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MASTER THESIS

Modern Banking and Preference Channels

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Declaration of Authorship

The author hereby declares that he compiled this thesis independently, using only the listed resources and literature.

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Prague, May 19, 2011

Signature

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Abstract

Financial markets are nowadays more important than ever. Financial crisis of the previous decade demonstrated their power to influence stability of the whole economy. Since the consensus blames weak regulation and considers the only solution to be its extension, this thesis tries to provide the proof of existence of other options. The focus is firstly aimed at the weaknesses of the fractional reserve banking, which does not follow the basic legal principles of a deposit contract. This practice results in price fluctuations and favoritism of first takers of newly created money. Moreover, the thesis develops a new method of analysis, which emphasizes the application of preferences in exchanges. Important outcome of this method is the demonstration that the public does not have to always prefer the most evolved form of institution. All institutions within commercial banks are then analyzed with the use of this method and the thesis shows where preference channels are being interfered with. This analysis also reveals another outcome of fractional reserve banking, which is that the newly created money is only used according to the preferences of commercial bankers. We suggest that circumvention of the true nature of a deposit contract leads to a similar outcome in loan banking, where funds gathered by loan products are again allocated by the preferences of bankers. It is further shown that by application of wider preference channels from depositors and creditors of banks the society could gain some considerable benefits. The magnitude of these benefits can be described by the fact that the funds allocated by preferences of commercial bankers are equal to a quarter of the entire current US bond market. It is for these reasons that the thesis questions the economic rationale that backs the support of strong regulation policies of banking, which ultimately lead to the support and forced persistence of only one form of deposit banking.

JEL Classification G21, G28, E51, G23

Keywords banking, preferences, full reserve banking, corporate social responsibility

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Abstrakt

Finančné trhy sú dnes dôležitejšie ako kedykoľvek predtým. Finančná kríza predchádzajúceho desaťročia ukázala ich schopnosť ovplyvniť stabilitu celej ekonomiky. Keďže konsenzus obvinil slabú reguláciu a vidí riešenie v jej rozšírení, táto diplomová práca si predkladá za úlohu dokázať existenciu iných možností. Najprv sa zameriava na slabosti frakčného bankovníctva, ktoré nedodržuje základné právne princípy depozitného kontraktu, čo vedie k cenovým výkyvom a zvýhodneniu prvoprijemcov novovytvorených peňazí. V ďalšej časti sa diplomová práca venuje vytvoreniu nového spôsobu analýzy, v ktorom sa dáva dôraz na aplikáciu preferencií vo výmenách. Dôležitým poznatkom plynúcim z tejto metódy je poukázanie na to, že najvyvinutejšia forma inštitúcie nemusí byť vždy preferovaná spoločnosťou. Následne sú všetky inštitúcie komerčného bankovníctva analyzované touto metódou a diplomová práca ukazuje, kde dochádza k zasahovaniu do preferenčných tokov. Táto analýza taktiež odhaľuje ďalší dôsledok frakčného bankovníctva, a tým je tok novovytvorených zdrojov na základe rozhodnutia bankárov. Nedodržanie vlastností depozitného kontraktu moderným bankovníctvom považujeme za tvorca podobného dôsledku i v úverovom bankovníctve. V ďalšej časti práce je ukázané, že aplikáciou širších preferenčných tokov od vkladateľov a veriteľov v úverových rozhodnutiach by mohla spoločnosť získať značné výhody. Rozsah týchto výhod je viditeľný na fakte, že zdroje alokované na základe preferencií komerčných bankérov sú rovné štvrtine celkového trhu dlhopisov USA. Pre tieto dôvody práca spochybňuje racionalitu ekonomickej vedy v podpore silnej regulácie bankovníctva, ktoré koniec koncov spôsobuje podporu a silené prežívanie jednej formy inštitúcie bankovníctva.

Klasifikace JEL

G21, G28, E51, G23

Klíčová slova

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Master Thesis Proposal

Author	Bc. Jozef Regináč
Supervisor	Mgr. Pavel Ryska MPhil
Proposed topic	Modern Banking and Preference Channels

Topic characteristics The role of banks in current financial crisis invokes a lot of questions for economic theory. The banking practices, within current state of regulation, become more and more sophisticated, causing that regulation does not cover all risks and therefore regulation must consequently be adjusted to correct for uncalled behavior. Although this method of correction by regulation is preferred by majority nowadays, there have been ideas developed within Austrian school of economics, which go against the banking problem in another way.

Free banking concept was well discussed in this school and several implications for real economy have been developed, one of them is theory of 100 percent reserve banking. This theory has been discussed ever since the School of Salamanca in 16th century. It was later suggested also by David Hume in 18th century. Besides these, the concept was also at least for some time supported by several important economists of 20th century: Ludwig von Mises, Murray N. Rothbard and four Nobel Prize winners F. A. Hayek, M. Friedman, J. Tobin and M. Allais. The theoretical concepts of Austrian school, together with this one, have contributed to the development of Austrian business cycle theory, which is considered by some economists as most competent to explain economic cycles which occur in reality.

The aim of this thesis is to further develop the theory of free banking in such “Austrian” setup. The starting point will be the relationship of savings and investments and the role of subjective preferences of savers within. By the comparison of classical banker, who is “investing” for several clients by lending, with investor, who is investing with his own savings and preferences, this thesis

should derive the theory, which would tell us more about the efficiency of the outcomes of behavior of these two roles. Thesis is focused on the role of subjective preferences in investment and loan granting decision theory and the corresponding role of banks in this setup, which could reveal the ultimate role of banks in free banking environment.

Within this system of free full-reserve banking with subjective preferences for saving-investing decisions, thesis will further describe the possible development of financial markets and its consequences on the overall efficiency of these markets. One of the main hypotheses is that the introduction of such concept of banking would bring higher degree of transparency and stability of financial markets.

With the new banking concept as a base, Austrian business cycle theory will be adjusted and therefore the thesis will also try to answer the question of business cycles. As I consider the ignorance of subjective preferences in saving-investment decision to be the source of negative view on recessions, the development of Austrian business cycle should also help this current consensus to evolve.

Thesis will finally try to summarize main implications of current and newly developed economic theory in area of banking. Comparison of these two should bring some insight and topics for further economic discussions.

Hypotheses

1. Saving-investment decisions based on subjective preferences brings more efficient investment results for society
2. Market failures are caused by ignorance of subjective preferences in saving-investment decisions
3. Negative view on recessions is generated by ignorance of subjective preferences in saving-investment decisions
4. Subjective-investment banking would cause more transparency and stability on financial markets

Methodology Subjective investment preference theory will be described by mainstream microeconomic instruments, but also by “Austrian” way of presenting economic theory. Further chapters will continue in this manner accordingly, which would lead to newly adjusted Austrian business cycle. After this chapter, mix of methods will be used, since comparison of current and newly developed concept requires such method. Since this kind of subjective preference is hard to test by econometric tools, this analysis will be missing, possibly substituted by some statistical quotations.

Outline

1. Introduction: Problematic position of banks
2. Theory of subjective preferences for investments
3. Microeconomics of subjective preferences for investments of savers
4. Financial Markets with subjective preferences for investments of savers
5. Application on Austrian Real Business Cycle
6. Comparison of mainstream with new developed banking theory
7. Possible statistical proves of implications of this theory
8. Conclusion

Core bibliography

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Author

Supervisor

Chapter 1

Introduction

The last financial crisis, initiated by the US subprime mortgage crunch in 2007, showed just how important financial markets nowadays are. Contagion hit integrated financial markets globally and consequently, the economy suffered across all industries as well. Words like recession, unemployment, and bankruptcy started to spread quickly and were frequently used by the media. Consensus was settled that this crisis is the worst after the Great Depression from 1930s. The uniqueness of this crisis, however, lies in the way which it also affected economic theory. Last century witnessed a definitive defeat of socialism as a competitive economic system and therefore, the invoked doubts hit hope which the society had vested in capitalism. Therefore, we find it important to emphasize studies in the monetary field, where even the greatest of economists cannot find consensus.

Financial markets acted as a fuse of problems and therefore, political reforms were focused on them, enhancing an already advanced regulation. As the president of the United States of America, Barrack Obama, told in his speech on Overhauling Financial Regulation:

...given the importance of the financial sector, Wall Street reform is an absolutely essential part of that foundation.

He claims the roots of the crisis rest in a too-complex nature of the tools of modern financial markets, which were processed in a shadow economy. Specifically, he said:

In fact, many practices were so opaque, so confusing, so complex that the people inside the firms didn't understand them, much less those who were charged with overseeing them. They weren't

fully aware of the massive bets that were being placed...And that's why reform will rein in excess and help ensure that these kinds of transactions take place in the light of day.

Further, he talked about what the economy would look like without the reform and about the goal of the reform.

...For without action, we'll continue to see what amounts to highly-leveraged, loosely-monitored gambling in our financial system, putting taxpayers and the economy in jeopardy...this plan would enact the strongest consumer financial protections ever.

Last quote shows exactly where the reform was directed. To protect consumers on the financial markets with all developed instruments, which “...*help allay risk and spur investment.*” This thesis attempts to answer whether or not the current state of financial markets is the only one that can ensure growth for people, and if it is really the best solution to tinker with holes in an already many-times tinkered system.

As it was already mentioned, economic theory is far from conclusive when it comes to monetary questions. There have already been analyses, made mostly by authors united under the “Austrian School”, which showed flaws of the current monetary system and suggested a different one. Hence, there can be no doubt that economic theory is capable of providing rationale for several different monetary systems but nowadays, practice is rather united under only one.

The most critical works, directed against the current system, were written on the subject of fractional reserve banking. This institution violates the legal principal behind deposit contract and therefore, the existence of fractional reserve banks is suspicious. This thesis summarizes thoughts of Huerta de Soto and Murray N. Rothbard on this subject and builds on the concept of public approval of legal imperfection surrounding fractional reserve banking.

This approval, together with high complexity of the current financial practice¹, mentioned by President Obama, is considered to be the source of the second problem of modern banking. Difference between the public perception of savings and investments makes the loan banking function of commercial banks a subject of interest for this thesis. The reason behind the current practice, where preferences of creditors are satisfied in investments but not in bank

¹See also Mejstřík *et al.* (2008)

savings, is discussed and for comparison the thesis develops a new type of loan banking, which would allow for equal application of preferences. Within the current system, “indifference” of bank savers allows a considerable amount of investments to be decided by commercial bankers, based merely on financial analyses. The main question, therefore, is whether or not the information gathered by commercial banks is sufficient enough to decide about future development of the economy.

This thesis is also unique in developing a new way of analyzing the banking sector. The emphasis is put on the flow of preferences between agents in every relation within the functioning of a bank, which brings an opportunity to see clearly the range of possible institutions of banking and monetary systems. Therefore, it is by far easier to see and compare pros and cons of every setup.

The analysis of loan banking is built on the idea of affected indifference of people towards flows of their savings. This phenomenon has not been tested and therefore, we suggest the public perception of savings to be the possible area of future research.

The thesis begins with the explanation of the problem of fractional reserve banking and provides an analysis of its consequences. Ideas and notes about the proposition of 100% reserve banking system in our history are then the subject of the second chapter, where opinions of several important economists are also described. Thesis then gradually describes a new analytical tool and analyzes institutions within banking, by using the tool in chapter three. Central bank’s influence on banking is consequently examined and the chapter consists also of the proposed new way of loan banking, with reasoning and consequences described in the end of the chapter. Since the analysis of loan banking was targeted toward widening of preference channels, the next chapter deals with the current growing trend of corporate social responsibility in investments, as an indicator of the proposed shift. The chapter provides an analysis of the state of this industry and it covers also the main findings of academic research on this topic. To illustrate the proposed problem of narrowed preference channel in deposit and loan banking, chapter six begins with comparison of costs within the current and the proposed system and it further provides an estimation for the share of funds under decision of commercial banks in respect to overall investments. The conclusion brings together all ideas mentioned in this thesis and derives propositions not only for policy but mainly for economic theory.

Chapter 2

Theory of 100% Reserve Banking

The idea of full reserve banking has been largely discussed in our history and is considered by several authors to be the only possible form of banking, which does not harm legal and other principles. However, reality is different and fractional banking dominates the banking sector in current times. Critique, the most direct from Rothbard (2008) and Jesus (2009), attacks the concept from legal, as well as from economic side. Therefore, it is the purpose of this chapter to provide a basic insight into the problem of fractional banking, starting with the description of legal nature of the deposit contract. This is followed by an economic analysis of consequences of different banking practices and the chapter is concluded by detailed analysis of intervention of fractional reserve banking.

2.1 The Legal Principle behind Loan and Deposit Contract

The basic contracts, that banks enter into are a loan contract and a deposit contract. The distinction between these two types of contracts is important to understand what happens behind them legally. Since the subject of these contracts in banking is money, the good with a special role in economy, the contracts will be described in accordance to this characteristics. Therefore, two forms of the loan contract have to be introduced. These are “lend to *use*” and “lend to *consume*”.

The latin, *commodatum* is a contract between two people, where one person lends a specific item to another person, which is obliged to return the item after using it. The person, who has borrowed the item, is allowed to use it, but the

transfer of property rights does not occur. *Commodatum* is therefore a simple “lend to *use*” contract. In this case, person, who borrowed the item, is usually obliged to use it properly and return it in initial condition. For example, the case of neighbourhood loan can be used for illustration, where we lend our lawnmower to a neighbour. She will then use it to mow her grass and after she is finished, she will return it to us. As the example shows, the mowing could take one hour or ten hours, and we do not have that particular information, another characteristic of this type of contract is no fixed term.

On the other hand, *mutuum*, in latin, is the “lend to *consume*” contract and has different characteristics. A person again lends the item, which other person can now even consume, but she is obliged to return another item of the same quantity and quality in a predetermined date. Within this type of contract, property rights are clearly transferred, due to the consumption by the other person, i.e. she can do whatever she wants to do with it. Since the person has to return the item at a predetermined date, this type of contract on the contrary has a fixed term. According to de Soto, fixed term is an existence condition since “*Without the explicit or implicit establishment of a fixed term, the mutuum contract or loan cannot exist.*” (Jesus (2009), pp. 4). Such exchange of present goods for future goods, usually leads to contracting with interest, since present goods are usually preferred by market participants, i.e. they are willing to abandon present good only for an interest.

While the transfer of availability (not of property rights) of goods, at least for some time, happened in both of the previous types of loan contracts, a deposit contract is characterized by the contrary. The goods, which are deposited by one person into a warehouse of another person, have to be always available for withdrawal on demand. The all-time availability of a deposited good is an essential characteristic of a deposit contract, which makes it different from the loan contract. The person, who is providing the service of safekeeping, does not gain any property right to use or consume the good. The only obligation and right is to safekeep the item for which the person can be paid a fee from the depositor, depending on the contract.

The problem of deposit contracts arises, when fungible goods are considered in the contract. Since, with some approximation, the good, which is deposited by one person, is the same in quality as the goods deposited by others, there is no reason for keeping them separate. It is therefore common to withdraw the fungible good, which is not the same as originally deposited, by the depositor. One kind of fungible items is money. One unit of money is not different in

quality from any other unit (of money), hence money does not have to be stored separately. At this point, it is important to understand that the deposit of money (a fungible item) does not differ from any other deposit contract. The person safekeeping it has the obligation to have the amount deposited always ready for the withdrawal, due to the characteristics of the deposit contract. In case of other fungible goods, the withdrawal of all items at once is more probable (e.g. wheat in planting season), but in case of money the probability goes down and a crucial problem arises. The consequences of this problem will be discussed in the following section.

2.2 Economic Analysis of Loan and Deposit Banking

Historical events led to creation of two distinguished functions of banks: loan banking and deposit banking. Both types brought a change into the economic life and so intervened with some part of economic relationships. This section analyzes the mechanism behind these two functions of a bank in detail. The impact these two functions have on the money supply will be explained by illustration of an accounting of a bank. This detailed insight into the functioning of a bank will explain clearly the problem, which arises from fractional deposit banking. As some implications will not be fully described, reader can find full analysis in first chapters of Rothbard (2008).

2.2.1 Loan Banking

Loan banking is based on a bank acting as an intermediary between two persons. One of them wants to lend cash, present good, to earn some interest on it and the other one needs cash for some purpose and knowledgeably agrees to pay the amount, future good, plus interest back. Let us consider an example. Suppose that you own a bank, for instance called Burton Bank. One day, a customer named Jack comes to your office and wants to lend you money, say \$1000 at 10% p.a. interest rate for a year. To keep the case simple, since you have some credit applications on the table, you can find a loan that would match the customer's time and amount preference. You find that the local butcher wants to borrow \$1000 at rate 15% p.a. from you. You accept the deal with Jack, through which you increase your cash by \$1000 on the side of assets,

Assets	Liabilities
Cash 1000\$	Liabilities to Jack 1000\$
Total 1000\$	Total 1000\$

Table 2.1: Burton Bank's Balance Sheet, $t=0$

Assets	Liabilities
Cash 1150\$	Liabilities to Jack 1000\$ Revenues from Butcher 150\$
Total 1150\$	Total 1150\$

Table 2.2: Burton Bank's Balance Sheet, $t=364$

and increase your liabilities to Jack by \$1000, as can be seen in the table 2.1 (assuming that Jack is your only customer).

You consequently make a deal with butcher, so you give him cash, which you received from Jack but you agree on period, which is a little bit shorter than the period agreed on with Jack, say 364 days. From the accounting point of view, you transfer money from a cash account to the debt claim account. The balance sheet would look almost the same, only instead of having cash on the right side there would be a debt claim.

After 364 days, if your analysis of Butcher's solvency was correct, butcher's accountant comes to your office and pays you the amount lent, \$1000, plus the interest, \$150. Since you now have cash in the amount of \$1150, your balance sheet would no longer include of a debt claim because it has been repaid. Instead, there will be only cash on the asset side. Liability side would additionally include a revenue item in amount of \$150, as you can see in the table 2.2.

The next day, Jack comes to your office and you are obliged by the loan contract to give him his original amount and the agreed interest, \$1100. This would cancel your liability to Jack, decrease the cash by the amount paid to Jack and create a negative item, expenses, on the liability side. The two new items, revenues and expenses, would be summed to uncover your net income for the given year. At the end of the considered transaction, balance sheet would look as table 2.3.

By this example, we simply illustrated, how the loan banking works. As the focus lies on the impact on price level, the effect of the transaction on supply of money has to be explained.

In this type of contract, *mutuum*, transfer of property rights does take

Assets	Liabilities
Cash 50\$	Revenues from Butcher 150\$ Expense: interest to Jack -100\$ Net Income 50\$
Total 50\$	Total 50\$

Table 2.3: Burton Bank's Balance Sheet, $t=365$

place. By the signing of contract by both sides, money, which was lent to you by Jack for one year, became yours at that very moment. Money supply did not change, since Jack did not have 1000\$ afterwards and the only person who could use them was you. Similarly, due to transfer to Butcher, you contracted and transferred your ownership of 1000\$ to Butcher and again, money could not be used by you, but by butcher. As it is clearly visible money supply through overall period did not change by our influence at all. For this reason, there did not occur any change in cash balances of people and hence no change in overall price level.

2.2.2 Deposit Banking

Deposit banking can be defined as a service of safekeeping money. As a person cumulates more and more money, she usually gets to the point, where she does not want to bear risk of theft or weight of money (e.g. gold) any more. She therefore represents a demand for safekeeping service. For this purpose, as supply meets the demand, special firm was created, a deposit bank. Deposit bank provides a service, for which it asks fee, since as a firm, deposit bank wants to be profitable and maximize profits.

As the definition of the deposit contract was given above, it is clear that there is no transfer of property rights. The deposit bank therefore does not own the money and it cannot show up in its accounting. Balance sheet consists of asset side, where capital owned occurs, and liability side, where capital owed find place. Deposit does not fulfill any of this relation to bank.¹

The money deposited, because of its fungible characteristics, is not going to be stored separately and therefore the bankers should make a note to remember the amount and agreed fee. In no way this can be done in balance sheet, since the deposit bank does not possess the money.

¹This realization seems to be strange, since current practice is to keep deposits in accounting, but the definition of deposit contract speaks for itself. The difference in no transfer of property rights makes existence of deposit contract possible.

The most crucial part of deposit banking is the characteristic which was described in definition of deposit contract. The continuous uninterrupted **availability** of deposited money is the reason behind the existence of deposit banking. Person, who deposits his money, assumes that he can get his money back at any time on demand. After some time, it turned out to be rather less efficient to go to bank to withdraw the money every time. Therefore, bank notes, received from deposit bank in exchange for money, started to be used in transactions instead. In this case, the contract still holds the same characteristics and therefore any bank note, not depending on who owns it, still bears the availability. If a customer knows that he will not need money for some time, she would probably think of loan contract, since she could earn interest. But in this case, the person does not know, when her demand for money will occur and therefore decides to choose deposit contract.

Simple example of true deposit contract should be outlined again for the illustration. Let's start with your bank, Burton Bank, and Jack, who now wants to deposit his money, since he is worried about his shady neighbour. He comes to your bank and makes with you a deal for safekeeping his \$1000 at a fee 3% of the amount deposited for every year. You sign the contract and receive \$1000 from Jack, which you put into your deposit vault. Your balance sheet does not change, but you record into your books the amount, name of customer and agreed fee. In exchange for the money, you give warehouse tickets worth \$1000 to Jack. After a month, Jack comes to your office and wants to withdraw \$100. You give it to him and reduce the amount deposited by Jack in your books by \$100. After 11 months, Jack comes again and wants to withdraw remaining money, since his neighbour has been put into jail and he feels safe now. You give him the rest, \$900, of his deposit and count a total fee. You calculate a fee from initial amount for first month ($\$1000 * 3\%/12 = \2.5) and a fee for the second period ($\$900 * 11 * 3\%/12 = \24.75). Total fee equals \$27.25, which is paid to you by Jack after you give him the rest of his deposit. This amount is recorded into your income statement as a revenue, and since you needed to guard the vault, you count that the wage of the guard from this particular deposit is equal to, e.g. \$15. The difference, \$12.25, is your profit. You, as deposit banker, earned a profit during a year by providing service of safekeeping and fulfilled your deposit contract with Jack fully.

Consequences of Violation of Deposit Contract in Deposit Banking

The problem with deposit banking arises from substitubility of money. Let us now assume that Jack would deposit into your bank his favorite painting. You make the same deal with him, meaning that you will safekeep the painting for unspecified time and it will at all times remain available to him. If you would then sell the painting due to financial prolems, you will no longer have Jack's painting. If then he would come to your office to withdraw his painting, you would go directly to the jail. You could not give him other painting, because the painting is not fungible. But money is fungible and therefore the fulfilling of deposit contract is accompanied with moral hazard.

Other items, such as wheat, with the same characteristic, substitubility, are also accompanied with moral hazard in deposit contract. The difference lies in the particular use of these items, since they are more likely to be used at once (e.g. at planting season). Additionally, money is usually not an item for use, but rather for exchange, since it developed to act as a medium of exchange. It is therefore more probable, that depositary will have some money in vaults all the time. Deposit banks therefore have always some amount of money in vaults and there arises the moral hazard situation for banker. Since she perceives the temptation to use the money for her personal use and to return it before actual withdraw, she is more likely to defraud deposit contract for money, than deposit contract of any other item.

Let us present an example for the last time. Now, your Burton bank accepts similar Jack's request for making a deposit contract and receives \$1000 and agrees on the same fee. After three weeks, one of your associates surrenders to the temptation and uses \$500 from Jack's deposit for the payment of his debt. Since she works, she counts on the fact, that she will earn the money earlier than Jack will come and withdraw more than the amount left. As previously, after a month, Jack comes and withdraws \$100 and does not notice anything suspicious. But what if he would come and try to withdraw e.g. \$600? He would immediately uncover that you, as founder of Burton Bank, violated the deposit contract signed between you. Your bank would become insolvent and you would go bankrupt. Banker, which failed to keep his temptation under control can be qualified as embezzler, since he took posession of property of another person without this person's permission. She committed the crime of violation a deposit contract. What is worse, banker, by her decision to defraud the deposit contract, did not only influence Jack's and Burton bank's situation,

but additionally caused a change in price level.

The principle of defraudation becomes easier, when bank with more customers is taken into account. As more and more customers come to the bank and deposit their money, the probability of withdrawal of all funds at once diminishes. The bank therefore perceives the opportunity for defraudation more intensely, since at all times some part of money is left in the vaults. This part of deposits, which always stays in bank, except the case of bank run, is defined in modern banking as **desired reserves** or **rest**². The important fact is, that no matter if the desired reserves remains in the bank, there has been a deposit contract concluded and therefore the money does not belong to the bank. Deposits or their part cannot be used for investment opportunities.

In the example above, Jack thinks, that his 1000\$ are safely in bank's vaults. Since the assumption of a general acceptability of Burton bank's bank notes holds, by spending of \$500 from Jack's deposit, the banker increased money supply exactly by that amount, since Jack and banker have a bank notes for the same money in Burton's bank. Banker used the money, which would not be normally used by Jack, to pay for his debts, and his creditor, again, uses them in some other transaction and so on. Inflation due to increased money supply emerges.

After some time, when banker earns the money back, she consequently returns it by cancelling the additional bank notes in the bank's accounts. Money, which she returns, is suddenly withdrawn from the money supply and, again, no multiple bank notes are connected to the same amount of money. As this money is not going to be used in transactions any more, sooner or later, the public will notice shortage of money supply and try to increase their cash balances. Deflation ensues, since people do not spend as much as before.

Even worse case would be the situation, where Jack and the owner of the additional bank note created by the embezzler would come to the bank earlier, than the banker would earn the money back. The Burton bank would be found insolvent, since it would not be able to fulfill its liabilities, and the additional bank notes would have to be cancelled by agreement between Jack and the owner. The consequences would however be the same - due to increasing cash balances deflation would take place. Both of these price fluctuations were clearly created by speculation of the banker, who committed a crime of embezzlement.

As the two scenarios of deposit banking, described above, are very different

²Bank of England definition

in outcomes, one might object that if Jack would act as in the first case, nothing would happen. Rothbard writes that critics use the following example with bridge as an argument. “*The builder of a bridge estimates approximately how many people will be using it from day to day; he doesn’t attempt the absurd task of building a bridge big enough to accommodate every resident of the area should he or she wish to travel on the bridge at the same time.*” (Rothbard (2008), pp. 99) This is similar to the case, we are considering. It looks rational, that if the banker successfully estimated average withdrawal, she would need to keep only this amount in his vault and could use the rest. On the other hand, difference between money deposits and use of bridge lies in the nature of the act. Since there is no contract between every citizen and town about the right to use the bridge at any time, it differs from case of money deposit. Depositor and bank contracted and therefore depositor has the right to withdraw deposit at anytime. The critique is therefore inadequate.

The type of moral hazard, when banker can profit from not following the true deposit contract, is nowadays not considered to be immoral or illegal any more. Society did somehow manage to get used to this practice. In England, embezzlement started to be used as soon as by the end of the Civil War. The bankers discovered they could earn profits, and they even designed their deposit products in such a way, that deposits earned interest. Since warehouse tickets were already used as substitute for money, they only had to print out new ones and lend them out. Soon, not merely a few but several warehouse tickets were connected to the same ounce of gold. The same process happened also in ancient China in 8th century. Shops, which started to accept deposits and safekeep them for fee, issued in exchange deposit tickets. After some time, these tickets became accepted in exchanges. After two centuries, shops started to conduct embezzlement. From 14th to 16th century, similar behavior of deposit banks happened also in Venice. The strange paradox arose, that whereas violation of deposit contract in warehouses was considered to be a crime, in case of deposit banking it was not.

Position of Law towards Deposit Banking

The reaction of English law to the matter of embezzlement is by some authors considered to be the source of present approach of public. Several crucial cases were described in Rothbard (2008). In 1811, Sir William Grant ruled that the cash balance in a bank deposit account is a loan, since the money was not

earmarked in a sealed bag. After five years, Sir Grant was judging similar case of embezzlement and one of the counsel defended correctly, that the banker is not a debtor and the money which he accepts “...is rather a deposit than a debt, and may therefore be instantly demanded and taken up.” (Rothbard (2008), pp. 92) Sir Grant did not rule differently from the first case. In 1848, the case Foley vs. Hill and Others led to a decision by Lord Cottenham, where he concludes that “...money, when paid into a bank, ceases altogether to be the money of the principal; it is then the money of the banker,...” (Rothbard (2008), pp. 92). Lord Cottenham also rules that the banker is not committing any crime if he uses the money for his own purposes, while he is still able to give money on demand to a customer. From these three cases, the acceptance of fractional banking by law is easily visible and Rothbard even puts on them “*the major share of the blame for our fraudulent system of fractional reserve banking and for the disastrous inflations of the past two centuries.*” (Rothbard (2008), pp. 99)

2.3 Modern, United “Commercial Bank”

To this point, we only considered deposit banking separately from loan banking and we illustrated the moral hazard of a deposit banker to use money for personal purposes. As it evolved through history, these two different kinds of business became only one, joined together in an institution called “commercial bank”.

New type of bank brought loan opportunities for already morally challenged deposit bankers, for which the possibility of profit from use of clients’ deposits became clearer. Since the pool of commercial bank’s clients consists also of creditors, the only thing to be done by commercial banker is to successfully estimate average withdrawal. Banker can then commit the kind of embezzlement mentioned above more easily and earn significant profits on it. Throughout centuries, embezzlement became so common, that commercial banks started to pay interest on deposits, instead of cashing fees for this service.

In Rothbard (2008) author takes a closer look at the consequences of fractional reserve banking. The judgement made by court, about money deposit to be considered as a loan, made it possible for banks to record deposits on their balance sheets. The following example helps better understand the consequences of this. Once again, your Burton bank accepts deposits in the amount of \$1000. But now, the bank’s balance sheet includes this deposit, as shown in

Assets	Liabilities
Cash 1000\$	Warehouse tickets 1000\$
Total 1000\$	Total 1000\$

Table 2.4: Burton Commercial Bank's Balance Sheet

Assets	Liabilities
Cash 1000\$	Warehouse tickets 1500\$
Loan 500\$	
Total 1500\$	Total 1500\$

Table 2.5: Burton Commercial Bank's Balance Sheet, after embezzlement

table 2.4. The assumption of the use of warehouse tickets as a substitute for money in transactions is still valid.

By this act, the bank is not perpetrating any embezzlement yet. The story becomes interesting when the bank lends warehouse tickets in value of \$500. Bank's depositors have \$1000 in warehouse tickets and they are using them and at the same time, the creditor now gets another \$500 in warehouse tickets, not backed by any real deposit. Burton bank's balance sheet changed by this amount just by the act of embezzlement. Since warehouse tickets are used as money, new money was created. As several authors indicate, "..., fractional reserve banks - create money out of thin air." (Rothbard (2008), pp. 98) Burton bank's balance sheet now look as in table 2.5.

As it is well known in corporate finance "the time structure of the firm's assets should be no longer than the time structure of its liabilities." (Rothbard (2008), pp. 98) A firm that does not have specialized financial management, which could follow this task, gets into trouble soon, since it risks becoming insolvent. When you take a closer look at the Burton bank, on the assets side you can see fully liquid cash and a loan that will become liquid after some contracted term. On the liabilities side, you can see the warehouse tickets, which by definition of deposit contract are available for withdrawal at any moment, and therefore all liabilities are liquid and do not hold any term. By this comparison, the breach of the "time structure" rule is evident, i.e. assets have longer term than liabilities. Therefore analysis of fractional reserve banks shows that such "a bank is always inherently bankrupt" (Rothbard (2008), pp. 99). The difference in treatment of banks and other companies by state is clearly evident. Another area of state's adjusted treatment of banks is accounting standards. Financial statements of commercial bank and any company differ

in many ways, due to bank's treatment of customer's deposits. The source of this separation of commercial banks and other businesses is clearly arising from the violation of the deposit contract. Since it has been allowed, a fractional reserve bank is allowed to give several customers a claim for the same amount of money, therefore, the traditional accounting and finance rules cannot be applied to it. This is due to the unclear definitions of ownership within fractional reserve banking.

Moreover, it is important to say that this deposit contract oriented analysis of fractional reserve banking applies to any monetary set up of the society. It does not matter, if the underlying deposit is in gold or dollars. Warehouse tickets or modern checking accounts are still created "out of thin air" and used in transactions.

In the previous example, Burton bank increased the money supply by \$500, since the initial depositor used his \$1000 in warehouse tickets and also bank's creditor is using \$500 in warehouse tickets. The price effect of the use of this money is described "As the new money pours into the system and ripples outward, demand curves for particular goods or services are increased along the way, and prices are increased as well." (Rothbard (2008), pp. 101) Author also describes, that "the early receivers of the new money benefit at the expense of the late receivers" (Rothbard (2008), pp. 101), since early receivers can use newly created money on markets, which are not yet adjusted to new value of money supply. Since analysis with similar results has been done also on the effect of government fiat paper money, the conclusion in Rothbard (2008) completes this idea by stating that "fractional reserve banking, like government fiat paper or technical counterfeiting, is inflationary, and aids some at the expense of others."

After a successful repayment of the loan, money supply gets back to its original value. As was mentioned above, the shortage of cash balances of people would cause them to save more and there will be fewer transactions, which would drive prices down. This effect is easily predictable in theory, but not so probable in reality. Banks are making their business by lending created money and therefore they would most probably not stop creating them. The ultimate problem of this system of repeating embezzlement starts when the inherent bankruptcy of a bank is discovered.

2.3.1 “Problematic” bank runs

As the panic would spread and bank run would strike, banking sector would be forced to contract and deflation would really follow. Additionally, banks would have to force their debtors to repay or stop to renew their loans, money supply and transactions would definitely decline and this pressure would cause recession. No matter how bad this sounds, it is important to keep in mind that the source of this fluctuation is the original embezzlement of fractional reserve banks. Without them, no additional money would be created and it would not happen that more people would claim the same amount of money. **Bank runs** are therefore natural part of banking sector, acting as a threat for bankers against embezzlement. In modern textbook of economics of financial markets, Mishkin (2007), asymmetric information is considered to be the source of contagion. According to authors, in situation with no deposit insurance, initial falls of troubled banks cause also healthy banks to fall because “*depositors, fearing for the safety of their deposits... and not knowing the quality of banks’ loan portfolios, withdraw their deposits to the point that the banks fail.*” (Mishkin (2007), pp. 191). Bank runs³ are therefore seen not as a threat, but a result of asymmetric information.

In contrary, it could be easily illustrated that under 100% reserve banking, such an event could not happen, since all bank notes would be backed by real money. In case of sudden withdrawal of money, all deposits would be paid out and the bank would not go bankrupt. The comparison of these two systems is made in Rothbard (2008) and implication suggest that “fractional reserve bank credit expansion is always shaky, for the more extensive its inflationary creation of new money, the more likely it will be to suffer contraction and subsequent deflation.” (Rothbard (2008), pp. 103) The author even sees the source of business cycles in the fractional reserve banking and writes that “. . . every business cycle is marked, and even ignited, by inflationary expansions of bank credit.” (Rothbard (2008), pp. 103)

³Let’s assume wikipedia.org to be a reflection of public opinion. There, bank runs are indicated to be a self-fulfilling prophecy. Current public, therefore, does not perceive bank runs to be the market way of ensuring compliance with the deposit contract but rather as something artificial.

2.4 Conclusion

The modern conflux of loan and deposit banking created commercial banks. The confusion about the difference between deposit and loan is visible from the regulation point of view. For example, Commercial Bank Examination Manual from November 2006, Section 3000.1, issued by Federal Reserve Board, describes deposits as following:

Deposits are funds that customers place with a bank and that the bank is obligated to repay on demand, after a specific period of time or after expiration of some required notice period. Deposits are the primary funding source for most banks and, as a result, have a significant effect on a bank's liquidity. Banks use deposits in a variety of ways, primarily to fund loans and investments. Management should establish a procedure for determining the volatility and composition of the deposit structure to ensure that funds are employed profitably, while allowing for their potential withdrawal.

This statement expresses the confusion about the deposits in banking. No distinction between deposit and loan, in matter of term or transfer of rights, is made and therefore it is left for the management to decide how much reserves to hold. The decision about embezzlement is therefore left on commercial banks, whereas consequences are left on public by providing the deposit insurance.⁴ According to the analysis above, the application of the same definition of deposit in banking, as in other areas, could stop inflationary money creation of commercial banks. Several authors with similar opinion agree on the statement that "A requirement that banks act as any other warehouse, and that they keep their demand liabilities fully covered, that is, that they engage only in 100 percent banking, would quickly and completely put an end to the fraud as well as the inflationary impetus of modern banking." (Rothbard (2008), pp. 109)

⁴Consequences are meant to be the adjustment of money supply and price level after bailment of a bank by lender of last resort.

Chapter 3

Full Reserve Banking in History

Previous chapter uncovered the problem of insufficient compliance with general definition of deposit contract in modern banking. As the resulting problems were indicated to be severe, negative reactions in the process of getting to the current state had to be presented. Ideas about fairness and efficiency of full reserve banking have already been described and discussed by several philosophers and economists throughout the history. Starting with the school of Salamanca, through David Hume up until Nobel prize economists such as Milton Friedman, Friedrich August von Hayek etc¹. In different ways they were all intrigued by the thought that it might be necessary to require from banks 100% reserves for deposits. This chapter therefore reviews several remarks and comments about the concept of full reserve banking, described in Jesus (2009), which occurred in our history, starting with the oldest.²

In 16th century, the imperial policy of Charles V acted as an inspiration for economists from Spain, from the School of Salamanca as authors call them now. Charles V took the advantage of loyal society and used the liquidity stored in banks for financing the army. As a consequence, he managed to get the state go bankrupt. These events became a fertile ground for analyses by economists from the School of Salamanca.

Some authors consider Carande to be the discoverer of banking evolution in this era. Carande's research was evoked by discovery of list of bankers of Seville, from which deposits were to be confiscated. After the initial intervention, bankers were not able to secure customer's deposits any more, and therefore, after some time, they took an advantage of the situation and, aside

¹See also de Soto (2008)

²Huerto De Soto works with older publications, mostly with legal texts, but for the purpose of this thesis, the historical shift to School of Salamanca is adequate.

from compulsorily lending the money to Charles V, started using it also for their own personal investments. Carande consequently describes in his book downfalls of Seville's bankers. While his description was helpful, his analysis lacked an economic insight, since he only focused on moral corruptness of bankers.

The analysis of Italian banks made by Cippola was more helpful. He described artificial monetary boom, which was caused by sudden ignorance of 100% reserve ratio. It was all initiated by Ricci bank, which used some of their depositors' money and invested them in government securities and granted loans. Other banks had to follow, since they could not survive on the market without having comparable yields. In 1574 bankers were not able to meet their customers' demand for withdrawals. Unfortunately, Cippola focused his analysis more on the downfall of economy caused by artificial boom than on the origin of credit expansion.

Another member of the School of Salamanca, who passionately described the “*sin*” of bankers, was Saravia de la Calle. He started by finding people guilty of depositing money into banks and earning interest from it. In his opinion people should pay for the service of safekeeping of money, not the contrary. De la Calle also successfully described business cycles by suggesting that credit expansion creates artificial price increase, which, after bankruptcy of some bankers, causes recession. Comparable findings were derived by Azpilcueta. He better defined and distinguished the service of safekeeping, for which it is reasonable to demand a fee. Further, this fact was ironically described by Mercado, who wrote that bankers are so generous that they do not require wages.

Authors of this school therefore provide evidence and also partial analysis of the problem. Their negative opinions are proofs, that fractional banking was not always as accepted as it is today. Additional proof of a different attitude toward deposit banking can be provided by the existence of a bank, which followed the principle of 100% reserve ratio.

3.1 Bank of Amsterdam

The Municipal Bank of Amsterdam is indicated to be “*the last serious attempt to establish a bank based on the general legal principles governing the monetary irregular deposit...*” (Jesus (2009), pp. 98). This bank was established in 1609

and the main principle upon which it was founded was to maintain the 100% reserve ratio with respect to demand deposits at all times.

It followed this commitment for over 150 years and became famous for it. From 1616 to 1772 deposits rose from 1 million to 28 million florins and the cash reserves increased from 1 million to 27 million. During this period, Bank of Amsterdam survived several banking crises. In 1672, a panic, caused by the threat from France, triggered bank runs and several Dutch banks were forced to suspend payments, but not the Bank of Amsterdam. The soundness of this bank did not stay unrecognized abroad either. Pierre Vilar mentions that the French ambassador wrote in a report to his king in 1699 that “*Of all the towns of the United Provinces, Amsterdam is without any doubt the foremost in greatness, wealth and the extent of her trade.*” (Jesus (2009), pp. 99)

The bank abandoned the rule in 1802 and Pierre Vilar again wrote the words of French consul in Amsterdam. He recognizes the threat of inflation by stating that since most of gold and silver was kept in Europe, sudden release into circulation would cause price increase and it would create great losses for people with fixed and limited income. For this reason, he praises the Bank of Amsterdam for following the rule and keeping such high reserves, which caused the whole Europe to have stable prices. After the bank abolished the rule, he writes that “*...it could be said that the great system of the trade and political economy of the civilised world will be without an essential part of its machinery.*” (Jesus (2009), pp. 100)

For this thesis, the Bank of Amsterdam is important mainly as the proof that such a bank, which followed the 100% reserve ratio rule and did not pay any interest on deposits but was rather paid for the service, survived in competition and even gained superior position according to some writers.

The example of successful full reserve banking did not remain overlooked also by economists. In 1752 David Hume, in his book *Political discourses*, writes that “*...no bank could be more advantageous, than such a one as locked up all the money it received, and never augmented the circulating coin...*” (Hume (1752), pp. 248). He therefore indicates that the only possible monetary policy is the one with 100% reserve ratio. In the third edition of his *Essays and Treatises on Several Subjects*, he adds a footnote to the reference of above mentioned phrase, where he clearly indicates that he meant the case of the Bank of Amsterdam.

Later, in 1767, Sir James Steuart doubted that the bank still follows the principle. Whereas there were signs of violation of the principle, Adam Smith

in 1776 confirms in his book *An Inquiry into the Nature and Causes of Wealth of Nations* that “*At Amsterdam no point of faith is better established than that for every guilder, circulated as bank money, there is a correspondent guilder in gold or silver to be found in the treasure of the bank.*” (Smith (2008), pp. 72) Smith explained this manner by strong religion in this country, where the managers of a bank had to declare under oath that the amount in the vaults corresponds with the book amounts. He also explains that such faith in the Bank of Amsterdam was built over years, i.e. in panic of 1672 the bank was still able to satisfy every last request. Adam Smith also explains the setting of fees the bank had and indicates that the bank had great revenues from them.

Evidence from 1780s eventually confirms that the bank did violate the principle and that the reserve ratio declined to less than 25%. Huerta de Soto writes that “*The Bank of Amsterdam was the last bank in history to maintain a 100-percent reserve ratio, and its disappearance marked the end of the last attempts to found banks upon general legal principles.*” (Jesus (2009), pp. 106)

3.2 Famous Economists of 20th Century and 100% Reserve Banking

First one of the important economists³ of 20th century who developed the idea of 100% reserve banking was Ludwig Von Mises. In his first book, published in 1912, he argues about no difference between fiduciary media and money, and he proposes that “*Now it is obvious that the only way of eliminating human influence on the credit system is to suppress all further issue of fiduciary media*” (Mises (1980), pp. 446). What he means is that credit expansion influenced by man should be banned, since it causes changes in exchange ratio between money and other goods. He also marks modern organization of exchange (development of fiduciary medium) by words: “*It carries within itself the germ of its own destruction*” (Mises (1980), pp. 448).

In his book from 1928, *Monetary Stabilization and Cyclical Policy*, Mises further developed the idea by considering the impact of credit expansion on interest rates. In his words, “*The banks would be obliged at all times to maintain metallic backing for all notes*”, he proposed the system of banks, which would be banned from creation of fiduciary media. He also adds, that “*By this act*

³See also Holman (2005)

alone, cyclical policy would be directed in earnest toward the elimination of crises” (Mises (2002), pp. 81).

Further, in 1930, Mises described in his memorandum ⁴ the problem of gold standard as a problem of understanding the expansion of credit, which was only restricted to banknotes, as he stated “*The attempt was incomplete because its restrictions on circulation included only banknotes, leaving out of account bank balances on which cheques could be drawn*” (Mises (1990), pp. 90). He also states that the earlier proposed system would cause prices to decline slightly, which would be beneficial for most citizens. In his opinion, banking system with his requirements is superior to the system of that time, which “*...is beset with chronic inflation and recurrent cycles of expansion and recession*” (Mises (2009), pp. 719). In the conclusion, Mises says that “*The policy of the banks does not deserve criticism for having at last called a halt to the expansion of credit, but, rather, for ever having allowed it to begin.*” (Mises (1990), pp. 91).

In another of his books ⁵, Mises advocates 100% reserve ratio for banknotes and bank deposits once again after 10 years. He develops the idea further, by adding the requirement to leave the concept of a central bank. This requirement can be seen as a reaction to 1930s proposal made by the Chicago school, which required also 100% reserve ratio but still with fiduciary monetary base and the regulation of money stock in hands of the central bank. He explains that the problem lies in the connection of the central bank to politics, which could in times of “emergency” justify expansion in order to finance state.

In 1949, Mises’s book *Human Action: A Treatise on Economics* was first issued in English and it included Mises’ reaction to Irving Fisher’s proposal of 100% reserve requirement. Fisher proposed 100% reserve requirement but with the central bank still in place and with use of an indexed monetary unit. Mises reacts to this similar proposal by the explanation of possible government abuse and states that “*What is needed to prevent any further credit expansion is to place the banking business under the general rules of commercial and civil laws compelling every individual and firm to fulfill all obligations in full compliance with the terms of the contract.*” (Mises (2009), pp. 443) This is an important point, since Mises sees the existence of ideal banking system in connection with application of legal principles no different from those applied to other businesses.⁶

⁴*The Suitability of Methods of Ascertaining Changes in the Purchasing Power for the Guidance of International Currency and Banking Policy.*

⁵*Economics: Theory of Action and Exchange*

⁶The same implication as the one derived in the previous chapter.

In Hayek *et al.* (1984), another great economist, Friedrich A. Hayek, joins the discussion by mentioning the 100% reserve requirement. It was a reaction to Federal Reserve's monetary policy of that time, which was built to stabilize dollar's purchasing power in an environment of increasing productivity. As is suggested in Jesus (2009), this policy allowed Federal Reserve to make substantial credit expansion, which later led to the Great Depression. Hayek mentions the 100% reserve requirement in the footnote, where he talks about the same mistake in Peel's Act as Mises did. He expresses that "*The problem of the prevention of crises would have received a radical solution if the basic concept of Peel's Act had been consistently developed into the prescription of 100 percent gold cover for bank deposits as well as notes.*" (Hayek *et al.* (1984), pp. 29).

For the second time Hayek mentions the idea in 1937 in his book *Monetary Nationalism and International Stability*. By this time, the Chicago School has also provided the suggestions about 100% reserve requirement but with fiduciary monetary base. Hayek had a different opinion, and proposed the requirement to be accompanied by a return to gold standard, which would create "*sound monetary system effective at preventing government manipulation*" (Jesus (2009), pp. 724). Hayek further expressed, that he understands the need for completely new deposit banking system, which he finds at the same time attractive but also impracticable.⁷

Maurice Allais also suggested and supported 100% reserve requirement. He blames fractional banking for allowing "...the ex nihilo creation of money...", adding that "...all major crises in the nineteenth and twentieth centuries stemmed from an excessive expansion of credit, from promissory notes and their monetization, and from the speculation this expansion fueled and made possible." (Allais (1974), pp. 326). Although he understands the problem of credit expansion created by fractional banking, he proposes the same as the Chicago School did - the monetary base in hands of government and additionally the rule of two percent money base growth. There is an opinion of some authors,

⁷ Finally, Friedrich A. Hayek directed his analysis to money and banking once again in his book *Denationalization of Money*. There is a great discussion about the meaning of this book among academics and many fractional-reserve-free banking economists have used this book to justify their thoughts. Huerto de Soto has a different opinion, when he writes that "*there is no doubt that Hayek proposes a system of free banking and private issuance of monetary units and that ultimately he wishes to see the banking model with a 100-percent reserve requirement prevail*" (Jesus (2009), pp. 725). Author additionally backs up his opinion by citing Hayek's conclusion, where he suggests that majority of banks would have to follow 100% reserves for their deposits in free banking environment.

that while the thoughts of Allais on this matter have been initiated by Austrian business cycle and were influenced by Mises and Rothbard, he did not follow them by applying legal principles to banking.

The idea of 100% reserve banking started at the Chicago School in 1933, where several economists of this school circulated an anonymous proposal *Banking and Currency Report*. One of them, Albert G. Hart, published an article *The 'Chicago Plan' of Banking Reform* in 1935, where he clearly states that the origin of the initial proposal is in Hayek's proposal.

Jesus (2009) informs that another member of the school, Henry C. Simons, “comes closest to the thesis that a 100-percent reserve requirement is not a mere economic-policy proposal, but an imperative of the institutional framework of rules which is vital for the correct functioning of a market economy.” (Jesus (2009), pp. 731) Simons similarly requires that the new system be proposed, in which government will have control over monetary base. In his pamphlet⁸, Simons already speaks about the superior position of deposit banks, which would maintain 100% reserves. He writes that these banks would not be different from warehouses and their income would be based on service fees. He concludes that “*These banking proposals define means for eliminating the perverse elasticity of credit which obtains under a system of private, commercial banking and for restoring to the central government complete control over the quantity of effective money and its value.*” (Simons (1934), pp. 64-65)

Similar proposals were written also by Fritz Lehmann and Frank D. Graham and both were compiled into Irving Fisher's book *100 Percent Money* and later Henry C. Simons's and Lloyd W. Mints's works. This all led to Milton Friedman's publication *A Program for Monetary Stability* from 1959, where he proposed 100% reserve requirement for banking too. Friedman diverts in the opinion that interest would be paid on such deposits.

In Jesus (2009), Henry C. Simons is considered to be closest to the legal reasoning of the full reserve requirement. According to some authors, all of the economists from this school defended this system for practical reason, and that is the sake of predictability of monetary policy for the government. This reasoning of Chicago School is rather naive, as well as misunderstanding of the legal principle involved. Most shocking is but confidence of this school, that government is be able to practise a stable monetary policy.

⁸A *Positive Program for Laissez-Faire: Some Proposals for a Liberal Economic Policy*, published in 1934

3.3 Conclusion

This chapter provided an insight into the ideas of several important economists and their opinions on the complex problem deposit banking. It further confirmed that the consequences of changes, and more importantly, of legal adjustments, are difficult to assess and to address adequately. Fortunately, some authors derived similar ideas, which were later incorporated and acted as a source for the previous chapter, which, on the shoulders of giants (Rothbard and Huerta de Soto), help fully understand the concept of deposit banking.

As some authors suggest, the misunderstanding of the legal principle of deposit contract in case of money adjusted also other parts of banking sector. For the purpose of better comparison, a new method of analysis is proposed in the following chapter.

Chapter 4

Institutional Analysis of Banking

Previous chapters summarized the problem of modern commercial banking and presented the reasons why some economists call for adoption of 100% reserve ratio in commercial banking. They see the source of the problem in ignoring the properties of the deposit contract, of which the all-time availability of the goods deposited is an essential characteristic. Consequences of this act lead to money supply changes, which, as explained, could create business cycles within the economy. For these authors, abolition of fractional reserve banking is a logical step toward more stable years.

This proposition is considered to be valid in this thesis, however, applicable to society only at a certain point. One of the critics with different views, George A. Selgin, describes the evolution of free banking differently. He sees the fractional banking as logical step forward, as he writes that “*lending of depositors’ balances is a significant innovation that taps a vast new source of loanable funds...*” (Selgin & White (1987), pp. 8). Truly, if the society would distinguish and redefine deposit and loan contract to fit fractional reserve banking, deposits, as some sort of almost all times available loan to a bank, might act as a base for economic growth in development of fractional banking. The distinction is absolutely necessary, since, at the current state, property rights are clearly violated in banking.

Opinions on this monetary question are various and therefore an innovative approach will be developed in this chapter. In the following sections, we will present a theory, where sketches of new possibilities for monetary system are drawn. In every one of them we will point out the difference from the present state. The chapter starts by explaining the creation and evolution of institutions.

4.1 Economic Systems = Institutions

Every agent faces economic decisions. As microeconomics describes, agent takes into consideration every possible outcome of his decisions, then sorts these according to her preferences and by maximization decides on her consumption set. The more information about possible outcomes she has, the better the decision will be. In case of no transaction costs, the agent would always obtain information about all outcomes but the reality is different.

Obtaining information can be an expensive process and, therefore, the agent has to consider also the transaction costs. Since agents are bound by time, they always have to restrict also their information set. An agent who wants to consume would therefore not go to every producer of the good he wants and decide after a complete comparison. She would rather restrict herself only to the closest ones, since she allocated only some time to finding the best consumption good. The same applies to every decision she makes, hence her **decision set** is very restricted.

This characteristic opens up space for an institution. **Institution** is a concept or a method that helps to decrease the transaction costs in a process. For example, a firm can obtain the information about goods and provide them to other agents (or directly provide the goods). By economies of scale, such institution helps every agent widen her decision set to a size she could not achieve alone.

4.1.1 The Case of Supermarkets

For the purpose of illustration, an example of modern form of grocery stores, supermarkets, can be analyzed. The institution of a grocery store has evolved to the state of supermarket and the domination of this form in some areas lies exactly in its competence to provide a customer with the widest variety of products and all in one place. The customer's transaction costs of obtaining information about possible consumption goods and their prices are therefore minimized. This way, her decision set for consumption soars and everyone benefits from the supermarket's existence.

Unfortunately, the story does not end here. Since supermarkets are firms that have a goal of maximizing profits, they have incentives to use their superior position to pursue this goal. Competition has been driven out by their superior ability to provide the highest variety of products and therefore, after some time,

agents might stop or might not be able to compare prices in a supermarket and in any other store. Supermarkets can therefore increase some prices in comparison to competition without the agents even noticing.

In extreme cases, a supermarket could increase the price level¹ of provided goods to a point where agents would be better off without the existing supermarkets and with a smaller decision set for consumption. If they would find out, they would stop buying goods in supermarkets and this form of institution would cease to exist on the market.

This example illustrated that institutions also evolve but the **evolution** is not only one-way. Agents can turn back to previous stages of an institution if they perceive the costs associated with the use of the superior position of the institution to be higher than the transaction costs saved by this stage of the institution. The important implication is that there exists a way to minimize this behavior and that is the **threat** of abolition of this stage of an institution. Generally, all institution stages have to be always compared to other stages, since the ignorance and the consequent no-threat could lead to serious cost increase for agents.

4.1.2 Price Mechanism and Its Threat

For full comprehension, price mechanism as an institution, which is considered to be at the ultimate stage, should be also analyzed. The war between socialism and capitalism has been won because of this institution and therefore it would probably be most convincing to show weakness and threat to this institution.

Price mechanism is the great step in the market evolution². Within the current system prices are set in comparison to one good and therefore it is easier to compare values of other goods. Additionally, agents can simply overcome the problem of double coincidence of needs. These advantages brought us economic growth which could not be reached otherwise.

But since the emphasis is put on showing the elimination possibility of this stage of institution, an extreme case, hyperinflation, has to be considered. Webb (1989) provides a description of hyperinflation times in Germany when manufacturing firms used a Notgeld-company-store system, in other words, barter. These firms paid for labor by their products, since it was too costly to adjust wages to hyperinflation.

¹Supermarket could use also other adjustments to earn extra profit due to its superior position as e.g. product placement, marketing, etc.

²Previous stage of price mechanism with one numeraire is barter

It is visible then, as it was explained above, institutions are created on the market and they evolve. They help us achieve what we could not achieve without them. However, various stages have to be compared, since, as advantageous as the further stages of institutions can be, they can also cause an increase of other costs. It is therefore essential to always bear in mind that a further stage of an institution does not have to be the ultimate stage, since the costs could arise elsewhere.

4.2 Overview of Forms of Bank's Functions and Their Consequences on Preferences

In the spirit of the previous section, we now proceed to the historical analysis of banking from institutional point of view and compare situations with and without the current stages of institutions, which are connected to a bank. Our main focus lies with agents' preferences and their use in money flows.

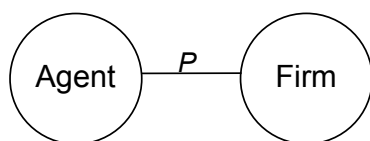
The business of deposit banking was demanded, and first created, mainly for two reasons. Deposit banking satisfied the role of a new payment system and also the role of a safekeeper of agents' money.

As soon as one commodity gained position of money in society, there immediately arose demand for a bank. As is well known, many different commodities were used as money³, from cattle, through shells, big rocks, to, finally, precious metals. Carrying a substantial amount of whichever commodity meant considerable transaction costs for people. Additionally, trade with far away cities meant an increase in transaction costs as well. These are the exact conditions for creation of an institution, a bank, functioning as a payment system. People, who would normally have to carry their money to use it in transactions, could now easily put it into the bank and just give payment orders to a banker. If people were not using the same banker, bankers made an agreement to settle their accounts periodically. By this function of bank, substantial transaction costs were decreased for people and so bank, as a payment system, came to dominate on the market.

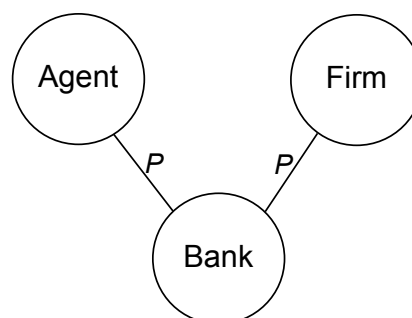
From the preference side of the story, introduction of a bank as payment system does not change anything. Agents are still making decisions based on their own preferences and with or without the institution preferences are the same. The diagram 4.1 shows the flow of preference in these two systems.

³See also Rothbard (1974)

Without payment system:



With payment system:



P - preferences

Preference flow:

- without payment system: Agent purchases goods according to his preferences by cash
- with payment system: Agent deposits cash into bank and purchase goods according to his preferences by transferring money from his account to firm's account

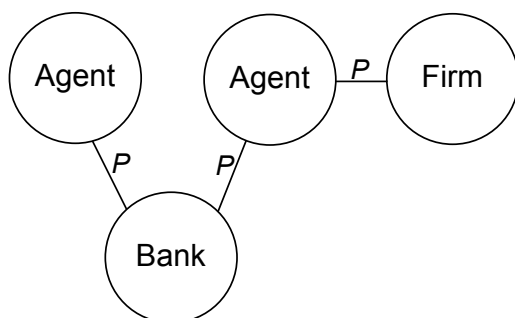
Figure 4.1: Diagram of institutions: Payment system

Functioning of a bank as payment system is therefore not committing any preference suppression.

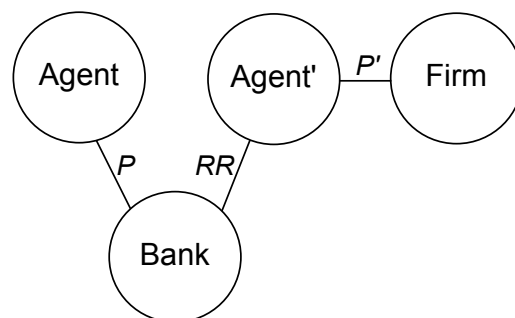
Another cost associated with the carrying of money arose from the risk of theft. Crime was common in our history and people with money had to always think about their security. Deposit banking with its safekeeping function allowed people to get rid of these costs and so it again dominated the situation without any institution. People could deposit their money to a deposit bank and for the service of safekeeping they paid an agreed fee. The size of the fee was always lower than the costs people would pay for their security, since deposit bankers guarded money for more clients, thus benefiting from economies of scale.

Deposit banking has been analyzed in two forms, current, fractional, and full reserve. No statements about the fairness and rightness of the two options is important in this section and only the examination of preferences inside both of these stages of deposit banking institution will be compared. Full reserve banking is characterized by a bank, which has the deposited money in its vaults at all times. Since money is not spent until the depositor withdraws it, no other agent's preferences are used in determining their destiny. On the other hand, fractional reserve banking means that a bank operates with reserves lower than what it originally received from the depositors. It uses

With 100% reserve banking:



With fractional reserve banking:



P - preferences

P' - preferences of other agent

RR - risk-return analysis

Preference flow:

- with 100% reserve banking: agent deposits his money into bank, after some time he withdraws them and purchase goods according to his preferences
- with fractional reserve banking: agent deposits his money into bank, bank lends part of this money to other agent while promising them to original depositor, and the other agent purchases goods according to his preferences

Figure 4.2: Diagram of institutions: Deposit Banking

some part of the money for lending to agents who need money and earning interest by this. From the preference side, the current fractional reserve banking intervenes in market exchanges significantly. Money is lent based on a bank's decision, risk-return analysis of the possible debtors, and consequently spent based on debtor's preferences. Money deposited is therefore used not just according to the preferences of the depositor⁴ but of the bank and the lucky debtor as well. Fractional reserve banking therefore creates a use for money, which was not originally meant to be used at the time, and not connected to depositors' preferences, and therefore it intervenes with the market conditions significantly⁵. Figure 4.2 shows the channels of preferences in the two forms of deposit banking.

Different costs caused the formation of another function of a bank, loan banking. Agents who did not have enough money to make a purchase or to invest had to ask other agents for their help. The other side, creditors, who had a surplus of money and were looking for possible investment, had to look

⁴In the case of full reserve banking, the deposited money would not be spent until withdrawn.

⁵Fractional reserve banking causes nowadays mainly money supply changes and also price level adjustment

for opportunities and gather information by themselves. For both sides the process of granting a loan meant a significant sum of costs, which are again an opportunity for a creation of an institution. Loan bankers, involved in matching of needs of creditors and debtors, earned profits thanks to the interest rate difference. Loan banking therefore helped reduce transaction costs for debtor and creditor and dominated on the market.

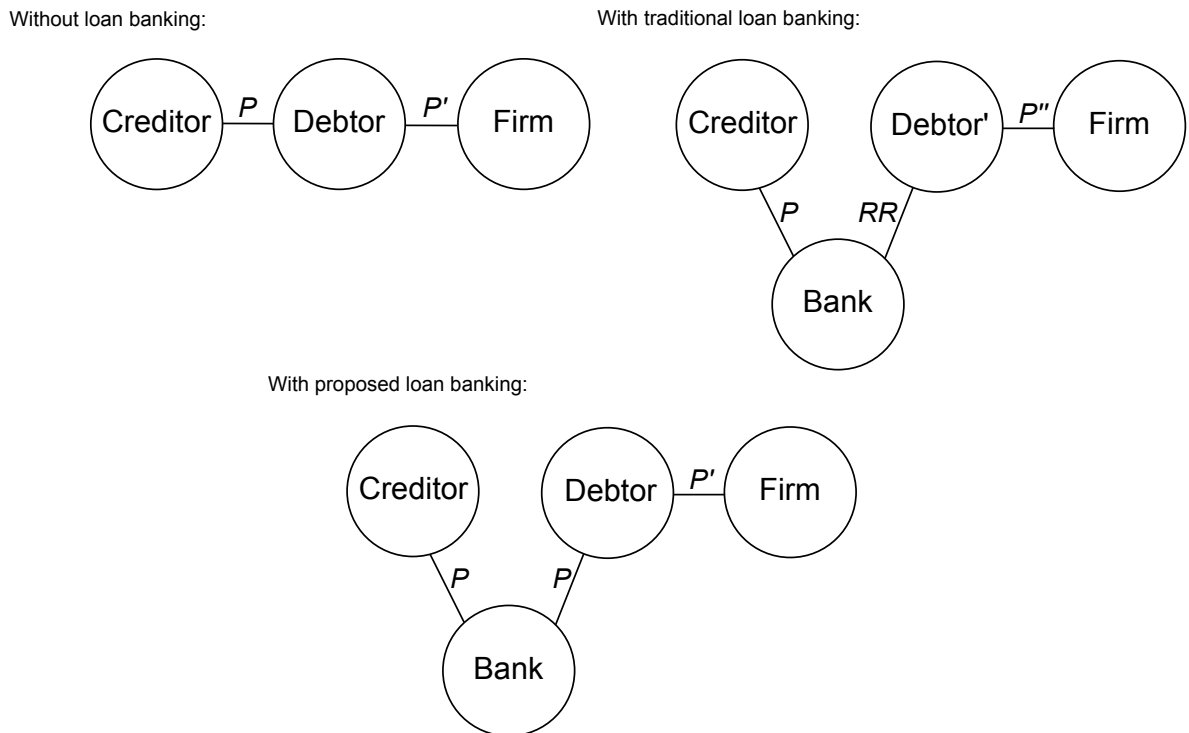
The form of loan banking, which is nowadays usual, can be described as matching demand and supply for money surpluses of customers of a bank. Bank receives money from customer by selling different products and it uses it on loans to other customers who need the money. Bank makes the analysis of debtors and, accordingly, makes decisions about loans. Preferences of the customers with surplus money are applied to interest rates on term deposit accounts and other products listed by banks. Conversely, customers with a deficit decide based on listed interest rates on loans of banks. If this system were not there, debtor and creditor would have to contract between themselves and therefore preferences of creditor would be fully implemented into decision. This costly process could be overcome by another form of loan banking, which deals with customers' preferences differently. This form of banking is our own idea of a possible banking formation and will be described more closely in the next section. For a temporary conclusion of flow of preferences in loan banking, we can see that traditional form of banking again intervenes with the flow of preferences significantly, since the money flow is decided based on bank's risk return analysis⁶.

4.3 Central Bank and Its Intervention into Preference Flow

For the purpose of this thesis, we will now focus on central banking. Events, which led to its creation, will be described briefly, since we can consequently analyze the impact it has on preferences. Generally, Bank of England is considered to be the first central bank in our history and therefore, description of its creation will be provided as in Rothbard (2008).

In 1670s, England, with its newly elected government and their imperial

⁶The term intervention is used due to the assumption throughout this thesis that the ignorance of creditors toward the flow of their money does not occur on the markets. As it is clear that the ignorance might occur we will additionally examine this matter in the following section.



P - preferences

P' - preferences of debtor chosen by creditor

P'' - preferences of debtor chosen by bank

RR - risk-return analysis

Preference flow:

- without loan banking: creditor chooses according to his preferences most suitable debtor and debtor consequently purchases goods according to his preferences
- with traditional loan banking: creditor saves money into bank, bank chooses debtor according to risk-return analysis and debtor purchases goods according to his preferences
- with proposed loan banking: creditor saves money into bank, bank provides list of debtors, creditor chooses debtors and debtor purchases goods according to his preferences

Figure 4.3: Diagram of institutions: Loan Banking

policy, set to conquer their big rival, France. Financial condition of state was not good and such an expensive war had to be financed somehow. Tax increase was not an option, since England just recently got out of civil wars, which were initiated by increased taxation. Public did not want to buy any more government bonds and therefore, William Patterson came with an idea of a new corporation, Bank of England. The deal was that the government will give some privileges to this bank and, in return, the bank will buy government bonds.

Bank of England was created in 1694 and became insolvent after 2 years. The next step of the government is considered to have "...set a grave and mischievous precedent for both British and American banking." (Rothbard (2008), pp. 179-180), since in 1696 Bank of England was allowed to suspend payments. Fractional reserve system of this bank was illustrated also by their books, where at the end of 1696 £765000 was backed by £35000 of cash. After one year, Bank of England succeeded in enforcing its position on the market by convincing the government to prohibit any new corporate bank to be established in England. Additionally, counterfeiting of its notes was now punishable by death. Prohibition of issue of demand notes by any other corporate body was put in operation in 1708 and it meant a further increase in the superiority of Bank of England. In the 18th century, the bank was threatened by competition several times but it persevered due to the government's allowance to suspend payments. At the end of the century, notes of Bank of England started to be used as reserves in country banks.

In the last years of 18th century, suspension of specie payments was done by one-third of all English banks and consequently also by Bank of England. This suspension lasted from 1797 to 1821 and from 1812 Bank of England (BoE) notes were used as de facto legal tender. After specie payments resumed, stocks of Bank of England declined by 16%. Consequently, in 1826, the government tried to liberalize banking industry, but only by permission for firms, outside 65 mile radius from London, to issue demand notes. Things changed more significantly in 1833, when government allowed firms in London to issue deposit notes. On the other hand, more important intervention was that notes of Bank of England were now privileged to be legal tender. Reserves, therefore, could be kept and redeemed in BoE notes.

A more invasive change happened in 1844 when the government adopted the product of Currency School, Peel's Act. This school successfully analyzed and

found source of inflationary times in fractional banking.⁷ Unfortunately, they did not successfully deduce the necessary steps toward more stable economy and provided Bank of England reasoning for monopoly power. The base of Peel's Act consists of rules, which do not allow any other bank to issue notes and which require from Bank of England to keep 100% reserve ratio. They somehow did not connect inflationary times with the existence of privileged Bank of England and therefore gave the "*legally enforceable monopoly*" to the hands of the originator. Another great mistake by currency school was that the 100% reserve requirement was to be applicable only to notes, not to demand deposits as well. They overlooked the fact that demand deposits are a part of the money supply and this allowed inflationary times to continue. The consequence of these mistakes was confirmed by suspension of 100% reserve requirement of Peel's Act by parliament in reaction to troubles of the banking market in 1847. Similar suspensions of the rule were done in 1857, in 1866 and during the fall of gold standard in 1914.

As it could be seen on the description of events which led to the creation of the "*first*" central bank, interventions in the market conditions were enormous. Since the evolution of central banking gained momentum in 20th century, several more areas of processes within banking have been intervened with and these will be analyzed below.

Story of Bank of England provides us a proof, which both authors, Rothbard and De Soto, emphasized, namely that the problem of deposit banking existed and ignited conflicts. Deposits were not used according to the deposit contract and it was well noted by market participants in our history. Fractional reserve banking was not always dominant on markets but due to intervention of central banks, this form can be found largely in modern world. In the spirit of the diagrams presented above, we can say that the guarantee of a central bank to act as a lender of last resort allowed commercial banks to use this form of deposit banking, the fractional one. This institution caused an increase in trust⁸ of banks' customers and therefore bank runs, as an ultimate threat for fractional reserve bankers, lost their power. Significant part of deposits is nowadays used for loans and since these funds were not initially meant to be used for loans, they are not sorted by preferences of bank's customers. Bank is the only one, who decides about the fate of these funds and therefore the

⁷Murray N. Rothbard compares the study of this school to his own book, since their ideas were very similar.

⁸By establishing a deposit insurance. Inspiration comes from Mlčoch (2000)

outcome for economy might be different from the situation where customers have the right to decide.

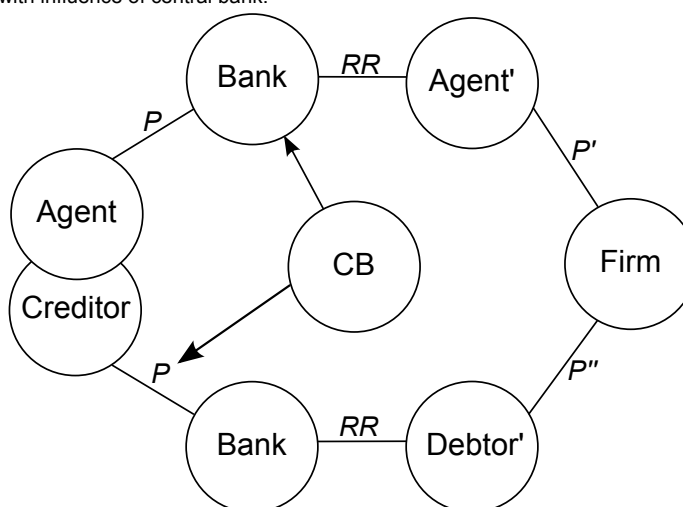
An illustration of the effect of bank's intervention in deposit banking might help the reader. Consider a city, where only one bank operates and all citizens have deposits in this bank. There is also a firm, which wants to build a factory. This factory would have significant negative externalities, which are well known by the citizens of this city. Majority of them does not want this firm to build the factory. Firm asks a bank for a loan and after a risk-return analysis of the project the bank decides to grant the loan. The question is: would it come to the same result - building of the factory - even if the firm had to ask every citizen for a part of their deposits?

Last century uncovered the damage that business cycles are capable of doing to economies. One of the main goals of economy therefore is to try to smooth these cycles. Economists created many theories concerned with them and some, whose propositions were at last applied, considered the central bank to be a tool for smoothing of the cycles. Another group of economists, Austrian School, uncovered one of the consequences of central bank's intervention in the so-called Austrian Business Cycle Theory. Central banks have the power to influence the interest rates, to be able to adjust the development of inflation. Austrian business cycles theorists⁹ have the opposite opinion. Namely that the central banks, by setting interest rates, influence investments, as a result of which business cycles are created. Here, this proposition is considered to be valid. With focus on loan banking, and as can be visible in the figure 4.4, central banks really influence preferences of savers to save and therefore intervene with the preference flow in this part of banking.

Above, we described the traditional form of loan banking as a process where customers decide to lend out their money according to the offered interest rates. Bank serves as an intermediary between creditors and debtors and by matching interest rate bank equals credit supply and demand. Since this procedure has been revealed to have sometimes problems with volatility, central bank intervened by several tools to adjust interest rates. The main purpose of it is to prevent inflation from increasing too much in times of economic booms and to initiate growth in times of recession. Serious implication of this policy is that demand and supply are not created by market forces but by artificial setting of the interest rates. Creditors' and debtors' preferences are therefore applied not to the offered interest rates, created spontaneously by interaction

⁹See also Garrison (2001)

Commercial bank with influence of central bank:



P - preferences

P' - preferences of agent' chosen by bank

P'' - preferences of debtor chosen by bank

RR - risk-return analysis

Preference flow:

- central bank influences deposit banking by supporting fractional reserve banking
- central bank influences loan banking by adjusting interest rate
- preferences of agent' might not be similar to preferences of depositor and central bank intervention allows it
- preferences of creditors are influenced by central bank

Figure 4.4: Diagram of institutions: Central Bank

of credit demand and supply, but on the preset interest rate. The overall flow of funds is therefore influenced heavily by central banks' interventions.

For illustration, again, consider a city where citizens have an account in one monopoly bank, supervised by a central bank. There is also a firm, which wants to invest in a project, which could considerably decrease some costs for citizens. Since in previous period the city had an enormous economic growth, the central bank decides to set higher interest rates, so as to decrease credit demand. Due to non-sufficient profitability, the project of the firm cannot follow through and costs are not saved for people. The central bank committed this intervention believing that not so many investments would be done, not considering that some of them might benefit the society. Is the proclaimed stability really worth the loss of some projects, which, if evaluated separately, could turn out to contribute to welfare of the people?

The figure 4.4 summarizes the impact of a central bank and also shows the state of the current banking practice. This section explained, that institutions, which are carried out by banks, can take different forms or stages of particular institution. Since 100% form of deposit banking has been widely discussed by several economists as a substitute for fractional reserve banking, we would now proceed to describe one other possible stage of loan banking - our proposed one.

4.4 Proposal for New Loan Banking Institution

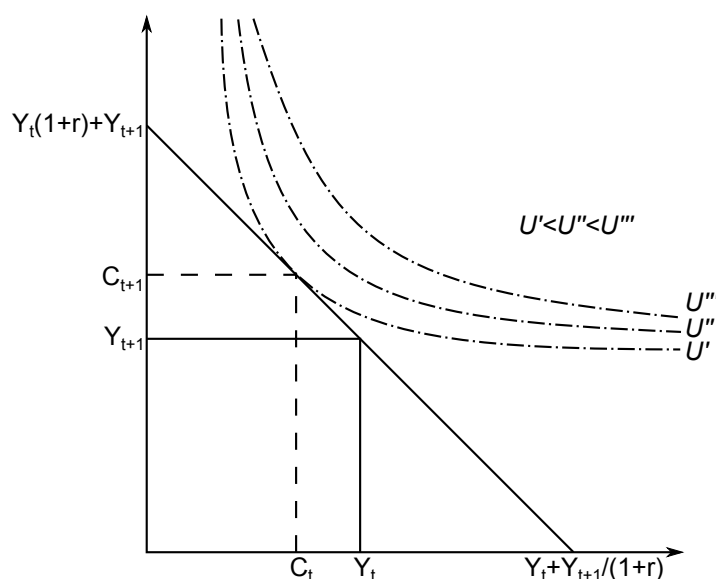
The state of loan banking today seems to be final, since no other form takes such a dominant place in our world. This conclusion is not shared by us and therefore, the following argumentation is presented to support our ideas on a possible different stage of loan banking institutions. The section starts with providing the reasoning for this new institution, which is followed by a detailed description of the processes within the monetary system adjusted by the proposed institution.

4.4.1 Reasons for New Institution

The microeconomic analysis of a creditor gives us a basic picture of how decisions about credit work. It all starts by the interaction between demand and supply of credit - creditor and debtor. They try to match their needs by adjusting the interest rate, which acts as price in this type of contract. Our focus is now on the creditor and for this reason this part begins with figure 4.5.

As it can be seen in figure 4.5, consumer's decision about credit depends on the offered interest rate and her utility function. She knows about her income in these two periods and therefore, she is able to adjust her budget constraint according to the interest rate. Increase in IR means higher future possible wealth and on the other hand, decrease in IR means higher current possible value of wealth. The volume of credit that she will exchange for future additional income is given by properties of her utility function. If, for the offered interest rate, the budget constraint touches the highest indifference curve in a point, where enough volume would be lent, a deal is made and the transfer of credit happens.

This illustration of the contracting process between creditor and debtor might be confusing in an important issue - variables. The utility function is



C_t, C_{t+1} - consumption in corresponding period
 Y_t, Y_{t+1} - income in corresponding period
 U - utility function

Figure 4.5: Budget constraint and creditor's choice

highly simplified and therefore, it might lead us towards the statement that the only thing on which creditor's utility depends is the interest rate. Modern finance theories persuade us that return (interest rate) is only one factor of the function, in which risk has almost identical importance. Risk in financial theory is connected to several fields and empirical studies confirm its importance. The aforementioned simplified model therefore suddenly becomes more complex. We can imagine it as the utility function changes its form for every single debtor and therefore, changes the value of interest rate needed for exchange.

The significance of change initiated by adding risk into consideration is high but we propose that similar effect might be brought about also by other variables. We do not want to name the exact ones, rather we would define a group of variables which is perceived by the public to have an impact on their lives. We would therefore call them, from this point on, variables with **social impact**.

Variables of social impact can be easily seen in world around us. We suggest here as an example environmental issues, which are nowadays a hotly discussed topic. The society, or at least a part of it, perceives negatively the ignorance of companies of environmental impact of their business. Generally, social impact represents an aversion of one person towards another person for whatever

reason. The main implication of this addition is that society perceives impact of people's and firms' actions in wider range than in connection with risk.

The proposition for loan banking therefore lies in the use of such wide channel of information (social impact) to contract more efficiently. If we would consider again the figure 4.5, the utility function now reacts to more factors than risk and therefore changes more radically. It changes with every debtor, since it is perceived by creditor differently.

One might argue that all other factors, the group called social impact, might be included in the risk factor. Since credit risk¹⁰ is constructed based on the probability of insolvency of debtor, this probability can be affected by social status of debtor. As this might be true, we would react by proposing another form of punishment¹¹, not initiated by insolvency, but rather by another characteristic of debtor. We can think of an example about a creditor, which has the option to lend money to his two colleagues. They are in the same position, so they have the same return possibilities and the same probability of insolvency. They differ only in one fact, that one behaves friendly to the creditor and the other one ignores him. We believe that this "social impact" factor would influence creditor's decision making and his utility function would not be the same for both of these debtors.

Regardless of whether the reader agrees with the previous thought on the change of utility function, the definitive difference of utility functions is brought by realization of intermediary in form of loan bank. Bank is a firm and therefore cannot record social impact of creditor's spending. Credit applications are therefore not examined with full information¹² from creditors and there is definitely a reduction in information channel in loan granting inside a loan bank.

For a clearer view of this principle, we can illustrate it by applying the same principles on consumption¹³. We assume that there exists an agent, to whom

¹⁰As mostly used for analysis in banking

¹¹Meaning the risk premium levied on debtor

¹²Full information would consist of social impact record from all creditors

¹³Some might argue, that savings cannot be compared to consumption and that this example is inadequate. We believe that a different attitude can be valid, namely that by lending funds we buy future consumption. It means that we are fully satisfied in present consumption and therefore we use the rest of our funds to acquire some maximized volume of our future consumption. As some might again argue that we only choose and consider volume, we have to again reply by adding another variable to future consumption. Our future consumption will not depend only on the volume of funds we will have available, but also on the variety of products. E.g. if we would save money to term account and bank would consequently invest in only some most profitable companies, the ones we do not like the production of,

we give our money dedicated to consumption, and she would consequently buy for us consumption goods. Since she does this business for more clients, she cannot fully incorporate preferences of everyone. She therefore makes an estimation of general “tastes” and purchase goods accordingly. The outcome of this step would depend on the level of differentiation of goods. If there would be small variety of goods, it is more probable that such agent would exist, since majority of customers would be satisfied after his estimation. In other case of high variety of consumption goods, the agent would not survive since tastes cannot be generalized and therefore customers would not be satisfied. This institution is therefore depending on conditions on market, but since there is high variety of consumption goods in reality, the proposed service would never turn out to be profitable.

Similarity between a loan bank and a consumption intermediary is not so clear. Consumption goods are directly consumed by people but debtor’s spending is not so directly recorded by the creditor¹⁴. Preferences are therefore stronger in case of consumption. But this does not mean that loan banking should take form of intermediary agent with reduced channel of preferences. It is important to realize that the form of banking is fully dependent on the perception of people towards outcomes of their debtor’s spending.

4.4.2 Public Perception of Loan Banking

As we work extensively with people’s perception of loan banking in the proposed model, this point has to be examined. For this purpose, the distinction provided in Dembinski *et al.* (2003) is useful. In French language, there are two separated words for investment: “placement” and “investissement”. The former means the action of investing money, i.e. simple passive possession for reason to earn. On the contrary, the latter express active possession, where investor seeks some form of running the company. The distinction is important for the analysis of loan banking.

Before actual justification of our propositions, it should be clearly determined, what are the options of the saver. Apparently, saver can save or invest her money into three businesses: loan banking, bond market, capital market.

we would not be happy in the future with higher volume of funds, but with only products of these companies. Connection between savings and future consumption is therefore possible and the comparison with present consumption is valid.

¹⁴There is not such strong connection between outcomes of debtor’s spending and creditor’s choice as between consumption goods and consumer choice

There are options for her to invest on bond and capital market by herself or by some intermediary in form of a fund. On the other hand, saving or investing her money through loan banking means only one choice - use of an intermediary in form of a loan bank. These are the options presented to every saver today.

While there is a possibility to influence a firm's behavior by direct investing or by requiring socially responsible investment from funds¹⁵, on bond and capital markets this feature is not so directly perceived in investing via loan banking. Expressed in defined terms, there is free moving scale for "placements" and "investments" on bond and capital markets. On the contrary, the share of "placements" seems to dominate and simultaneously scale seems to be sticky in investing through loan banking. We suggest that this phenomenon is caused by regulation.

As was previously suggested, a true deposit contract does not exist nowadays, due to the allowance of fractional reserve banking by regulation. On the other hand, public perception of expression *deposit* did not change to incorporate this "development" and therefore this expression is abused¹⁶ in modern commercial banking. In our opinion, the confusion of people from not knowing what exactly happens inside a deposit bank, spread to loan banking and that is the reason behind the domination of "placements" in the banking sector. This confusion can be particularly visible on definitions, where common expression for funds, which are lent to a bank for certain period of time and higher interest, is *term deposit*. On the other hand, for the same bank product in UK, the term *bond* is used.

Public perception of *term deposits* is, in our opinion, the true determinant of such stickiness in scale between "placement" and "investments" and of domination of "placements". As this proposition is rather strong, we would suggest it to be the area of research and continue by general consideration of loan banking in environment of dominating "investments" in this sector.

4.4.3 New Institutional Set-up: Loan Bank with Full Preference Channel

The aforementioned reasons give us an idea why a change of institution in loan banking might occur. In reality if such state would come, where people would

¹⁵Next chapter will be dedicated to this trend

¹⁶We mean only continuous use of this term, while the "deposit contracts" has different characteristics.

perceive the additional costs associated with allocation through reduced preference channel and these costs would outweigh the transaction costs in proposed loan banking, society could turn to our model (“investments” in banking) or to a similar one with higher use of preferences. In the following paragraphs, we present our ideas about how loan bank could lower transaction costs for creditors and debtors and still keep decisions on side of creditors. Further, we will talk about some implications that this system might bring.

Loan banking serves as an institution, which enters the interaction between creditor and debtor by decreasing their transaction costs. Without this institution they would have to find the counterparty by themselves, which could have serious impact on their costs. Therefore, it is highly probable that a loan bank would firstly help overcome searching costs. Proposed bank would therefore serve as a contact place for creditors and debtors. Both would come to the bank, they would give it some information and look at the list of possible counterparties. According to their preferences, they would decide to contact the most suitable ones.

As soon as this service would take place, another part of the whole process could be run by the bank. The next step in a credit transfer is the contracting phase, where agents try to get additional information¹⁷ about the opposite side, in this case creditor gets additional information about the debtor, and then adjust their requirements according to their preferences. Bank could overcome the costs of gathering this information by demanding more information from debtors but also feedback on debtors from previous creditors. Then the bank would provide this to the opposite sides. If agents would find the information provided by bank sufficient, direct interaction between them could be overcome and run by bank. Loan banking would most probably take form of a firm, where creditors can pick up debtors from list of debtors.

Last phase of credit transfer is the repayment period. Without a loan bank, transaction costs on creditor’s side are still considerably high. Creditor would have to check if the debtor is following contracted rules and therefore his monitoring costs would be significant. As an intermediary, loan bank has a serious advantage in monitoring costs, since it can provide this service to more creditors. We believe, that also these costs would be decreased by a loan bank. This phase of credit transfer works in the same way as in modern banking with

¹⁷Meaning that creditor would gather other information about debtor than his social impact perception of the debtor

reduced preference channel and is run by a loan bank, therefore, the transition would most probably happen also in the proposed institution.

First problem, which might arise in this institution, is demand for a greater volume of credit. We would think that since every creditor decides about his debtor, credit can be transferred only from one creditor to one debtor. Loan bank would probably overcome it via the pooling effect. Under their administration, several creditors can contract to one debtor but also several debtors can receive credit from one creditor. Big corporate loans can therefore be realized by decision of several creditors to participate on loan with their credit, the size of which would be decided according to proposed conditions of the corporate loan. Pooling effect is more probable since it happens also without loan banks but again, there is transaction costs advantage of a loan bank.

In a modern bank, the pool of credit, upon bank's decision making, allows for applying the effect developed by financial economists, diversification. Bank receives credit and consequently allocates it to assets so as to reach certain return for minimized risk¹⁸. This is one of the advantages of loan banking with reduced preference channel, since people normally would not have the opportunity to realize such wide diversification.

In case of the loan bank proposed by me, we, unfortunately, cannot say anything about diversification of credit risk. Every creditor decides about her credit and therefore it depends on her preferences how much credit risk she is willing to take. Overall diversification of credit risk within a bank could take place in case when every creditor would diversify and would prefer credit risk to be minimized. However, as was described, creditors inside this system have preferences towards other parameters of credit transfer too, i.e. above mentioned group, so-called social impact. Creditors could, for example, prefer to minimize negative social impact and therefore, credit risk would not be diversified away. If we redefine diversification to be applicable not only to credit risk¹⁹ but also to other negatively perceived parameters, the diversification of some mix of risks would take place.

In conclusion, the overall picture of a loan banking institution with full preference channel in reality should be drawn. Debtors would come to this bank and fill out credit applications with the required amount of information. Bank would consequently process these applications into some form of easy-to-

¹⁸Mostly credit risk

¹⁹Or redefine risk to involve also social impact

search list of debtors. Creditors, as customers of bank, would have access to this list and, according to their preferences, they would decide to whom and how much they want to lend. After their decision and in case of fulfillment of the amount demanded, the bank would transfer funds from the creditor's to the debtor's account. Later, bank would control repayment and regularly check whether debtors follow all covenants. In this process, bank would allocate principal to creditor's account and interest between the bank's account and the creditor's. After completion of repayment, creditor would provide some sort of feedback on the debtor, in order to be able to gain more information about the social impact perceived on the market. Decisions about loans would therefore be done purely by creditors, thus the bank would not have to consider risk exposure and other factors. Main concern of this bank would be the verity of information about debtors and competition should ensure that it would be most appropriate.

4.4.4 Implications of Loan Banking With Full Preference Channel

Creditor in Role of Quasi Owner

Law economics is part of economic theory, which in detail analyzes corporate structure of a firm. As accounting methods record, capital of firm is financed by creditors and owners. These two groups have different roles in a firm's operation and therefore they also have different relations to the firm. Basically, creditors bear less risk and have stronger rights²⁰ toward their predetermined income, whereas owners bear more risk and have rights to residual income. These differences cause variable monitoring needs by owners and creditors. Generally, the creditor is willing to participate in monitoring more actively, since she has a more detailed contract, whereas the owner, who gave her managerial right to managers, does not prefer too frequent monitoring. This result of modern corporate structure gives our proposed institution a new possibility of how to impact the behavior of firms on markets.

Today, it is a general consensus that corporations decide about future products on markets. Consumers usually do not know about possible technology and therefore cannot influence future variety of products. Due to advanced marketing and sales studies, big corporations are additionally capable of cre-

²⁰In form of an loan agreement with all covenants

ating demand for new products. It is therefore left to the market to offer the consumers new products, even though production of these products is financed by their savings.

Savings can flow to corporations in various ways but the size of the preference channel is not similar in all of them. Financing by commercial banks represent a substantial part of all financing and therefore, our proposed loan bank, which would allow preference to flow directly, would bring resolution to the aforementioned phenomenon by restoring the link between consumers and producers' investments also in bank financing. As law economics asserts, the creditor has more incentives to monitor the contracted behavior and therefore, she has a higher chance²¹ of affecting the day-to-day operation of a firm, compared to the owner, who gave his vote to managers, who decide about the firm's operations. Creditors in our new loan bank could therefore decide which investment of a firm will be done and therefore, which product will be on the market in the future. Products, which are preferred by creditors (consumers), would therefore have an advantage over other investments and therefore, competition would drive firms to accept the shift of the new product decision.²²

Reputation Model

Game theory is a part of modern economics, which deals with the behavior of agents in hypothetical games, which simulate market interactions. One type of these games is a sequential game, in which agents interact with each other but take into account also future periods and impact of their behavior on these periods. This type of game can be found almost in every life situation. The previous analysis of a relationship between creditors and debtors in the new banking system can be also examined from the perspective of a game theorist. A sequential game consists of interactions among agents in more than one period. Important implication is that agents act differently than they would in case of just one period, since they are trying to maximize their income over all periods. Aggressive or accommodating strategies can be used by agents, according to

²¹As suggested in Scholtens (2006)

²²The impact of corporations is already well noticed and counterpolicies have been initiated in recent decades. Investors started to be impatient about the social impact of their investments and so they developed a set of rules, which should be followed by corporations. These are nowadays united under one name, corporate social responsibility (CSR). Recently, there has been high growth in the area of investing in corporations with CSR policy and also, socially responsible investment funds have been created. Here, we mention these trends only to illustrate the preferences toward a change in reality and the whole topic of CSR will be described in more detail later.

their previous decisions. Reputation model puts reputation, among others, in the role of a determinant of an agent's future income, meaning that by her actions she influences her reputation and therefore her income. An agent facing this fact is motivated to act towards good reputation, which can consist of her social impact status.

Nowadays, in modern banking, reputation model is applied similarly, but with weaker threats than those imposed by our proposed loan banking. Firms or agents who borrow money are financially analyzed and their loan covenants are adjusted according to their records. The information gathered by bank, however, cannot be compared to the information of creditors, who are also consumers. Reputation model applied within current banking system is therefore not very strong, which is evidenced by the past financial crises. Several financial firms which were operating for decades bankrupted, leaving the society to suffer the impact. Similar cases could be definitely found in description of financial crises throughout a longer period in Reinhart & Rogoff (2009), where the similarity of these crises is shown satirically.

Let us therefore describe the widening of information within reputation model in our proposed banking system. Inside the new loan bank, creditors are able to choose from the pool of debtors, therefore, every creditor is informed about the project of this or that particular debtor. Every initial creditor is also a consumer, therefore, she will face the result of the debtor's project on her own. Thus, she definitely has a better knowledge about the social impact. This gives the proposed system a huge advantage, since reputation model is applied with more information. Debtors earn incentives to act socially responsibly by their reputation within society.

“Market Failures”

Another part of the economy where the new banking system might bring changes are market failures. The concept of market failures is highly used as an excuse for intervening with markets, since they are defined as instances, in which the market forces did not lead to optimal outcomes. The Austrian School does not consider them as failures and indicates that state interventions create inefficiencies. Since the contrary position is accepted more widely, this part reveals possible improvements of these “failures” caused by proposed loan banking.

The change, which the new banking system brings about, lies mainly in the

use of preferences, which exist on markets. By the definition of a market failure, preferences for other outcome exist²³ but they are not used. On the contrary, in following paragraphs we describe how the existing preferences could be used within our proposed system and might “solve”²⁴ market failures.

Imperfect competition is first example of a market failure. Competition, in some industries, might be so limited that the resulting market outcomes can be seen as inefficient. The problem of entering a market arises from declining average cost of production, transaction costs, imperfect information, strategic behavior of firms, and patent protection. The crucial point is that for all of these reasons, companies are able to reduce competition in their industry.

Competition, from this point of view, is seen as new firms being able to enter a market, but not seeing any space there for their existence - it is not profitable for them to enter. However, in our proposed banking system, creditors gain power to influence particular positions of firms on the market by adjusting their loan conditions. In situation where people or at least the creditors know about the abusing power of a prevailing firm, loan requirements might be lowered for a new firm. On the other hand, loan requirements of the prevailing firm might be hardened and these two conjunct effects could allow the competition to enter. Creditors’ aversion to debtors²⁵ is therefore crucial for the elimination of market failures in form of imperfect competition.

Another kind of market failures are public goods. These goods have two main characteristics, non-excludability and non-rivalry, which cause problems on supply side. Since, according to current consensus, no firm is able to provide them and still be profitable and efficient, public provision is common.

Problem of non-excludability can be described as a situation where nobody can be excluded from consumption of the good but somebody is able to evade paying. While our proposed system would cause lenders to invest in the firm that would be able to most successfully collect payments, there would still be some “black riders”. Additionally, the reputation model might apply and consumers/payers could get to know, who is not paying and therefore would incorporate this information into social impact perceived by creditors. We believe that such social pressure on these individuals could arise and it could convince most of them to pay. Another problem of public goods is non-rivalry. Since everybody consumes the same good, which cannot be at the same time

²³Since society perceive that other outcome should be present, state intervenes.

²⁴There would be actually only change of outcomes due to use of preferences.

²⁵Power to influence market positions of firms

provided by any other firm, there is no competition. As it is well known how creditors can affect competition, this problem might be solved in a similar manner²⁶. Both problems could be therefore solved by the proposed system and public goods could turn to be profitable, therefore they would not have to be provided by the government.

Market failure, described as situation where operation of one firm affects costs of another firm without appropriate compensation, is called externality. They exist due to transaction costs of contracting, as was explained in Coase (1937)²⁷. His theorem can be summarized into a proposition, which says that externalities would diminish in case of no transaction costs of contracting, as both sides would put every situation into contracts and therefore, the induced costs would be covered.

In the proposed scenario, transaction costs of contracting do not diminish, however, there might exist a way to solve the problem otherwise. The power of creditors could be again used to promote contracting between firms. A firm that causes costs to other firm (and this fact is well known to society)²⁸ might have a serious disadvantage on the loan market. In a different case, a firm that produces its products less costly due to operations of another firm might also face tougher conditions on the loan market. If preferences of creditors were sufficiently perceived in society in both cases, compensation of induced costs might be inputted into a firm's policy, in order to ensure better loan conditions.

Market failures, where the proposed model could have the most direct effect, are incomplete markets. Economists consider cases where people have demand for a certain service but due to low profitability the market does not even exist. In this case, it is obvious that there are such preferences for service and therefore they might be applied in our proposed system.

Incomplete markets consist in a society, which is aware of possible market and of a barrier in form of low profitability. In the new form of banking, creditors gain power to decide about investments and therefore, in case of sufficient positive social impact, projects with low profitability might be undertaken. Loan conditions could decrease to values where a firm might operate profitably. Power of creditors' preferences might therefore cause a creation of a market.

Another type of market failure is imperfect information. In some cases,

²⁶By strengthening the threat of using other provider.

²⁷Inspiration from Mlčoch (2005)

²⁸Preferences exist.

participants on the demand or the supply side might have different information, which could lead to an advantage in form of profit. This behavior could cause some serious results, e.g. serious health damage after misinformation about the constitution of grocery products etc. Popular explanation is that no one, other than government, can force producers to be truthful about their products.

In reaction to imperfect information, two forms of creditors' influence might take place. Social impact of a firm's action might reach such an outcome where creditors would induce low loan conditions for a monitoring company and so allow it to be profitable more easily. The monitoring company provides a kind of a public good and therefore, it might not exist otherwise. Second possibility is the requirement of creditors to act with corporate social responsibility and accordingly adjust loan conditions. This act would increase competition to an irresponsible firm and give incentives to it to follow CSR (as described by reputation model). Both of these effects support our suggestion that imperfect information might be solved by a new institution in loan banking.

Chapter 5

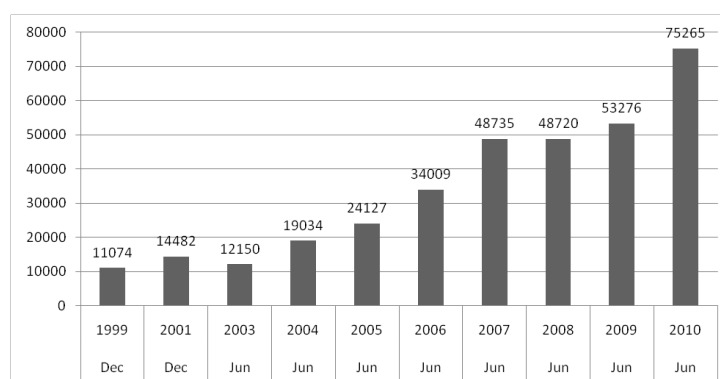
Empirical Evidence of Broadening of Preference Channel

Current state of banking was previously described as one that does not use all preferences¹. We realize that one may see it as a proof of dominance of this institutional form but we find the current trend of socially responsible investments, which proves the shift toward wider preference channel in capital markets, to be a predecessor to similar shift in the banking sector. For this reason, we present in this section research made in the area of socially responsible investments.

The term corporate social responsibility (CSR) is a phrase, which started to be used in connection with corporate policies in late 1960s and early 1970s. Production and operation of corporations have an impact on environment around them, meaning not only the nature but also the society. Consequences of corporate policies are therefore taken into consideration by public. As a result, corporate social responsibility became one of the tools how to unite goals of society and corporations.

There are several ways how the society can induce corporations to act according to CSR but here we are interested only in one, through financing. Investing in companies with a better CSR status has been an idea that spread among investors in last decades, leading to the creation of socially responsible investment funds (SRI funds). The data below provides a picture about their development.

¹There is a higher share of “placements” than “investments”



Source: Vigeo - Green, Social and Ethical Funds in Europe. 2010 Review

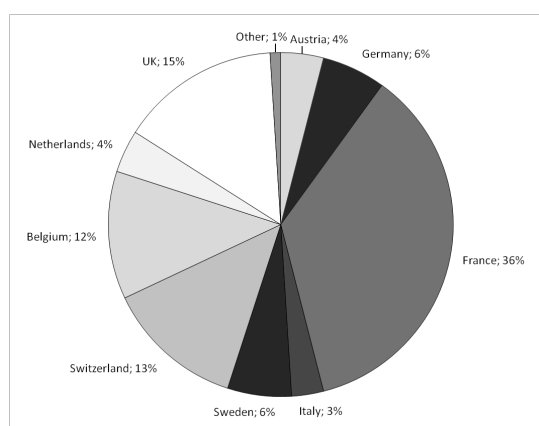
Figure 5.1: Size of assets in SRI funds in Europe

5.1 Overview of SRI Funds Market in Europe

According to Vigeo, a leading rating agency in responsible performance area, there were 879 SRI funds altogether in Europe at the end of 2010. While this figure alone is not important, it illustrates the already mentioned growth of SRI industry, since in 2009 there have only been 683 SRI funds. True evidence of growth, however, lies in the size of assets managed by SRI funds. Last year, European SRI funds managed 41% more money than in previous year, suggesting that financial crisis did not stop the enormous growth of this industry. The overall development of the size of assets managed under SRI funds can be seen in figure 5.1.

As can be seen from the graph, the potential of this industry is far from reached and therefore, it can be assumed that SRI funds will become one of the major forms of investment products in the future. While the size of assets is still being analyzed, it could be interesting to look at homogeneity of SRI funds around Europe. Figure 5.2 shows the percentage of assets allocated to each country.

From the figure 5.2 it is visible that the demand for CSR investments is variable throughout Europe. French investors perceive strongest incentives towards CSR investments, whereas assets managed under SRI funds in Germany account only to 6% of the total. Reasons for such variety might lie in cultural differences or other factors but one particular thing can be noticed. All of these countries are highly developed with high GDP per capita and therefore, there could be some shift in preferences toward CSR with growing income. Logically, people in highly developed countries have more time and opportunities to de-



Source: Vigeo - Green, Social and Ethical Funds in Europe. 2010 Review

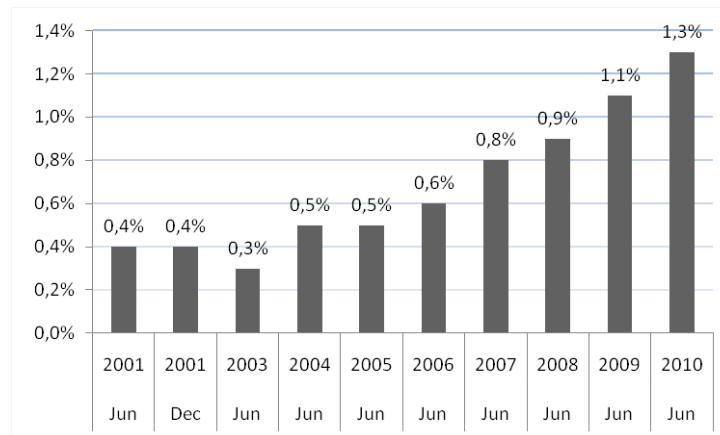
Figure 5.2: Assets in SRI funds per country

velop those values that lead them to have inclinations toward CSR. Since the basic parameter of this industry is now clear, the next variable should show whether SRI funds have a chance to influence financial markets. For this purpose we provide a figure 5.3 containing percentages of assets in SRI funds in comparison to UCITS². Time trend of this variable shows growing demand but overall, assets under management of SRI funds correspond only to 1.3% of all UCITS. Power of SRI funds to influence CSR status in society is therefore still too weak and these funds probably still do not change the situation much.

While the picture does not seem good from previous description, it might be helpful to also take a look at other variables. Since there are two types of agents with influence over the management of a corporation, typology of these funds might reveal some hidden trends. In figure 5.4, there is a clear trend inside SRI funds toward the use of fixed income financial instruments. The growth of importance of fixed income instruments is expressly shown in change from 20% to 38% from year 2003 to 2010. This trend is explained by authors as a turn toward conservative financial management of these funds, due to market turmoil. In terminology of this thesis, the shift causes an increase in the share of “investments” vis-a-vis “placements”.

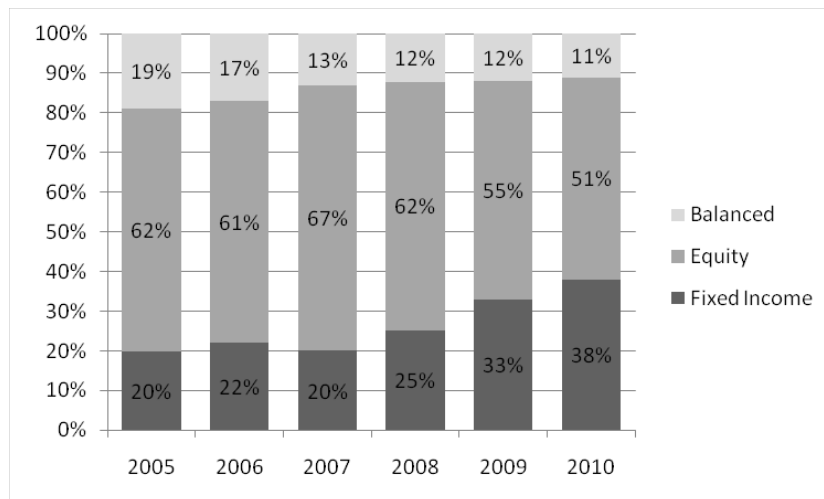
To conclude the statistics of SRI funds, summary of trends might be useful. In investment areas, the term “corporate social responsibility” is getting more and more attention and this is proved by high growth of this industry in Europe. The overall importance of the funds managed in accordance with these rules

²Undertakings for Collective Investment in Transferable Securities



Source: Vigeo - Green, Social and Ethical Funds in Europe. 2010 Review

Figure 5.3: European SR funds assets over total UCITS



Source: Vigeo - Green, Social and Ethical Funds in Europe. 2010 Review

Figure 5.4: SR Funds Typology Breakdown

is still low but the growth indicates promises toward higher impact of SRI funds. Recent years show promise to our proposition for the banking sector, since the preference channel widens and there are more “investments” than “placements” on the capital market. If it turns out to be true, widening of the preference channel could happen also in loan banking and the socially responsible “savings” might force CSR there too.

5.2 Research on the CSR Topic

Recent growth of the CSR industry did not stay unnoticed by the academics and there have been many publications focused on the topic of SRI funds lately. Research in this area tests certain causalities that might reveal more details about the proclaimed situation of the preference channels on the market. Since the important part of the proposed model was reasoning, this section starts with the survey of SR investors presented in Lewis & Mackenzie (2000).

The paper is motivated by a growing literature from among psychologists, sociologists, philosophers and economists, which deals with “...*dual explanation for behaviour*”, meaning that “*people are motivated in the economic realm by self-interest (whether narrowly or broadly defined) and moral considerations as well.*” (Lewis & Mackenzie (2000), pp. 180). For the purpose of revealing the reasons of investors to invest ethically, paper summarizes the questionnaire³ taken by 1146 investors of SRI funds. Demographically, authors identify ethical investor to be “*frequently middle-aged, middle-income professionals who take an active part in the established political parties, religious and charitable institutions, and pressure groups*” (Lewis & Mackenzie (2000), pp. 183). Eighty per cent of respondents have a portfolio of both ethical and non-ethical investments and the rest claim to have only ethical ones. Questions about price elasticity unveiled that majority of the investors remain ethical even if the return on ethical investments is 5%, compared to 10% return of the non-ethical ones, but one third would reduce their invested amount. This low downward price elasticity shows that other than financial reasons have a higher value in the decision making among investors⁴ and therefore, this study shows the potential positive attitude of people toward institutions with wider preference channels.

³Respondents belonged to 2 biggest UK funds, which distributed questionnaires along with a performance summary. As an incentive, authors guaranteed 50p to be paid to charity in case of filling out of the questionnaire.

⁴As was assumed, this somehow confirms that people put more value on social impact variables in their investments.

Research about the SRI topic has been done also in the theoretical field. As a complement to the analysis above, the means how ethical investing can be established among people are presented in Dembinski *et al.* (2003). First one is *value- or conviction-based ethics*, where investors refuse to invest into companies with unethical practices or impact, therefore, investors use their “vote by exit”. On the contrary, *fructification oriented ethics* proceed from investment into particular ethical project and an investor holds her stake for a particular term of the project. Another way of ethical investment, *impact- or consequence-based ethics*, can be described as an attempt of the investor to induce ethical constraints by corporations themselves. This way, investors try to levy CSR constraints not only on the company but on the whole investment market. Within this possibility lies an idea, which was described above as reputation model, where “*The company’s reputation with investors but also in the eyes of a wider public is the main stake involved in the power struggle.*” (Dembinski *et al.* (2003), pp. 208). The last form is *ethics as a financial selection criterion*, which is significantly different from the previous ones. Ethical investment is not considered a responsibility in this type but only a way toward better financial performance. Investors believe that companies with better ethical conscience will have superior financial performance. This analysis of possible means contributes to the topic of this thesis by presenting more options how ethical investing could be established also in the banking sector.

The role of reputation in financial relations is examined and confirmed in Karlan (2007). The paper deals with the impact of social connections on the default rates in poor countries. The research is possible due to recent development in banking in poor countries, where new possibility of lending has been created. The idea behind this is a group of people bound to each other in such way that if one individual fails to repay a loan, others will repay it for him. This way the reputation model within the group gains greater importance and monitoring between members is secured. The New York Times describes the success of this development by stating that: “*Peer pressure can be an immensely strong force, and the Grameen Bank has figured out how to make it work in the cause of economic development*” (Karlan (2007), pp. F53). The strength of social interactions in contract monitoring and enforcing is further analyzed using data from FINCA-Peru and the results confirm the hypothesis “*that monitoring and enforcement activities do improve group lending outcomes, and that social connections, broadly defined, facilitate the monitoring and enforcement of joint liability loan contracts.*” (Karlan (2007), pp. F78) Lower costs of gathering in-

formation and social capital, in form of trust between them, is indicated to be the main driver behind this result. The data also confirms that there is an impact of cultural and geographical similarity on the improvement of lending outcomes. In conclusion, the author of this paper further suggests that his study can be used “*to a larger issue of how nonmarket institutions and forces can help overcome market failures.*” (Karlan (2007), pp. F79). While this paper is not directly connected to CSR, the proposal for the use of informal networks to improve development fits into the topic of this thesis. The above presented reputation model is derived exactly from such informal network.⁵

Social capital⁶ and its consequences in loan contracting form another part of recent research. The hypothesis states that the contracting parties, which share the same beliefs in some measure, might contract with better financial conditions. This question is analyzed in Kim *et al.* (2009), where the role of common belief is compared to CSR policy. The database of 4554 different facilities⁷ is processed and the results show that one standard deviation worth of increase of borrowers’ CSR leads to 2.1 basis point reduction in the loan spread. On the other hand, an increase by one standard deviation of CSR on the lender side produced 2.8 basis point reduction of the loan spread. Additionally, matching of socially responsible lenders and borrowers brought additional reduction by 2 basis points. The data therefore “*...suggest that matching social responsibility positions of both lenders and borrowers provides superior debt financing conditions.*” (Kim *et al.* (2009), pp. 5). The suggestion, therefore, means a possibility for wider preference channel to influence credit conditions, which was proposed in our model.

The most popular topic in the field of CSR is the impact of CSR adoption on financial performance of companies⁸. Many studies have been written to answer this question but the summary provided in Lammertjan (2008) should help to derive conclusions on this particular topic. This dissertation thesis summarizes recent studies of financial performance and it also presents an innovative approach to economic rationale behind the variety of results. Survey of 95 empirical studies made in Margolis & Walsh (2001) acts as a source

⁵We consider it to be possible that with the proposed loan banking system in function people would be additionally encouraged to enhance the use of informal networks and therefore the effect on development could be even higher.

⁶As previously defined, reflects trust between parties due to any reason

⁷These correspond to 175 corporate borrowers in period 2003-2006

⁸See also Lundberg *et al.* (2009)

and the variable results⁹ are explained by non-consistent measures of financial performance used in these studies. The thesis starts from the definition of CSR suggested in Heal (2005), which says that “*corporate social responsibility involves taking actions which reduce the extent of externalized costs or avoid distributional conflicts*” (Heal (2005), pp. 393). Based on this approach, two effects of CSR are blamed for causing such difference in empirical results. One of them is the increase of costs due to internalization of externalities and the contrary effect is the increase in value of stocks for investors.

For the purpose of better explaining the impact of CSR on financial performance, the author of the thesis develops an economic model based on the Diamond model from 1967. He derives the resulting propositions about those financial ratios which are most used in studies. These are the market-to-book ratio, return on assets and stock returns. The propositions can be simplified in the following fashion¹⁰:

1. the market-to-book ratio of a socially responsible firm is always higher than the market-to-book ratio of an irresponsible firm with similar characteristics
2. the ROA of a socially responsible firm is always larger than the ROA of an irresponsible firm with similar characteristics
3. the relation of risk-adjusted stock market returns of a socially responsible firm and of an irresponsible firm cannot be expressed

All of these propositions are in line with Jensen’s argument that a firm’s objective is to maximize its value and not its profit. There exists a big difference between these two goals of a firm and this is by some authors considered to be the source of variation in empirical studies.

The author of thesis consequently processes surveys of empirical studies made in Margolis & Walsh (2001) and in Orlitzky *et al.* (2003). He selects those with the above mentioned financial ratios and examines whether they are in line with the propositions. Table 5.1 summarizes results of the analysis. Positive relationship can be found in the first two ratios, exactly as it was proposed. Stock returns are more difficult to analyze, since some studies made

⁹The relationship of CSR and financial performance was positive in 42 studies, neutral in 19 studies, negative only in 4 studies and mixed in 15 studies

¹⁰We do not consider it crucial to describe the model and therefore, the propositions are not cited

Financial performance indicator	Number of studies	Positive relation	Negative relation	Mixed relation	No relation
Market-to-Book	5	5 (100%)	0 (0%)	0 (0%)	0 (0%)
Return on Assets	36	27 (75%)	0 (0%)	0 (0%)	9 (25%)
stock market returns	27	7 (26%)	9 (33%)	3 (11%)	8 (30%)
Total	68	39 (57%)	9 (13%)	3 (5%)	17 (25%)

Table 5.1: Overview of empirical findings

comparisons of different firms' returns and some made event studies. However, the author's conclusion is that also this measure is in line with his proposition.

Economic model of impact of corporate social responsibility on financial performance of firms represents a great analytical tool for future empirical studies. With this model, confusion from different studies can be overcome, since it emphasizes the difference in picking a financial measure and its development due to CSR. The crucial idea behind this model lies in two contrary effects influencing the development of financial ratios: an increase of costs for a firm and an increase of value of a firm. The confirmation of these effects suggests that, indeed, CSR policy does have an impact on financial performance and therefore, it demonstrates the power to influence the application of wider preference channel.

5.2.1 CSR in Financial Sector

Previous paragraphs analyzed the effects of CSR in the economy and confirmed the success of CSR application. Therefore, this trend has not been ignored by financial institutions either. There have been a few programs towards CSR policies in financial institutions and here we provide a summary of three of them, namely the United Nations Environmental Programme Finance Initiative; the United Nations Principles for Responsible Investment; and the Equator Principles, from Hoepner & Wilson (2010).

The United Nations Environmental Programme Finance Initiative (UNEP FI) originated in 2003 from a merger of the United Nations Environment Programme Financial Institutions Initiative on the Environment (UNEP FII) from 1992 and of a similar initiative from the insurance industry. UNEP FII was meant to boost the dialogue about sustainable economic and environmental development and the mission of UNEP FI is *“to identify, promote, and realize the adoption of best environmental and sustainability practice at all levels of*

financial institution operations”¹¹. The number of signatories reached nearly 200 from over 40 different countries in time of writing of this thesis.

In 2005, UNEP FI, together with the UN Global Impact, organized a working group of experts, which in April 2006 issued the Principles for Responsible Investment (PRI). It provides a framework for institutional investors to assess the environmental, social, and governance aspects of their investments. This act was well accepted on markets and in September 2010, 805 institutional investors from 45 countries agreed to follow PRI. The overall value of assets under management of companies which adopted PRI reached the \$20 trillion milestone, which represents 20% of all assets under professional management.

Last initiative in the financial sector is the Equator Principles, which was developed to ensure social and environmental aspects of project financing by a dialogue between banks and the World Bank Group’s International Finance Corporation in 2002. The Equator Principles was initially signed in 2003 by 10 multinational banks and by the end of 2007 approximately 70 institutions were following these principles, jointly accounting for more than 70% of all project financing.

The Equator Principles are applied to financing projects with a total cost of more than \$10 million and consist of guidelines for environmental and social responsibility. Projects are divided into groups, in which various documents are required, such as Environmental Management Plan (EMP) or Environmental Impact Assessment (EIA). In high-impact projects consultations with local stakeholders have to be undertaken and together they have to develop additional EMP, which secures mitigation and monitoring of social and environmental risks. Successful candidates have to make annual reports on progress and performance, with respect to implementation.

In connection to the Equator Principles, it is examined in Lammertjan (2008), whether or not the financial institutions which are signatories behave differently from non-adopters in the business of project financing. This hypothesis stems from the critique of banks by Banktrack, which accused them from signing in only for the purpose of greenwashing of business in developing countries. The comparison of institutions is made only with respect to financial variables, since there is no model to describe this behavior. The main finding is that the adopters of the Equator Principles are larger and better rated banks. The author suggests that this observation illustrates the strategic move towards EP of banks, which are “in spotlight”. Financial performance of the opposite

¹¹UNEP FI’s (2010a: 1)

group does not seem to be different but some evidence suggesting an increase of costs by adoption of these principles can be found. Real costs of adoption by larger banks are, however, offset by a decrease of reputation risk, as the author suggests, but this cannot be easily observed. There are also several event studies, which test the reaction of investors to the adoption, processed in the thesis. Results show no negative reaction of shareholders. Important note for this and for the previous results is that project financing constitutes only a small part of the banking business. In conclusion, the author suggests that the real impact of adoption of these principles cannot be assessed, since reliable data are not available and therefore, he encourages development of financial reporting toward social and environmental impact.

A similar proposition as the one from which our model stems can be found also in Schroder (2007). Just to remind, a corporation is able to get financing by several means: stock market, bond market and from banks. CSR¹² started in the stock markets. This paper describes a possible success of an expansion of CSR to bond market and to financing by banks. Author concludes that “*there are numerous reasons to believe and expect that VC¹³ and bank lending potentially have more impact on CSR than the equity market*” (Scholtens (2006), pp. 29). This article therefore confirms that the idea that loan banking with a wider preference channel might bring better results for the society is shared also by other authors.

¹²Widening of the preference channel

¹³venture capitalists

Chapter 6

Comparison of Potential Costs of Loan Banking Systems

Institutional view revealed the potential of particular forms of banking institutions to decrease transaction costs. Since the main proposition is, that there might occur a situation, in which agents would start to perceive banking differently and decide to apply their preferences also through banking, it would definitely be helpful to take a look and compare costs incurred inside both of these banking systems¹. This chapter is therefore devoted firstly to the theoretical examination of these costs. Subsequently, for illustration purposes, size of the funds under direct decision making of commercial banks is approximately quantified to show what share of total investments do these funds have and how important widening of the preference channel might be.

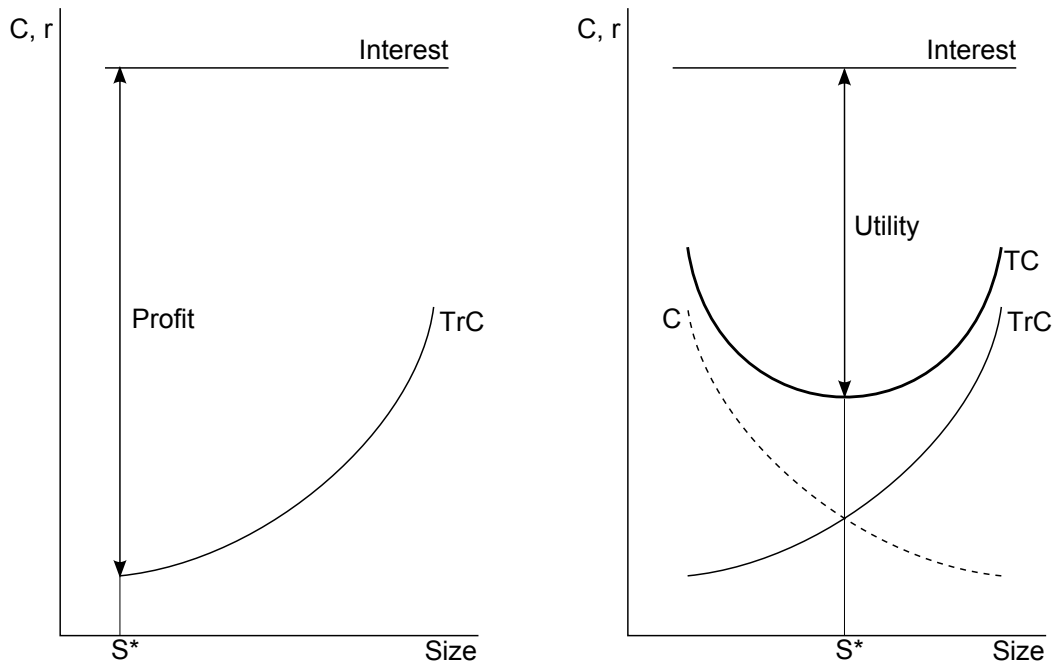
6.1 Theoretical Analysis of Costs within Both Banking Systems

The starting point of the cost comparison lies in finding the relations between the particular costs and the size of the preference channel. As it was explained above, substantial transaction costs arise in contracting between creditors and debtors and therefore, it should be straightforward that transaction costs increase with widening of the preference channel. On the other hand, the second type of costs, which influence the outcome, are the costs associated with allocation through a narrowed preference channel. These costs could be defined

¹Current banking system and the proposed one

as all transaction costs arising from suboptimal² investment decisions made by commercial banks. These could consist of defaults of companies that turned out not to be profitable on the market, environmental and social impact of companies, etc. In general, these are those costs that people perceived to be the result of wrong allocation, carried out by banks according to their narrowed preferences. It is therefore clear that, on the contrary, these transaction costs, arising from a narrowed preference channel, decrease with widening of the preference channel.

The balance between these two types of costs is therefore crucial for determination of the optimal size of the preference channel. From these definitions both situations on the market can be illustrated in figure 6.1.



C - costs, r - return, TC - transaction costs, Size - size of preference channel

Figure 6.1: Cost analysis of different banking systems

Left side shows the current situation in banking. It is assumed that returns do not depend on the size of the preference channel in the figure. Since there are mostly only transaction costs arising from contracting that takes place on

²Optimality not in the sense of financial efficiency but in the sense of overall efficiency, perceived by market participants

the market, maximization leads to outcome with the preference channel being as low as possible.³

On the other hand, right side of the figure 6.1 shows a different situation. Market participants suddenly perceive other costs associated with allocation through the narrowed preference channel. The sum of both costs now has a U shape and therefore, maximization leads to an optimal situation with a wider preference channel. Since the costs associated with allocation through a narrow preference channel do not have to be realized, merely perceived by people, this fact is expressed by using utility instead of profit.. We believe that modern economics sees creditors as profit maximizers but the truth is that they should be viewed as utility maximizers, since they are capable of considering also determinants other than profit on this market.

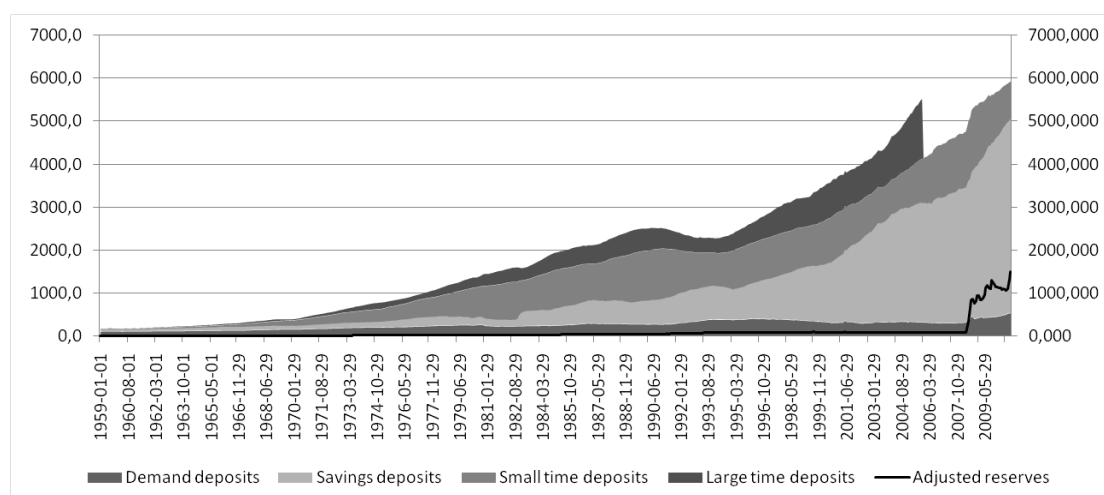
6.2 The Approximation of Importance of Proposed Problem

Previous section revealed the reasons why there could be different forms of banking institutions on the markets. There is a bold proposition of costs, associated with allocation through a narrow preference channel, existing and being enough to influence the form of loan banking institution . An approximation of the source of these costs, funds allocated by banks, could indicate the importance of the proposed costs.

The main sources of financing of today's commercial banks are their customers' deposits and bonds (%). Since the focus of this thesis is on the relationship between a customer and a bank, only data concerning direct deposits will be used for the estimation. For this purpose we used the data on demand deposits from M1 monetary aggregate, savings deposits and small time deposits from M2 aggregate and large time deposits⁴ from M3 aggregate. The source of all this data is the Federal Reserve of the United States of America. Since there are certain required reserves and also excess reserves of banks, we use the parameter-adjusted reserves to show the resulting volume of the funds allocated by banks. Figure 6.2 shows the development of these aggregates over years and simultaneously it depicts the value of the reserves, which are not

³We believe that this example also shows the general consensus in economics that decision making by banks brings lower costs for people, which is why this form of banking is preferred.

⁴Fed stopped publishing the M3 aggregate in 2006 and therefore, the data on large time deposits is only available until this year.



Source: Federal Reserve Economic Data
(<http://research.stlouisfed.org/fred2/>)

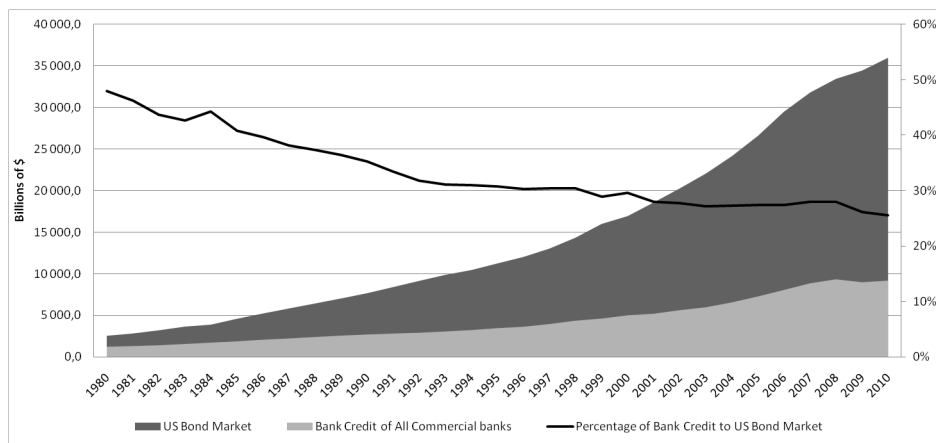
Figure 6.2: Development of funds allocated by commercial banks obtained from customers

used. The volume above the adjusted reserves line, therefore, shows clearly how huge these funds, deposited by banks' customers, are.

As is known from corporate finance, commercial banks can acquire additional capital through several methods. Funds, which are allocated by decision making of a bank, therefore increase because of this. For the estimation of overall size of funds allocated by commercial banks, we will use the variable *bank credit*⁵. Bond market outstanding will be used as a comparable measure. Figure 6.3 shows the relation of the two.

Overall, the funds allocated by commercial banks made up 26% of the entire US bond market in 2010 and even more in the previous years. It means that, hypothetically, commercial banks are able to influence more than a quarter of the bond market. This quarter could get financed only by application of a basic risk-return analysis of commercial banks and therefore, one quarter of the projects, for which those funds were demanded, are undertaken as a result of decisions of bankers. This means that one quarter of the future outcomes of present investments are chosen by bankers, not by the public, and that a quarter of the future products or services, financed through the bond market, are determined by commercial bankers. The main question for the reader remains: should this quarter really be decided by bankers for the society? Would the

⁵Defined as: All loans, leases, and securities held by commercial banks.



Source: Federal Reserve Economic Data
 (<http://research.stlouisfed.org/fred2/>), SIFMA
 (<http://www.sifma.org/research/statistics.aspx>)

Figure 6.3: Comparison of funds allocated through narrowed preference channel

society not have different preferences about projects financed by this quarter?

Chapter 7

Conclusion

The importance of studying the roles of banks in economics is nowadays needed more than ever. The global financial crisis showed the dependency of other parts of modern economies on the financial markets and that their current setup is not flawless. Governments chose to adopt more regulation to cover the newly revealed holes in the system and therefore, this thesis tries to answer the question whether or not it is really necessary to keep the current banking practice with all the regulation alive.

The thesis builds firstly on ideas and analyses of famous economists, mostly from the Austrian School. First point of interest is deposit banking. Chapters 2 and 3 showed that the current practice of fractional reserve banking lacks solid legal basis. Differences between the deposit contract and the loan contract seem to disappear when it comes to banking. Functioning of banks on fractional reserves is allowed through the deposit insurance of a state. However, this way the two main characteristics of deposits, namely no transfer of property rights and the all time availability, are harmed. Therefore, under the current legislation, this violation mirrors firstly in the balance sheets of commercial banks and consequently in the guarantees of banks to satisfy the claims of several customers by the same amount of money. Commercial banks are allowed to create money and so to increase the money supply. However, in case of a bank run the money supply would get back to the original values and the price level would decrease. Large price fluctuations, however, do not occur, since governments intervene in this process with the deposit insurance. Bank runs, therefore, lose their credibility of a threat against this business of bankers and the created business cycles are not so visible. However, negative consequences remain, since in the process of creating new money and spreading it throughout

the economy the first obtainers benefit from the not-yet adjusted price level the most and the last ones lose the most. Additionally, we developed a new type of analysis, with which we showed that fractional deposit banking creates another negative consequence. The money created is used and lent out purely based on financial analyses of commercial bankers¹. Therefore, there is no way of applying preferences of the market participants to the use of this created money. Effects of investment decisions, based on preferences of commercial banks, on the real economy can take any course and no economist can say that these preferences are shared by the public at all times. Thus, we find it important and necessary, to keep and follow full reserve banking proposal or to redefine legal principles in modern deposit banking.

We believe that the reason behind public acceptance of this phenomenon lies in people's confusion, caused by advanced banking practices, and in the abuse of the term 'deposit' in modern banking. In our opinion, this misinformation interferes also with loan banking, leading to people's perception of time deposits as more of a placement of their money for financial reasons, rather than a loan, where they could contract with more factors. These propositions are purely our opinions, not tested on any data, and therefore we suggest this to be the subject of future research.

To fully explain the impact of misinformation in banking, we developed new analytical methodology. It rests in considering the creation and evolution of particular institutions in banking. The important outcome of this methodology lies in emphasizing that evolution of institutions can go both ways and that what is perceived as best now does not have to be best forever.

This method is applied to commercial banks, which incorporates several institutions . We therefore explain the formation of these institutions and illustrate how preferences are applied with and without each of them. Possibilities of deposit and loan banking are, therefore, examined with the emphasis on the preference channel and its suppression. We suggest that the misinformation influences customers' attitude toward time deposits, where creditors apply only their financial preferences. The modern form of loan banking therefore intervenes with the preference channel and minimizes it. Significant part of funds, equal to more than one quarter of the entire US bond market in 2010, flowing from commercial banks, is allocated based on this narrowed preference channel of commercial bankers. As a result of this, it is possible that the outcomes of investments are not in line with the public preferences. To show what effect

¹This could be easily shown by applying the new methodology.

not allowing of such reductions could have, we describe possible development of loan banking, with respect to the application of customers' preferences. In contrast with higher transaction costs, several beneficial effects are described, starting with more equal weight of individual customers in product decisions, continuing with higher importance of reputation in society, and concluding by changing externalities to more suitable outcomes.

To show that preference channels are already starting to widen even more in the investment area, the recent boom of corporate social responsibility is described. The growth of this area is illustrated by assorted statistical data and consequently, studies of academics concerning questions, which are asked also in this thesis, are presented. We propose that similar change could occur in loan banking and therefore, it is crucial to "repair" the legal aspect of the whole banking system.

Clearly, it is the mainstream economics that stands behind regulation policy in the financial markets. A flawed system is somehow being kept alive by governments and economic theory even supports this practice. We uncovered the negative impact of such strong interventions, such as allowing for fractional reserve banking by pointing out the price fluctuation outcome at first. Additionally, we showed a new insight, which uncovers the change of market conditions due to investment decisions of commercial bankers. We therefore prompt that no economist should support such far going interference with the functioning of markets. As we showed, evolution of institutions could go both ways and therefore, it is nonsense to keep an institution in one evolutionary form by force.

Generally, we suggest that the new method of institutional comparison puts meaning into proclaim of positivism in economics. As it was mentioned above, evolution of institutions can go both ways and economists cannot tell which one is the best, since it depends on preferences of market participants. This does not happen only in institutions of banking but in every institution created by the interaction of market participants. Since the support by economic theory of one institutional form can lead to terrible costs to society, economists should better take place of observers and mainly of defenders against this practice. They should advise the society only in case of intervening with the development of institutions, like the discussed case of deposit banking. We believe that this positivistic approach of economic theory has the potential to bring better welfare to the society.

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