bn (Bindseil et al., 2015) Euro area: €120-150bn (Glötzl, 2013) Germany: €40-50bn (Glötzl, 2013) Germany: €23bn (Huber, 2014a) Germany: €10-15bn (Own calculations)
Implicit government subsidies	Due to banks systemic importance, public deposit insurance and government guarantees for the safety of banks there is an implicit subsidy for the banking system in the form of reduced funding costs.	Bank shareholders, bank employees	UK: £6-120bn (various estimates) U.S.: \$160bn (Anginer & Warburton, 2011) Euro area, 2013: US\$90-300bn (International Monetary Fund, 2014)
Profits due to asset inflation	Banks credit creation can fuel the formation of asset bubbles that are very lucrative for the financial system, whereas the losses when these bubbles burst are only partially borne by banks.	Bank shareholders, bank employees, asset holder/wealthy people, the financial industry	Not possible to estimate
Profit creation through creative accounting	The financial industry uses scope in accounting regulations to inflate asset values and to conceal losses. This results in overoptimistic financial statements, soaring share prices and allows huge wages/bonuses for bank managers.	Bank shareholders, bank employees, the financial industry	Not possible to estimate

Figure 22: Overview of different profit channels, their main beneficiaries and profit estimates.

6 Potentials of a sovereign money reform

“The government should create, issue and circulate all the currency and credits needed to satisfy the spending power of the government and the buying power of consumers. [...] Money will cease to be master and become the servant of humanity.”

- Abraham Lincoln, 16th US President

Given the manifold criticism regarding the current monetary system and the findings of the last chapter in particular, the question should be posed if there is a possibility to reform the monetary system in such a way as to prevent the discussed subsidies and profit opportunities for banks due to their power to create deposit money.

In this chapter, the potentials of a sovereign money reform will be examined as this reform would straightforwardly end all money creation by banks. The reform should therefore extinguish any quasi-seigniorage for banks and instead convey the full seigniorage into public hands. In the aftermath of the financial crisis, the sovereign money reform idea underwent a revival in popularity and is currently discussed in various countries.

In this chapter the evolution of the reform idea will be presented, its basic characteristics, modifications as well as implications drafted and a discussion of potential advantages and risks will be outlined.

6.1 Background and evolution

The basic idea behind a sovereign money reform is to take away banks' power to create deposit money and instead confer the control of the whole money supply into public hands.

The first traces of the reform idea date back to Irving Fisher and the so called Chicago Plan. After losing a great share of his fortune as a result of the stock market crash from 1929 and being confronted with the disastrous impact of the Great Depression, Fisher became aware of the great dangers of a banking system out of control and together with numerous other economists pleaded for fundamental monetary reform (Allen, 1993). The idea was to increase the reserve requirement for banks up to the amount of 100%, also known as the “100% reserve proposal” or as “full reserve banking”. They expected numerous great advantages from the reform, such as a simplification of the monetary system, an end of the problem of bank runs, a decrease of bank failures, a reduction of government debt, a smoothing of the business cycle of booms and depressions and a better control of inflation (Fisher, 1936).

The plan received great attention and was eventually even discussed in the White House. Its popularity peaked when it was promoted by famous economists such as Frank Knight and Henry Simons and was put forward as the so called Chicago Plan. However, the plan was never implemented in favor of less fundamental banking reforms under President Roosevelt. This was namely the Banking Act of 1933, also known as the Glass-Steagall Act, that introduced federal deposit insurance, a separation of commercial banking and investment banking and tougher regulation on banks in general. After the US recession in 1937/38, the reform idea resurfaced as "A Program for Monetary Reform" but did not effect any new regulation and eventually disappeared from the discourse (Phillips, 1992). In the following decades some prominent economists such as Milton Friedman (1948, p. 247) and Hyman Minsky (Kregel, 2012) benevolently mentioned the reform idea but a greater discussion among the economics profession did not take off again.

Eventually though, the German Bundesbank minister Rolf Gocht (1975) brought the idea back to the table: He heavily criticized the monetary system as being inherently unstable and attested a lack of monetary control for the central bank and argued in favor of comprehensive monetary reform. Together with Joseph Huber, they took up Fishers 100% reserve proposal and advanced the idea to the so called sovereign money reform.

The first official sovereign money reform program was published by Huber and Robertson (2000) as "Creating New Money". Over the years, the reform idea gained more and more publicity, many additional publications followed and even researchers from the IMF modeled the reform implications with a DSGE model with extremely positive results: *"We find strong support for all four of Fisher's claims, with the potential for much smoother business cycles, no possibility of bank runs, a large reduction of debt levels across the economy, and a replacement of that debt by debt-free government-issued money."* (Benes & Kumhof, 2012, p. 8).

In recent years, the idea receives regular coverage in media and academia and growing attention from the public. At present, there exists an *International Movement for Monetary Reform* with local initiatives in over 20 countries. Leading sovereign money initiatives are in the UK (*Positive Money*), where they have successfully stimulated a public debate in parliament on money creation and the green party has already officially endorsed the plan and in Switzerland (*Verein Monetäre Modernisierung*), where a public referendum on the issue is currently prepared. Very recently, even Iceland's prime minister published an extremely positive report on the potentials of the sovereign money reform (Sigurjonsson, 2015). Proponents are hopeful that in the coming years some country will pioneer the reform idea, potentially paving the way for global monetary and financial reform if a sovereign money system can keep its promises.

6.2 Functioning

6.2.1 Institutional modifications⁴

There are two central modifications of the monetary system through a sovereign money reform: Firstly, all deposit money will be upgraded to official legal tender and removed from banks' balance sheets and therefore become safe from bank failure. Secondly, the money supply will be under full and direct control of an independent public institution, alike an upgraded central bank.

In a sovereign money system, there will basically be no institutional difference between money in the form of coins, notes or digital deposits. All money is full legal tender and as such not only a promise for real money as deposit money is today. In a sovereign money system, there would not exist something like central bank reserves or reserve requirements. Instead, deposit money would rather be like a deposit for safe-keeping with the central bank and full legal tender for all citizens. Due to this, the current two-circuit system (see Figure 3) with reserves on the one hand and deposit money on the other hand would be replaced with just one circuit of full legal tender money between all stakeholders (Figure 23).

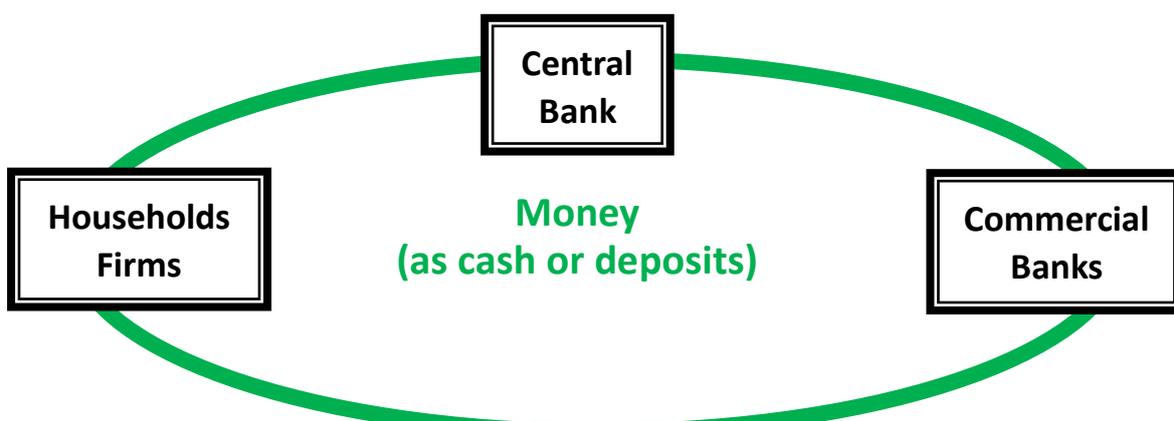


Figure 23: The sovereign money system: one monetary circuit. Own representation.

Deposit money could still be administered by banks but would no longer be part of the banks' balance sheets. Instead, these deposits would be fully owned by their holder, same as the cash in a wallet that is not at the same time a liability of a bank. As such, this money would be safe from bankruptcies and in case of a bank failure, the management of a deposit account could just be transferred to another institution - comparable to the administration of a stock deposit account at present.

⁴ This section is based on the sovereign money reform proposals by Huber (2014a) as well as Jackson and Dyson (2012). An excellent shorter introduction (~50 pages) is given by Dyson, Hodgson, and Jackson (2014a).

However, customers could still entrust their money to a bank for lending. In this regard there would be an important distinction between so called transaction accounts and investment accounts. Basically, transaction accounts are like a central bank reserve account for public citizens managed by banks, while investment accounts are quite comparable to today's saving accounts.

Transaction accounts contain legal tender money at the central bank, are fully liquid and completely safe as they are not part of the bank's balance sheet. Money on these accounts would be instantly available and could be used for all daily transaction purposes, for instance to receive the salary or to pay some purchase. Logically, transaction accounts would not receive any interest as no lending takes place.

In contrast, money in investment accounts would be entrusted to the bank, therefore finance bank lending and investing and as such would receive interest but also bear some risk in the case of a bank default. To bring in line the unity of potential for gain and loss, public deposit insurance should be removed. Therefore, in case of a bank default, investment account holders could potentially undergo some losses of their deposits. In contrast to the current money system, transferring money to an investment account would not "deactivate" money but instead just enable someone else to lend it. Therefore, the money supply would not be affected by people putting their money aside for saving in an investment account. An important characteristic might be that investment account money must be deposited long term, possibly with a minimum investment period of 3 months to forebear bank runs on these accounts.

Banks would become mere intermediaries for lending and other money services. That is, they manage customers' sight deposits on transaction accounts or use the money entrusted to them on investment accounts to finance their lending. However, banks would not be able to create deposit money. Instead they would first have to get the funding and then do the lending – as most citizens mistakenly believe that they already do today. Banks main profit would be derived from the interest margin between funding and lending as well as service fees. Importantly, banks would still be private institutions and the reform is not to be confused with a nationalization of banks. Figure 24 provides an overview of the differences and modifications of a sovereign money system compared to the current fractional reserve system.

The central bank would be upgraded to an independent "Monetary Committee" comparable in its institutional standing to judiciary or executive as having a public mandate and being bound by law while having independence from the government. This new institution could be seen as a fourth power alongside the legislature, the executive and the judiciary. *"Similar to the judiciary, central banks must act on the basis of a well-*

defined legal mandate, be answerable to the government, parliament and public, but not subject to government directives and fiscal interests, nor to deference to the banking industry and financial interests.” (Huber, 2014b, p. 18).

	Fractional reserve system	Sovereign money system
Legal tender:	Coins and bank notes	Coins, bank notes and bank deposits
Money circuits:	Two circuits: - One circuit with reserves and cash between banks and central bank - One circuit with cash and deposits between banks and the general public	Only one circuit between banks, the central bank and public
Central bank powers:	Central bank is in partial and indirect control of money supply through control of reserves and interest rates	Central bank is in full and direct control of the money supply
Deposit insurance:	Yes	No
Role of banks:	Banks create deposits when extending loans or making investments	Banks are intermediaries between savers and borrowers
Impact of new credit/loans:	Loans increase the money supply and create new purchasing power	Loans transfer purchasing power and do not impact the money supply
Sight deposits: (Transaction accounts)	Finance banks activities as a liability, liable in case of bank failure but insured by public deposit insurance, not official legal tender	Under management of banks, not liable in case of bank failure, official legal tender
Saving deposits: (Investment accounts)	Finance banks activities as a liability, liable in case of bank failure but insured by public deposit insurance	Finance banks activities as a liability, liable in case of bank failure

Figure 24: Overview of functional modifications of a sovereign money reform.

Own representation.

This new institution would only be comparable to a traditional central bank to a limited degree as it would have a completely new role. The monetary committee would cede to control the amount of reserves and to control different interest rates to achieve an inflationary target. Instead, the new Money Committee would be responsible for directly steering the money supply in line with price stability or other objectives and if necessary would create new money to fulfill a growing economies need for money. The committee would evaluate the economic situation, the growth potential, the volume of lending and interest rates and then decide on the optimal supply of money. If it would decide that the economy requires an increase of the money supply, there are different possibilities on

how to infuse money into the economy. On what the decision of an optimal money supply should be based and how additional money could be infused into the economy will be the topic of the next section.

6.2.2 The mechanics of money creation

In a sovereign money system there are different possibilities regarding the policy target that the monetary commission should base its decision on.

Jackson and Dyson (2012, pp. 204, 205) propose for the UK that the new monetary committee should just continue with a 2% inflation target. However, they note that the parliament should have the power to change the policy target if it deems some other target as more desirable.

Huber (2014a, pp. 149–150) on the other hand, argues that the central bank in the reformed system should follow a growth-potential-oriented monetary policy, that means, the money supply should adapt to the growth potential of the economy.

However, it should be noted that a specific monetary policy is not central to a sovereign money reform idea. Rather, a sovereign money system could run under policies that range from a fixed money growth rate to very high flexibility.

If the monetary committee would decide that the money supply should be increased, there are different possible ways to infuse new money into the economy (Dyson, Hodgson, & Jackson, 2014a, pp. 29–30).

Firstly, additional money could be created by the money committee and simply be transferred to the government account to be spent into circulation. This inflow of money would be free of debt so that through this process, the government would receive a full seigniorage income. According to parliamentary decision, this money could then be spent to finance public expenses, tax cuts or new investments such as the building of schools or new roads. As such, this additional money would directly flow into the real economy and stimulate effective demand. This mechanism would affect a split between the decision on the optimal amount of the money supply and the decision on how to spend the money, what is supposed to prevent abuse of power.

Secondly, new money could be handed out alike “helicopter money” as a dividend to all citizens.

Thirdly, especially for the “fine-tuning” of the money supply or in case of a credit crunch, private banks could receive direct credits from the central bank to forward this money to creditors.

6.2.3 Implementation and making the transition

There are different possibilities on how to do the transition from the current money system to a sovereign money system (Jackson & Dyson, 2012, pp. 219–240).

One possibility would be to gradually increase the reserve requirement over some years up to 100% and when this point is reached, remove deposit money from banks' balance sheets altogether. To compensate banks growing need for reserves, the central bank could buy up government debt from the banks in exchange for reserves.

Alternatively, at the reform date, customer deposits could be removed from the banks' balance sheets and instantly become full legal tender from then on, only left to be managed by the bank. At the same time, this liability in the banks' accounts would be replaced by a debt of the same value owed to the central bank (as depicted in Figure 25). This debt would be reduced gradually, similar to the transition process above.

In both cases, the reform would hardly be noticed by customers and could be implemented gradually over several years to facilitate the transition and leave enough time to adopt to the new system and potential economic effects. The reform could be accompanied by accounting changes for the central bank to adjust sensibly to the new system. For instance, all money (coins, notes and deposit money) could be accounted as funds held in custody instead of a liability of the central bank. Most likely, the transition would also impact debt levels and structural factors of the economy that would also adapt to the new system over some time. Jackson and Dyson (2012, p. 219) expect a significant reduction of household debt and the aggregated balance sheet of the banking system.

Pre-reform		Post-reform	
Assets	Liabilities	Assets	Liabilities
Cash	Sight deposits	Cash	Conversion liability owed to the central bank
Loans outstanding	Time deposits	Loans outstanding	Investment Accounts
Investments and securities		Investments and securities	
			Customer funds (Held in custody)
			Transaction Accounts

Figure 25: Comparison of a bank balance sheet pre- and post-reform. Own representation.

6.3 Discussion of advantages and criticism

6.3.1 Reduced complexity

As discussed in section 3.1, most citizens and even many economists have a wrong understanding of how the current money system works. Its seemingly insurmountable complexity is certainly impeding effective regulation and arguably hinders the functioning of our democracy.

A sovereign money reform would replace the split money circuit with only one, abolish the differences between different kinds of money and therefore greatly reduce the complexity of the money system. Banks would finally do what most people currently think that banks do. Ironically, in some way, the wrong representations of some economics textbooks portraying banks as mere intermediaries would actually become true.

There would be a clear separation of tasks for different institutions and increased transparency regarding their responsibilities. Crucially, the new money committee would have a clear mandate and directly steer the money supply instead of indirectly manipulating different interest rates and managing collateral eligibility, security prices or reserve requirements. This would greatly increase the simplicity, transparency and accountability of the new monetary institution, responsible for an optimal money supply and price stability (Huber, 2014a, pp. 144–154).

6.3.2 Safety of deposit money and prevention of bank runs

Crucially, in a sovereign money system, money in sight-deposits would be safe from bank failure. This in itself could enhance the stability and durability of the financial system in times of crisis and would additionally completely eliminate the possibility and danger of bank runs on sight deposits. This means, even in the case of the failure of an important financial institution, the payment system would stay intact and the management of deposit accounts could simply be transferred to a different institution. This safety of sight deposit money would greatly reduce the need for public bail-out. Politicians might still be pressured by the banking system to rescue an important bank for reasons like saving jobs but there would be less of an argument that the bail-out is required to prevent a meltdown of the whole economy. As there would be no danger of bank runs, the contemporary deposit insurance could be suspended and thereby the potential of moral hazard greatly reduced. Also, the reform might reduce the problem of institutions that are too big to fail as the failure of a bank of considerable size would not directly imply huge costs for the government deposit insurance (Dyson et al., 2014a, pp. 11,12). Additionally, bank size might also automatically decrease to some degree due to the

abolishment of the reserve system and the neutralization of the lower effective reserve requirement for larger institutions (see section 5.3).

According to a poll of Aprile et al. 33% of the British population oppose the fact that banks lend out some of the money in their current account as loans. In a sovereign money system, these people would finally have an option to safely deposit their money in transaction accounts. Instead, only those investors that actively chose to lend their money to the bank would have to bear losses in case of bank default (Dyson et al., 2014a, p. 11).

However, some critics argue that in case of general financial distress, there could still be bank runs on investment accounts and therefore the problem of bank runs would not be solved (Sauber & Weihmayr, 2014). Proponents of the reform reply that due to the much longer investment period of these accounts, these potential money removals would be much less of an issue and would rather take weeks or month to unfold.

Other critics argue that the reform could not prevent new forms of money to emerge, circumventing the reform and any potential benefits (Fontana & Sawyer, 2015).

6.3.3 More effective control of the money supply

Proponents of sovereign money argue that in the reformed system, the upgraded central bank could directly steer the money supply and therefore be in much better and more effective control. Instead of having to stimulate banks indirectly to increase their lending, the monetary committee could directly create money according to the needs of the economy. This would facilitate the provision of a non-inflationary and non-deflationary supply of money for the economy and enable anticyclical monetary policy. For instance, in times of unsustainable boom, the money supply could be tightened directly and very effectively whereas in times of low growth and danger of deflation, the money supply could be increased and the economy stimulated. This could potentially prevent times of crisis and economic depression and dampen the business cycle (Dyson et al., 2014a, p. 12).

The interest rate could eventually become a market instrument, bringing in line supply and demand for credit instead of being manipulated by the central bank to influence credit creation by banks. In a sovereign money system, unintended side effects from interest rate manipulation could be prevented and instead, stimulation of an economy could be done directly without distorting the interest rate (Huber, 2014a, p. 149).

Critics however, object that in a sovereign money system the steering of the money supply would imply the idea of monetarism. But as monetarism has been disbanded after

being unsuccessfully employed in practice in the 1970s, it is not considered a functional mechanism (Sauber & Weihmayr, 2014, p. 900).

Additionally, critics argue that banks' credit creation forms a fundamental source of dynamism and flexibility. A sovereign money reform would lack this flexibility and pose the danger of credit shortage. Referring to Schumpeter, it is pointed out that the financing of new investment opportunities with newly created money forms an important pillar of innovation and growth (Pettifor, 2014).

"...it would be impossible in such a [Sovereign Money] system for banks to act as the handmaiden to innovation and creative destruction by providing entrepreneurs the purchasing power necessary for them to appropriate the assets required for their innovative investments." (Kregel, 2012, p. 6).

This argumentation is countered by Dyson, Hodgson, and Jackson (2014b) who bring forward that the current monetary system is not exhibiting a functional flexibility. Rather, as depicted in Figure 26 there is too much flexibility in times of boom resulting in asset bubbles and speculation and there is a complete lack of flexibility in times of crisis as it is the case now. Further, they argue that the decision on a monetary systems flexibility is actually independent from the decision of who should control the money supply. Instead, it just depends on the precise policy target of the new monetary commission. Therefore, a sovereign money system could be very inflexible or even be more flexible than the current system in a boom, for instance by following a policy of creating money to meet all demand for loans without conditions. However, the financial crisis has demonstrated that less flexibility regarding credit for speculation might be advantageous, which is why most proponents of a sovereign money reform favor a system with less flexibility than the current one in times of boom.

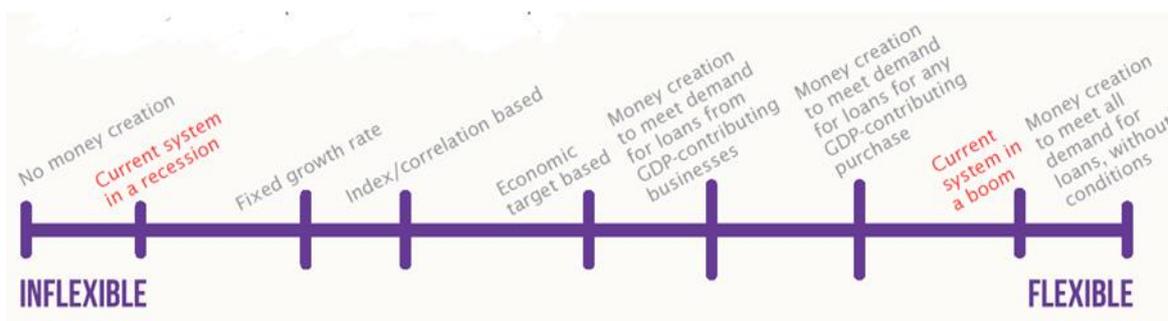


Figure 26: Flexibility of the monetary system.
Taken from Dyson et al. (2014b).

Also van Lerven et al. (2015) explicitly explore the issue of credit and lending after a sovereign money reform and find that currently only about 8% of bank lending in the UK

flows to businesses whereas over two thirds of bank lending flow into mortgage loans and into financial speculation. Therefore, it seems questionable that the current system's flexibility primarily serves business and innovation.

Other critics argue that a sovereign money system poses a great danger in the form of power abuse of the monetary committee. As politicians would directly benefit from an increase of the money supply, they would push the monetary institution to provide them with more and more money to fulfill expensive election promises. Therefore, the reformed system would likely result in high inflation (Baumberger & Walser, 2014, p. 6).

Dyson et al. (2014a, p. 45) respond to this criticism by arguing that hyperinflation is typically not a consequence of monetary policy in itself but rather a symptom of some underlying economic collapse. That is why a successful reform depends on a functional institutional design, the monetary committee's independence and the maturity of the political system in general.

6.3.4 Distributional effects and government income

A sovereign money system would have various effects on the distribution of money and income.

For the government it would entail two sources of substantial income:

Firstly, there would be regular full seigniorage income mainly due to the increase of the money supply. In terms of this, Huber (2014a, pp. 169–171) predicts between €14 and €42 billion seigniorage income annually for Germany (depending on the growth rate) and €48-144 billion for the EU17. This could finance several percentage points of total government expenses.

Secondly there would be a one-time “transition-seigniorage” during the transition to the new system due to the substitution of credit deposit money with real money. This one-time seigniorage would comprise the amount of all former sight deposits and make up about €1.390 billion in Germany and €4.588 billion in the EU17 (as of 2010). If this money was used to pay back existing government debt, about two thirds of it could be extinguished (Huber, 2014a, pp. 175–180).

These two significant potential channels for public income could enable governments to pay down their debt significantly and thereby to reduce their burden of future interest payment costs. Thereby, it would probably trickle down to the general public and allow lowered taxes or better provision of public services. Also, if the monetary system would spare the government from bailing out failing banks, this would certainly prevent considerable financial turmoil and enable governments to spend their money on more

socially beneficial projects. Further, the new monetary system might generally exhibit lower levels of debt as debt would no longer be structurally required for the functioning of the economy. This might enable households and businesses to significantly pay down their debt which would reduce their interest burden in the long term. Additionally, the potential reduction of asset bubbles and especially real estate bubbles would stabilize prices and increase the affordability of housing for low-income classes (Jackson & Dyson, 2012, pp. 260, 261).

Lastly, there might be a negative effect on the profit of the banking system, as any quasi-seigniorage income due to the creation of deposit money would cease to exist. Given the discussion in section 5, as these profits probably make up a substantial source of banking income, the sovereign money reform would likely result in a contraction of the size of the banking system in general. Instead, banks would become mere intermediaries mainly living from the interest margin and service fees (Jackson & Dyson, 2012, pp. 267–271).

However, Sauber and Weihmayr (2014, p. 903) object that the implied additional government income comes at the expense of the private sector. Netted out, they see no overall gain but just redistribution.

6.3.5 Reduced growth imperative

Proponents of the reform argue that the separation of money and credit would make possible an economy that is not dependent on growth to function. Debt and interest repayments would merely redistribute incomes without affecting the money supply and therefore without depressing the economy. Therefore, there would be no need for continuously growing debt as a requirement for the functioning of the economy. Especially supporters of the degrowth movement point out that a sovereign money reform is a fundamental requirement for a post-growth society (Jackson & Dyson, 2012, p. 263).

However, critics argue that the growth pressure mainly stems from the existence of the interest rate and because a sovereign money system would still employ credit and debt, the reform would not make any difference regarding the growth imperative (Sauber & Weihmayr, 2014, p. 905).

But even according to this line of thought, it is likely that the amount of debt in a sovereign money system would be lower (see section 6.2.4) and therefore a potential growth pressure of the money system might at least be decreased through the reform.

6.3.6 General insecurity and risk of reforming the monetary system

Some critics of a sovereign money reform stress that the general insecurity regarding the whole impact of a fundamental reform of the monetary system is not worth the potential benefits. They worry about capital flight, heavy fluctuations of the currency or a credit crunch. Therefore, they argue in favor of less drastic reforms such as better banking supervision and higher equity (Admati & Hellwig, 2013; Sauber & Weihmayr, 2014).

Huber (2014b) counters by arguing that many other reforms can only unfold their power in the framework of the reformed monetary system. Nevertheless, a sovereign money reform cannot make redundant other sensible reforms of the financial system. And Dyson et al. (2014a, p. 41) point out that *“More complex regulation is unlikely to address the problems of the financial crisis. What is needed is greater simplicity.”*

7 Conclusion

"Let me issue and control a nation's money and I care not who writes the laws."

- Mayer Amschel Rothschild (1744-1812), founder of the House of Rothschild.

This thesis explored the question if there are profit opportunities for banks due to their power to create deposit money. Given the lack of prior research, the contribution of this thesis has been to discuss, analyze and if possible quantify this matter and to provide a comprehensive framework as a starting point for further in-depth analyses.

It has been found that the money creation privilege poses great potential for the banking system to benefit financially (what could be termed a quasi-seigniorage income) and thereby might offer an explanation for the striking levels of profit and income that the banking and financial system exhibits. The profit opportunities for banks can only be compared to a very limited degree to the traditional concept of seigniorage as banks cannot simply create deposits to their own benefit. Instead, there are four indirect channels for profit:

Firstly, overnight deposits constitute an exceptionally cheap source of funding for banks which is not open to other business entities. Whereas the effective interest costs on deposits with a longer maturity is more or less in line with other bank liabilities such as bank bonds, the interest on overnight deposits is usually substantially lower and this interest spread can be interpreted as a source of reduced costs and as such, as a profit opportunity. Estimates for the annual amount of this funding advantage range from €10-40 billion for Germany and from €120-184 billion for the Euro area.

Secondly, the creation of deposit money goes hand in hand with deposits being a bank liability what puts banks in a systemically important position that effectuates implicit subsidies. Due to the importance of the functioning of the payments system and to protect depositors' money from bank default, banks can become too big to fail so that managers and investors feel certain that the government would rescue a bank in the case of default. This in turn creates moral hazard in the form of excessive risk taking and lowered funding costs for the banks, implying an implicit government subsidy. There is an extensive literature on the quantification of these too big to fail subsidies for banks and depending on year and country estimates range from £6-120 billion for the UK, about \$160bn for the U.S. and US\$90-300 billion for the Euro area. Additionally, the systemic importance of banks as suppliers of credit can put them in a position of "special treatment" where the central bank actively helps to strengthen their balance sheets to stimulate lending.

Thirdly, given the right conditions of deregulation and optimism, banks can fuel asset bubbles with cheap credit and then profit from fee and value gains of their own investments during the formation of the bubble while only very partially bearing the costs in the crisis. This means, that during the boom, profit is privatized and the whole financial industry can make a fortune while in the bust, due to public deposit insurance and very limited equity, losses are socialized and mostly borne by the public and depositors.

Fourthly, banks might be able to extract income through the practice of creative accounting by overvaluing assets and concealing losses. Generally, there is a lot of scope in accounting regulations and there are various methods such as using Special Purpose Entities, repurchase agreements or derivatives to inflate profits or to conceal losses. If a bank then uses the fictitious profits it has created, to pay high bonuses to its employees or high dividends to its shareholders, new deposit money would be created and would at the same time make up a new financing liability for the banking system. Therefore, the banking system as a whole would not run into liquidity problems. In contrast, non-banks employing this practice would eventually use up their liquid funds or have to look for expensive loans to finance these cash outflows rendering the practice much more unsustainable for them. Obviously, this profit channel is very indirect, rather complicated and generally very disputable. However, various historic cases prove the possibility of employing this practice and make it likely that it is used to some degree by many banks today. Just the potential scale is a matter of great uncertainty and leaves a lot of room for further research and investigation.

All in all, these four channels imply that the proportions of the quasi-seigniorage for banks are gigantic and probably go into many billions every year even though it is not possible to give a reliable estimate for the precise quantity.

Beneficiaries of these various profit channels are generally bank managers and bank shareholders but to some degree also creditors and investors and in some cases the whole financial industry. However, it seems that bank employees in particular can benefit the most by taking out huge bonuses and wages, usually without being liable for losses at all (except potentially with their job).

As this thesis can at most give an overview over these different channels and not go into too much detail, there is still much potential for further research. Especially, a more extensive quantification for the individual channels and for more countries would be interesting as well as an inquiry into the relationship of these profits with regulation and competition.

Taking a step back, the fundamental reason behind most of these distortions that result in profit for the banking system seems to originate in the violation of the principle of

liability. Our economic system is based on the idea of fair competition and the unity of profit and responsibility, but it seems that banks are precluded from these rules: Instead, banks can profit from a status of systemic importance and the formation of unsustainable credit expansion and then get bailed out in the crisis for being too big to fail. In short, profits are privatized while costs are socialized. At the same time, many depositors are not even aware that their money is a bank liability but hardly have a choice but to entrust their money with a bank as long as they need the benefits of cashless money transfer. This all marks a fundamental flaw in the architecture of the contemporary monetary and financial system and understandably, many citizens are left enraged and frustrated with the reality of our economic system.

Given the core findings of this thesis and all the other criticism regarding the fractional reserve system, it has been wondered if there is a possibility to reform the financial and monetary system in such a way as to mend these flaws and as to make sure that all seigniorage income flows to a public institution so that it can serve the interest of the whole society and not an exclusive elite.

In this regard, a sovereign money reform, which would transfer all money creation to a public institution might offer a straightforward solution. Potential advantages include the safety of deposit money, the prevention of bank runs, potentially more effective control of the money supply what could prevent or at least lessen financial crisis, extensive additional seigniorage income for the public purse and probably a reduced imperative for growth of the economy. However, there is considerable insecurity regarding the precise impact of the reform, causing critics to speak out in favor of less fundamental reform.

But given the various problems with the current system, it seems worthwhile to experiment with something new on our quest for a safer and better financial system.

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