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THE RELATIONSHIP BETWEEN GOVERNMENT AND BANKS IN FINANCIAL INTERMEDIATION: EFFECTS ON ECONOMIC GROWTH

DOCTORAL DISSERTATION

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ODNOS DRŽAVE IN BANK V FINANČNEM POSREDOVANJU: UČINKI NA GOSPODARSKO RAST

Povzetek

Cilj doktorske disertacije je bil proučevati povezavo med državo in finančnim posredništvom bank in opazovati vpliv te povezave na gospodarsko rast. Pregled literature v prvem poglavju o povezavi med finančnim posredništvom bank in gospodarsko rastjo je pokazal, da empirične raziskave ne dajejo jasnih odgovorov o pomenu finančnega posredništva bank za gospodarsko rast. Ugotovitve se razlikujejo glede na proučevane države v vzorcu, uporabo različnih kontrolnih spremenljivk in ekonometričnih metod, stopnjo gospodarskega razvoja, itd. Vprašanje vzročne povezave ni bilo razrešeno.

Vloga države je v empiričnih študijah s področja financ in rasti premalo poudarjena. V realnosti je namreč državna intervencija v bančnem sektorju večja, saj je bančni sistem ključnega pomena za gospodarstvo in predstavlja pomemben vir financiranja. Država se lahko znajde v navzkrižju interesov, saj je istočasno regulator bančnega sistema, obenem pa bančni sistem predstavlja njen vir financiranja. V drugem poglavju smo poskušali opredeliti možne "skrite" dejavnike, ki jih teorija financ in rasti ter empirične raziskave ne omenjajo. Poglavje smo razdelili na pet delov: 1) tržne nepopolnosti na finančnem trgu; 2) finančna represija; 3) finančna liberalizacija in bančne krize; 4) značilnost javnega upravljanja; in 5) interesne skupine. Glavno sporočilo drugega poglavja je, da obstajajo dovolj utemeljeni razlogi, da lahko trdimo, da finančno posredništvo bank nima nujno pozitivnega vpliva na gospodarsko rast.

V tretjem in četrtem poglavju smo ugotovitve iz drugega poglavja natančneje proučili v smislu povezave finančnega posredništva bank z gospodarsko rastjo. Zanimali so nas dejavniki stroškov finančnega posredništva in gospodarske rasti. Oblikovali smo empirični model z različnimi državnimi in tržnimi nepopolnostmi ter ga uporabili za proučevanje povezave med financami in gospodarsko rastjo.

Kot približek za stroške finančnega posredništva bank smo uporabili neto bančno obrestno maržo. Empirične raziskave dejavnikov neto obrestne marže so za obdobje med letoma 1996 in 2009 na vzorcu starih in novih držav članic EU (in Hrvaške) kot tudi sedmih drugih tranzicijskih gospodarstev potrdile naše hipoteze z nekaterimi manjšimi odstopanji.

Prvič, večja vpletenost države v gospodarstvo ima v povprečju negativen učinek na stroške finančnega posredništva bank, saj se stroški povečajo. Druga hipoteza je bila, da so posledice vpletenosti države v gospodarstvo na stroške finančnega posredništva večje v državah z bolj razširjeno korupcijo. Rezultati kažejo, da se ta dva učinka seštevata posebej. Država ima negativen vpliv na neto obrestno maržo s svojo velikostjo (javne finance) in z uporabo oblasti za pridobivanje lastnih koristi (korupcija). Negativni vpliv države je močnejši, če je država velika in koruptivna. Poleg tega smo pokazali, da so v starih državah članicah EU pomembne interesne skupine. Institucije nimajo statistično značilnega vpliva na neto obrestno maržo, statistično značilen vpliv pa se izkaže pri povezavi med zasebnim sektorjem (krediti/BDP) in končno potrošnjo države (izdatki/BDP). Dodatno povečanje velikost države ima večji vpliv na neto obrestno maržo pri višjih ravneh finančne globine. Za države EU13 smo ugotovili, da postane velikost države statistično značilna, ko v analizo vključimo spremenljivko za

korupcijo. Institucije imajo velik vpliv na neto obrestno maržo v državah EU13 in ostalih tranzicijskih gospodarstvih, pri starih državah članicah EU pa ta vpliv ni močan.

Četrto poglavje je temeljilo na hipotezi, da je vpliv finančnega posredništva bank na gospodarsko rast odvisen od nagnjenosti k potrošnji in pridobivanja koristi. V doktorski disertaciji sta pridobivanje koristi in korupcija kategoriji, ki sta v nasprotju z investicijami in proizvodnjo. Tako kot v tretjem poglavju smo tudi v četrtem poglavju analizo napravili za države članice EU in Hrvaško za obdobje od leta 1996 do 2009. Kot kontrolno skupino smo uporabili sedem drugih tranzicijskih gospodarstev in deset latinsko ameriških gospodarstev. Analiza je bila izvedena s pomočjo dinamičnega modela panelnih podatkov. Kot približek za nagnjenost k potrošnji in pridobivanje koristi smo uporabili spremenljivko za nadzor nad korupcijo in spremenljivko, ki meri delovanje pravne države. Kot približek za finančno posredništvo smo uporabili finančno globino in finančno učinkovitost.

Glavna ugotovitev je, da je v obdobju med letoma 1996 in 2009 finančna globina (povečanje posojanja) negativno vplivala na gospodarsko rast v državah članicah EU (in na Hrvaškem), v državah EU13 pa tudi finančna učinkovitost. Poleg tega so imele v državah EU13 bančne krize ekonomsko in statistično značilen vpliv na stopnjo rasti realnega BDP na prebivalca. Rezultati potrjujejo negativen vpliv finančnega posredništva na gospodarsko rast na kratek rok. Izsledki analize kažejo na pomembnost vključitve bančnih kriz pri proučevanju povezave med financami in rastjo. Iz rezultatov tudi izhaja, da več financ ni vedno najbolje. Ker je bil pozitiven vpliv finančne globine na gospodarsko rast prisoten v primeru tranzicijskih držav, ki nimajo globokih finančnih trgov, slednje nakazuje na prisotnost nelinearnosti v odnosu med financami in rastjo. Velikost države negativno vpliva na gospodarsko rast, vendar ne gre za ekonomsko velik učinek.

Nazadnje smo v analizo vključili vse države, da bi ugotovili, ali je vpliv neto obrestne marže na gospodarsko rast različen glede na različne ravni nadzora nad korupcijo in delovanja pravne države. Vse države smo razdelili v dve skupini: na tiste z nizko (nad tretjim kvartilom) in na tiste z visoko (pod prvim kvartilom) ravnjo nadzora nad korupcijo in delovanja pravne države. Regresijski koeficient pri neto obrestni marži je negativen pod prvim kvartilom in pozitiven nad tretjim kvartilom nadzora nad korupcijo, vendar je v slednjem primeru koeficient ekonomsko in statistično neznačilen. Sklenemo lahko, da razširjena korupcija predstavlja dodatno težavo pri vplivu financ na gospodarsko rast. Rezultati kažejo, da je negativen učinek finančne globine na gospodarsko rast večji v državah z bolj razširjeno korupcijo. Rezultati potrjujejo, da je vpliv finančnega posredništva bank na gospodarsko rast odvisen od nadzora nad korupcijo in delovanja pravne države, ki sta pokazatelja za varčevanje in proizvodnjo.

Na koncu doktorske disertacije proučujemo odnos med državo in bankami na Hrvaškem s politično ekonomskega vidika. Poglavje je razdeljeno na štiri dele: 1) opis regulatornega okvira 2) analiza državnega lastništva bank in njihova privatizacija 3) bančne krize 4) bančna alokacija sredstev. Glavna ugotovitev je, da sta bančna in politična elita na Hrvaškem prepleteni, kar kaže na obstoj močne povezave med bankami in državo, zlasti na področju javnih financ.

Ključne besede: država, banke, finančno posredništvo, gospodarska rast, korupcija

THE RELATIONSHIP BETWEEN GOVERNMENT AND BANKS IN FINANCIAL INTERMEDIATION: EFFECTS ON ECONOMIC GROWTH

Summary

The goal of this doctoral thesis was to analyse the interaction between government and banks in financial intermediation and observe the effects of that relationship on economic growth. The literature review in Chapter one on the link between financial intermediation by banks and economic growth has shown that empirical research does not give clear answers to the issue of the importance of bank financial intermediation for economic growth. The findings differ across the countries in the sample, the control variables and financial proxies used, the time period covered, the econometric techniques employed, the level of economic development, etc. The issue of causality has not been solved.

Government's role in finance and growth regressions is deemphasized. This is at odds with reality, since the degree of government intervention is larger in the banking sector than in other sectors, because banking is generally considered vital for the economy and is an important source of fiscal revenues. However, the government has a conflict of interest, since it both regulates banks and uses them as a source of finance. In the second chapter we tried to discover possible "hidden" factors which are left out from the finance-growth theory and empirics. We have organized the chapter in five sections: 1) financial market failures; 2) financial repression; 3) financial liberalization and bank crises; 4) quality of public governance; and 5) interest groups. The main message of the second chapter is that there are good grounds to believe that the effects of financial intermediation by banks on economic growth need not be positive.

In the third and fourth chapters, attempts have been made to incorporate the findings of Chapter two into more careful examination of the link between financial intermediation by banks and economic growth. This has been done by analysing the determinants of bank financial intermediation costs and of economic growth. The goal was to combine government and market failures and include them in empirical models relevant for explaining the finance growth nexus.

As a proxy of the financial intermediation cost, we have used the bank net interest margin (NIM). An empirical analysis of the NIM determinants based on System GMM on a sample of old and new EU member states (plus Croatia) as well as seven other transition economies, in the period from 1996 to 2009, confirmed our hypotheses, albeit with slight moderations.

Firstly, higher government involvement in the economy does, on average, have a negative effect on the financial intermediation cost by banks, i.e. it increases it. The second hypothesis was that the effects of government involvement in the economy on the financial intermediation cost are more pronounced in countries with widespread corruption. The results show that these two effects add up individually; the government negatively influences the NIM by its size (i.e. public finance) and abuse of authority for private gain, i.e. corruption. In other words, the negative government influence is stronger if the government is not only big, but both big and corrupt. In addition, we showed that in old EU member states corruption is replaced with interest group activity. Institutions are not a statistically significant determinant of the NIM, but the interaction term between private sector credit/GDP and government final consumption expenditure/GDP is. An additional increase in the size of government has a

stronger effect on the NIM at higher levels of financial depth. In EU13 economies, government size becomes significant only after including control of corruption. Institutions matter for the NIM much more in EU13 and other transition economies than in old EU member states.

The fourth chapter was based on a hypothesis that the influence of financial intermediation by banks on economic growth depends on incentives for consumption and rent seeking. In this thesis, rent seeking and corruption are categories which are opposite to investment and production, i.e. productive activities. As in the third chapter, the sample in Chapter four covered EU countries and Croatia, and the observed period was from 1996 to 2009. The control groups included seven other transition economies and ten Latin American economies. A dynamic panel analysis (System GMM) was applied. Proxy variables for incentives for consumption and rent seeking were control of corruption and the rule of law (Worldwide Governance Indicators). Financial intermediation was proxied by both financial depth and financial efficiency.

The main finding is that in the period from 1996 to 2009, economic growth in the European Union (plus Croatia) was negatively influenced by financial depth (lending boom) and, in the case of EU13 economies, by financial efficiency, too. In addition, bank crises had economically and statistically significant effects on the real GDP p.c. growth rates in EU13 economies. These results confirm the negative effect of financial intermediation on economic growth in the short run. They also show the importance of including bank crises in the observation of the link between finance and growth. In addition, the results suggest that more finance is not always better. Since a positive effect of financial depth on economic growth was present only in a group of other transition economies, which do not have deep financial markets, nonlinearities in the finance and growth relationship certainly exist. Government size also negatively influenced economic growth, but its economic effect was not significant.

Finally, we observed all countries with threshold levels of control of corruption/rule of law to see whether the effect of the NIM on economic growth differs at different levels of control of corruption/rule of law. We split all countries into two subsamples: those with high (above third quartile) and with low (below first quartile) control of corruption/rule of law. The coefficient on the NIM is negative below first quartile and positive above third quartile of control of corruption. However, in the latter case this is economically and statistically insignificant. We can conclude that the widespread corruption gives an additional "kick" to the effects of finance on economic growth. The results also show that the negative effect of financial depth on economic growth is stronger in countries with worse control of corruption. In sum, the results confirm that the effect of bank financial intermediation on economic growth differs, depending on the levels of corruption and of the rule of law as indicators of incentives for saving and production.

The thesis ends with an analysis of the relationship between government and banks in Croatia from the political economy point of view. The final chapter is divided into four sections: 1) description of regulatory environment; 2) analysis of government ownership and bank privatization; 3) bank crises; and 4) banks' allocation of resources. The main finding is that the financial and political elites are intertwined in Croatia, i.e. there is a strong link between banks and government, especially government finance.

Key words: government, banks, financial intermediation, economic growth, corruption

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INTRODUCTION

One of the conclusions of modern economics is that finance is good for economic growth. Financial systems can contribute to economic growth in three principal ways: by: a) creating incentives for physical and human capital accumulation; b) allocating capital to most productive activities; and c) reducing the amount of resources which are used in the intermediation process between borrowers and lenders. Empirical evidence has supported the view about a positive correlation between finance and growth, and even suggested that finance is an engine of growth and not just a by-product. However, recent evidence (global financial crisis) has led researchers to re-examine these results.

One of the reasons why the financial system has always been interesting as a determinant of growth is because the government can influence it. Economic historians point out that the more the historical roots and development of modern financial systems are studied, the more obvious it becomes that on most critical occasions when financial systems changed, for better or worse, the role of government was of crucial importance. This does not surprise, because government has always needed financial funds, mostly for political ambitions. Apart from needing financial funds, the government has also been capable of coercion which enabled it to collect taxes. This also means that it had a greater ability to borrow and repay debts compared to private agents. Furthermore, the government had the power to create financial institutions and markets, as well as to influence their development through legislation. Despite these facts, the government's role seems to be deemphasized in finance-and-growth regressions.

Researchers usually treat government as a disinterested party, but this is not the case in reality. The government both regulates banks and uses them as a source of finance (e.g. taxes on bank capital or profits, dividends on bank ownership, credit lines from banks, or mandatory purchase of government bonds). Hence, the government has a conflict of interest. The government can structure the bank-governing institutions in such a way that they meet demands coming from the private sector, or it can structure them in a way to enable its own political survival. It may, for example, create bank monopolies that share rents with the government, or allocate charters only to politically favoured constituents. Government officials can also demand bribes.

The goal of this thesis is to analyse the interaction between government and banks in financial intermediation, and to observe the effects of that relationship on economic growth. The interaction will be examined through several channels:

- a literature review on the link between financial intermediation by banks and economic growth;

- a literature review on the relationship between government and banks from the political economy point of view, with the emphasis on government and market failures;
- an empirical analysis of the determinants of financial intermediation costs by banks, since the financial intermediation cost is an indicator of banks' functional efficiency in terms of economic growth;
- an empirical analysis of the link between government, banks and economic growth; and
- an analysis of the relationship between government and banks in Croatia from the political economy perspective.

This thesis is built on three main hypotheses. The first two are focused on an indirect link between financial intermediation and growth, and the third one on a direct link. *The first hypothesis is that a higher government involvement in the economy has on average a negative effect on the financial intermediation cost by banks*. The goal of this hypothesis is to examine whether government involvement in the economy increases the financial intermediation cost by banks. Government involvement is a collective term for different variables describing the government's role in the economy. The main proxy variable will primarily be the government size. A negative influence should stem from several sources. Firstly, in financing its consumption, the government depends on direct and indirect taxation of banks, which try to shift their tax burden on their clients to the fullest extent possible. They do so by raising lending interest rates or different fees, which in turn increases the financial intermediation cost. Secondly, it is possible that government forces banks to buy its bonds. In order to compensate for lower interest rates on government loans, the banks charge higher interest rates to private sector clients, which increases the financial intermediation cost for the economy.

In general, large government expenditure programs are often supported by intrusive regulations that curb private sector activities and may also require higher levels of taxation. Moreover, as government spending programs grow larger, they may become counterproductive if they are poorly designed. In some cases, larger government programs create new opportunities for rent seeking. Also, increasing government expenditure raises country risk. A proxy variable for the financial intermediation cost will be bank net interest margin. The sample will cover EU member states and Croatia, and the observed period will be from 1996 to 2009. A dynamic panel analysis will be applied.

The second hypothesis is that the effects of the government involvement in the economy on financial intermediation costs by banks are more pronounced in countries with widespread corruption. The goal of this hypothesis is to examine how the presence of corruption in a country, i.e. inadequate institutional limits on the authority and government discretion, influences the nature of government involvement in the financial intermediation cost by

banks. Specifically, the assumption is that banks will increase their interest margin in order to protect themselves from risks stemming from widespread corruption (e.g. various regulatory distortions, inconsistency in policies aimed at the financial system, questionable independence of monetary authorities etc.). Also, the simple rationale is that the possible negative influence of the government is stronger if the government is not only big, but big and corrupt.

At the same time, it can be assumed that corruption eases the influence of interest groups, especially the large ones like banks. If government interventionism is big and if policy makers are prone to abuse their authority for private gain, then interest groups will be in a position to easily acquire influence. It is possible that banks influence policy makers through regulations and/or monopoly position in order to create rents which they will mutually share. In both cases, the final result is the same: the financial intermediation cost increases. It is important to point out that in this thesis, the empirical analysis of the financial intermediation cost is just a means of understanding economic growth; if we find out what influences banks' functional efficiency, then we can learn which conditions need to be met in order for financial intermediation to have a positive effect on economic growth.

The third hypothesis it that the influence of financial intermediation by banks on economic growth depends on incentives for consumption and rent seeking. Incentives for rent seeking represent the notion that an individual in a society believes that influence over political allocation is an important source of personal gain, and that policy makers allocate benefits in exchange for their private benefit. In order to become wealthy and improve their position, individuals direct their activities at obtaining favourable decisions from government. Incentives for consumption represent a concept that the institutional setting in which agents make private decisions is such that investment projects have small private returns, because of a low level of the rule of law, widespread corruption, government expropriation etc., which additionally increases preferences for consumption. In this thesis, rent seeking and corruption are categories which are opposite to investment and production, i.e. productive activities. As in the previous two hypotheses, the sample will cover EU member states and Croatia, and the observed period will be from 1996 to 2009. The proxy variables for incentives for consumption and rent seeking will be institutional variables, and a dynamic panel analysis will be applied. The expected contribution of this thesis is the identification of terms which need to be fulfilled in order for financial intermediation by banks to have a positive influence on economic growth.

Apart from the Introduction and Conclusion, the thesis is organized in five chapters. The first chapter is a critical review of literature on financial intermediation by banks and economic growth. The chapter starts with a short overview of theoretical models, followed by an overview of empirical research, and ends with highlighting the main problems of existing research. Empirical research is divided into five sections: 1) causality, 2) non-linearity, 3) time perspective, 4) proxies and 5) interactions. The first two aspects have been chosen

because they seem to generate the most interest among researchers. The time perspective has been taken into account to check to what extent the results depend on the observed time period. Choosing a right proxy for financial intermediation still represents the biggest challenge researchers have to face. Finally, interactions have been included in the analysis to show the potential for future research.

The goal of the second chapter is to provide an overview of literature dealing with the interaction between government and banks, mostly from the political economy point of view, in order to discover possible "hidden" factors which are left out from the finance-growth theory and empirics. It will be done by looking into the financial market and government failures. Apart from the problems related to the quality of public governance, attention will be drawn to the fact that banks can have significant influence on the government and its regulatory bodies, with a consequence of misallocation of resources. By concentrating on a smaller part of financial intermediation, it may be possible to find out under which circumstances banks have a positive influence on economic growth.

The focus of the third chapter will be exclusively on the cost of financial intermediation, namely on the bank interest margin as its indicator. The chapter starts with a review of the previous work, followed by an empirical analysis which will contribute to the existing literature in several aspects. Firstly, a panel data estimation will be used in examining the determinants of the bank margin on a sample of EU member states plus Croatia for the period from 1996 to 2009. Secondly, a comparison will be made between "old" EU member states, twelve new EU member states plus Croatia and seven other transition economies as part of the sensitivity analysis. Thirdly, the main goal of the chapter is to investigate the importance of institutions and provide a new insight into how the relationship between governments and banks may influence the cost of financial intermediation.

The fourth chapter consists of an empirical analysis of economic growth, where independent variables are organized in four groups: "classics", government, financial intermediation by banks and institutions. Basically, the analysis is very similar to the one in the previous chapter and follows the findings from the first and second chapters. First we describe the model and data, then we present the results, carry out a sensitivity analysis, and conclude with a discussion.

The purpose of the final chapter is to single out Croatia from econometric models and observe the link between government and banks at a case-study level. The assumption is that we will confirm the results from previous chapters: banks' influence on economic growth should not be observed without taking into account the institutional environment and without analysing the relationship between banks and the government. The chapter starts with 1) a description of the regulatory environment, and then continues with 2) an analysis of government ownership and bank privatization, followed by 3) bank crises and 4) banks' allocation of resources. These

elements have been chosen because they can give us a great insight into the nature of the banks-government relationship.

1 FINANCIAL INTERMEDIATION BY BANKS AND ECONOMIC GROWTH: A CRITICAL REVIEW

If you torture the data long enough, it will confess.
(Ronald Coase)

Financial intermediation is considered to be the main function of banks. Banks act as intermediaries between savers and persons who are able or willing to borrow money. This relationship is often described as the one between savers and investors, but the person who borrows money is not obliged to invest, in terms of obtaining new capital goods (Cameron, 1972:7). As intermediaries, banks "may vigorously seek out and attract reservoirs of idle funds which will be allocated to entrepreneurs for investment in projects with a high rate of social return; or they may listlessly exploit their quasi-monopolistic position and fritter away investment possibilities with unproductive loans" (Cameron, 1972:7-8). It can probably be assumed that in both cases financial intermediation might have certain consequences on economic growth.

Opinions of economists about the role of financial intermediation in economic growth are polarized. On one side are economists like Robert Lucas (1988) who think that the role of financial factors in economic growth is overemphasized, or like Dornbusch and Reynoso (1989:204) who believe that financial factors are similar to foreign trade regimes; unless they are badly distorted, they have almost no influence on the level of GDP per capita. On the other side there are a large number of economists who are convinced not only that finance is very important for economic growth, but also that finance causes growth.

The goal of this chapter is to give an overview of research in the field of financial intermediation by banks and economic growth. At the very beginning it should be stressed that there is a lot of confusion with the terms used in existing research on finance and growth, which will unfortunately be present in this chapter too since it is based on previous research. Terms which appear in titles of papers are: finance, financial intermediation, financial development, financial system, financial markets etc. However, in almost all papers the same indicators are used - the ones that refer to financial intermediation by banks. This is understandable because in most countries, especially in less developed ones, banks dominate the financial system.[1] The point is in the following: although authors use different terms, their papers mostly refer to financial intermediation by banks. Furthermore, even though existing research encompasses different functions of financial system through which it can influence growth, financial intermediation dominates, i.e. the emphasis is on aggregating savings and transforming it into investments.

[1] Banks are the main source of external financing in all countries (Gorton and Winton, 2002), and besides, there is a high probability that the development of financial market and of banking system are positively correlated.

It is important to mention that in this chapter publications/studies on how different types of financial system influence economic growth will not be considered. Based on Levine's (2005) review, it could be concluded that for economic growth it is not important whether financial system is based on banks or securities markets, but whether it successfully performs its functions. However, more recent research challenges that view (e.g. Luintel et al., 2008; Deidda and Fattouh, 2008). Furthermore, the link between growth and international finance (e.g. cross-border capital flows and importation of financial services) will not be analysed in this chapter. This means that the effects of financial system on economic growth will not be examined in regard of whether it is domestically or foreign owned; this should require a separate analysis which would change the planned direction of research for this dissertation. One more important thing to emphasize is that even though there are many papers on the link between finance and companies' or industries' development (the most cited one is written by Rajan and Zingales (1998)), here advantage will be given to macroeconomic papers with aggregate data. Finally, authors of existing papers on finance and growth do not differentiate between different types of banks, e.g. universal from investment banks. The only element by which they are distinguished is whether they are privately or government owned. This criterion will be applied in this dissertation too.

There are already a couple of literature reviews on the relationship between finance and economic growth: Gertler (1988),[2] Pagano (1993), Levine (1997; 2005),[3] Trew (2006), Ang (2008), Demirgüç-Kunt and Levine (2008). Levine's (2005) and Ang's (2008) reviews are the most extensive and it is recommended to read them for details on theoretical models since here more attention will be given to empirical research. This chapter starts with a short overview of theoretical models, then is followed by overview of empirical research, and ends with highlighting the main problems of existing research.

1.1 Overview of theoretical models

With progress in economic theory or, to be more accurate, with development of endogenous growth theory, interest for investigating the link between finance and economic growth has grown. Integral and complete theory of financial intermediation and economic growth does not exist. Instead, there are many theoretical models available to us in which different channels through which finance influences growth are observed.

At the beginning it is useful to outline the ways in which financial system influences economic growth. According to theory, financial instruments, markets and organizations come to existence in order to decrease effects of information asymmetries and transactions

[2] Gertler's review is focued on microeconomic aspects of finance and growth.
[3] Levine is also one of the most cited authors in this field of research, but his weakness is that in the literature reviews he writes he dedicates too much space to his papers, while he forgets to mention the critiques or puts them in footnotes.

costs. In Arrow (1964) and Debreu (1959) there are no such costs and asymmetries and hence there is no need for financial intermediaries; everybody has information about everything, competition is perfect and human behaviour is not opportunistic (there is commitment to made arrangements). All theories which deal with the influence of financial systems on economic growth add frictions to the Arrow-Debreu model (Levine, 1997:690). By decreasing information and transaction costs, financial systems perform their primary role: they improve allocation of resources through time and space in uncertain environment (Levine, 2005).

Early papers in the field of finance and economic growth (Gurley and Shaw, 1955; Tobin, 1965; McKinnon, 1973) have in their mathematical models included only money, and not different functions of financial systems, which can limit the understanding of the link between financial system and growth.[4] Montiel (2003) states that financial system can contribute to economic growth in three ways: by 1) creating incentives for accumulation of physical and human capital, by 2) allocating capital to most productive activities, and by 3) decreasing the amount of resources which are used in the process of intermediation. Levine (1997:691) differentiates five basic functions of financial systems, which are:

- facilitation of risk management;
- allocation of resources;
- monitoring of managers and control over corporate governance;
- savings mobilization;
- easing the exchange of goods and services.

Financial systems differ based on how successful they are in performing these functions. Each of them can influence economic growth in two ways: through accumulation of capital and through technological innovation (Romer, 1986; Romer, 1990; Lucas, 1988; Rebelo, 1991; Grossman and Helpman, 1991; Aghion and Howitt, 1992). The financial system affects the rate of technological change by determining the frequency with which society allocates funds to those entrepreneurs with the highest probability of successful innovating, differences in financial development determine the resources available to entrepreneurs for innovation, and finance affects the risk of investing in high-return projects.[5]

[4] Patrick (1966) was among the first authors who wrote about the link between finance and growth. He emphasized two approaches to financial development. One of them was "promoted" by Robinson (1952): economy creates demand for financial services and financial system develops almost automatically. According to the other approach, financial system creates supply (financial assets, liabilities and services) and it has got two functions: a) transmission of resources from traditional to modern sectors, and b) stimulating entrepreneurial activities in modern sectors. In practice there is interaction between these two approaches but the first one is, according to Patrick, more important at the beginning of growth process when economy lags more behind. This is in accordance with Gerschenkron's (1962) view.

[5] Models usually take the financial system as given, they ignore financial innovation. Michalopoulos et al. (2009) model both technological and financial innovation as reflecting the profit maximizing decisions of individuals and explore implications for economic growth. Their conclusions are that technological change and financial innovation are positively correlated and that economic growth will eventually stagnate unless financiers innovate.

While transforming savings into investments, financial system absorbs resources so that one financial unit of savings results with less than one financial unit of investments. The difference represents the earnings of financial intermediaries, in case of banks their interest spread. If financial development decreases the cost of financial intermediation, then equilibrium growth rates increases (Pagano, 1993:613). This will be described in more detail in the third chapter. The following text focuses on functions of financial system which are important for economic growth. In terms of structure, it is mostly based on Levine's (1997; 2005) literature reviews.

1.1.1 Facilitation of risk management

Levine (1997) considers two types of risks: liquidity risk and idiosyncratic risk. Liquidity risk occurs due to uncertainties associated with converting assets into a medium of exchange. The link between liquidity and economic growth arises because some high-return projects require a long-term commitment of capital, but savers do not want to give up control over their savings for long periods (small investors prefer short-term investments). Without financial intermediaries, households can protect themselves from liquidity shocks only by investing in highly liquid assets (Pagano, 1993:616). If financial system does not increase the liquidity of long-term investment, less will be invested in risky projects with high expected return. With liquid capital markets, asset owners can easily sell their shares and companies have constant access to capital. Banks as financial intermediaries can supply their savers with insurance from liquidity risks by providing savings accounts, and at the same time stimulate (illiquid) long-term investment in projects with high expected return and by doing that accelerate economic growth (Bencivenga and Smith, 1991).

Financial intermediaries can also decrease risk connected with individual projects, companies, regions, countries, etc. (idiosyncratic risk). The ability of financial system to diversify risk can influence economic growth by changing allocation of resources (move towards projects with higher expected return) and by changing saving rate (Saint-Paul, 1992). At the same time, diversifying risk by financial markets enables larger labour specialization which brings larger productivity (Saint-Paul, 1992). Namely, larger division of labour makes more specialized resources riskier, and financial markets can decrease that risk by enabling agents to hold diversified portfolios. Without financial markets specialization will be smaller, i.e. less risky technologies will be used at a price of lower productivity. Coricelli and Roland (2008) in their model illustrate the role that formal credit markets can play as insurers against adverse shocks. The model shows that when credit market institutions are weak (i.e. contract enforcement is low), exogenous shocks may induce a break-up of both credit and production chains, leading to sudden and sharp collapses in output. "The development of a banking sector can mitigate downside output volatility, conditional on a given level of contract enforcement.

By contrast, reliance on trade credit increases the vulnerability to a sudden output collapse." Hence, the impact of credit markets on growth is asymmetric.

According to theory, increased liquidity and risk sharing have ambiguous effect on savings rates and economic growth. Larger liquidity increases investment returns and decreases uncertainty. However, larger returns have ambiguous effect on saving due to income and substitution effects (Levine, 1997:694). Saving rates can fall to such extent that growth slows down despite larger liquidity and larger risk diversification (Jappeli and Pagano, 1994). Risk diversification can also influence technological changes, i.e. contribute to economic growth because it encourages risky investment in innovative activities (King and Levine, 1993a).

1.1.2 Allocation of resources

Gathering information on companies, managers and conditions on the market, demands a lot of time, ability and funds which individual savers usually do not have. Savers are not prone to invest in activities about which there is little available information. This means that information costs can prevent the most productive use of capital. It is the costs of gathering information that give incentives to appearance of financial intermediaries (Boyd and Prescott, 1986). If it is assumed that every information gathering has some fixed cost, then individual efforts would spend significantly more resources than one specialized intermediary. Saving on cost of gathering information enhances obtaining information on investment opportunities and by doing so improves allocation of resources (Levine, 1997:695).

The ability to collect and process information by financial intermediaries has important consequences on economic growth. Intermediaries (bankers) which are better at choosing the most promising companies (those which have potentially largest marginal product (Pagano, 1993:615)) and managers will lead to more efficient allocation of capital and faster economic growth (Greenwood and Jovanovic, 1990). They can contribute to economic growth also by identifying entrepreneurs who have the highest prospects to create new products and production processes, by which the rate of technological progress is enhanced (King and Levine, 1993b).

Michalopoulos et al. (2009) model technological and financial innovation as reflecting the decisions of profit maximizing agents. They start with a model where entrepreneurs earn monopoly profits by inventing better goods and financiers arise to screen entrepreneurs. A novel feature of the model is that financiers also engage in the costly, risky, and potentially profitable process of innovation: financiers can invent more effective processes for screening entrepreneurs. Every existing screening process, however, becomes less effective as technology advances. Consequently, technological innovation and, thus, economic growth stop unless financiers continually innovate.

1.1.3 Monitoring corporate governance

Making financial arrangements between financial intermediaries and companies should enhance corporate governance monitoring because then managers should commit to manage funds in the best interest of owners and creditors (financial intermediaries). When there are no financial arrangements which enhance corporate governance monitoring, accumulation of saving is decreased and capital does not flow towards profitable investment (Stiglitz and Weiss, 1981) because of high monitoring costs by individual agents. In other words, corporate governance monitoring improves allocation of resources and contributes to larger economic growth rates (Bencivenga and Smith, 1991). Additional benefits are obtained when companies and financial intermediaries develop long term relationship, which decreases cost of gathering information.

However, one question occurs: who monitors the monitors? According to Levine (1997:697), savers should not monitor financial intermediaries if they have diversified portfolio which guarantees withdrawal of deposits at every moment. The question is: how do you align interest of financial intermediaries with their clients', i.e. make sure that they will work for their benefit, and not expense (principal agent problem). Even the usefulness of a long term relationship between banks and companies is questionable because there is a possibility that a powerful bank misuses its position by extracting rents or hesitating in filing company's bankruptcy. Influential banks can prevent replacing inefficient companies' managers if they are generous towards bankers (Black and Moersch, 1998). In addition, banks can create false public impression of companies' financial conditions, for which there has been a lot of examples in the USA during the 1990s (e.g. Enron). More on financial market failures will be said in the next chapter.

Positive side of banks owned by a group of companies is that it decreases the problem of information asymmetries and enables companies in the group privileged access to financing (Morck et al., 2005). However, related lending can lead to misallocation of capital and become an obstacle to growth. It can be concluded that in theoretical papers the signs in the relationship between financial intermediation, corporate governance, and economic growth are still ambiguous.

1.1.4 Mobilization of savings

Mobilization of savings represents agglomeration (pooling) of capital from disparate savers for investment (Levine, 1997:699). When there would be no access to a larger number of investors, many projects would be limited, especially those that require large funds and bear large risk. Mobilization also includes creating different instruments of small denomination which enable households to diversify their portfolios as well as to increase asset liquidity. Without the possibility to agglomerate, households would be able to buy and sell only whole

companies. By increasing risk diversification and liquidity, mobilization improves allocation of resources (Sirri and Tufano, 1995).

The process of mobilization is expensive because it includes transactions cost of gathering funds from numerous individuals as well as convincing savers that they can entrust their funds to a financial intermediary with certainty. Financial systems which are more efficient in pooling individual savings can have a significant effect on economic growth (Levine, 1997:669). Apart from direct influence on accumulation of capital, better savings mobilization can improve allocation of resources and increase technological innovation (Bagehot, 1962). It is important to mention that development of financial system can cause fall in saving rates if availability of consumer loans increases and their price falls. In addition, larger stock market development can decrease precautionary saving (Pagano, 1993:617). This can have a negative influence on economic growth.

1.1.5 Causality

It is difficult to find a paper on finance and growth in which Joseph Schumpeter and Joan Robinson are not cited. Schumpeter (1934) thought that banks which function well encourage technological innovation by identifying and financing those entrepreneurs who have the highest prospects to successfully implement innovative products and production processes. Robinson (1952) had an opposite opinion: where entrepreneurship leads, finance follows. The same incentives within an economy which lead to setting up companies will make owners of wealth venturesome with the result of inventing new financial instruments by which necessary funds will be obtained. As an example Robinson mentioned invention of joint-stock companies.

Literature on influence of economic growth on financial system is much smaller. Greenwood and Jovanovic (1990) think that financial system development and economic growth are mutually determined. The assumption is that there is a fixed cost of joining (by savers and investors) existing financial intermediaries, which economic growth decreases, which then makes the number of those willing to join in larger. Hence, economic growth gives funds for forming new financial intermediaries, and they enhance economic growth by improving allocation of resources. As economy develops, it can afford those financial structures which speed up economic growth (Greenwood and Smith, 1997).

Montiel (2003:206) states that high GDP per capita influences financial development for at least two reasons. Firstly, countries with high GDP per capita have larger companies. Since higher companies' net worth decreases monitoring costs (by providing collateral and aligning interests of owners and creditors), it decreases costs of financial intermediation and encourages financial development. Secondly, high GDP p.c. is usually connected with larger

availability of public goods which encourage financial intermediation, such as protection of property rights, accounting standards and efficient judiciary.

1.2 Overview of empirical research

First results of econometric research were based on cross-country regressions in which the dependant variable is the average real GDP per capita growth rate in a certain period, and independent variables are different indicators of financial system development and various control variables. Recently panel analysis and time-series analysis dominate econometric research. Beck (2008) provides a review of different econometric methodologies to assess the link between finance and growth. In this paper empirical research will be organized under five sections: 1) causality, 2) non-linearity, 3) time perspective, 4) proxies and 5) interactions. Naturally, this is not a perfect division since there is some overlapping between papers in terms of the main focus of their interest.

The first two aspects have been chosen because they seem to generate the most interest among researchers. The direction of causality is said to be crucial because it has significantly different implications for development policy (Calderon and Liu, 2003). Non-linearity is examined in more detail because groundbreaking papers in the finance and growth literature assumed linearity. Time perspective has been taken into account to check to what extent results change depending on the observed time period. Choosing a right proxy for financial intermediation still represents the biggest challenge researchers have to face. Finally, interactions have been included in this analysis to show potential for future research.

1.2.1 Causality

In order to enable a better overview of papers dealing with the issue of causality, they are organized in two sections. In the first one are the papers which conclude that finance generally causes growth. The second focuses on papers with a sceptical tone, where the conclusion is that finance only sometimes causes growth.

Finance generally causes growth

When it comes to econometric research on economic growth, time can probably be measured before and after Barro (1991). His seminal paper does not include any financial intermediation variables. However, only two years later King and Levine (1993a; 1993b) expanded Barro's model with four financial variables: 1) ratio of liquid liabilities to GDP; 2) ratio of deposit money bank domestic assets to deposit money banks domestic assets plus central bank domestic assets; 3) credit issued to private enterprise divided by credit issued to central and local government plus credit issued to public and private enterprises; 4) credit issued to private enterprises divided by GDP. Their sample includes 80 countries and the time

period observed is from 1960 to 1989. Their key finding is that financial services are importantly linked to economic growth and productivity improvements. Furthermore, the level of financial development predicts future economic growth and future productivity advances. In other words, finance does not merely follow economic activity.

Even though King and Levine take into account the issue of endogeneity, later on Levine (1998) pays more attention to it by using legal indicators as instrumental variables to extract the exogenous component of banking development.[6] Observed time period is from 1976 to 1993 and the sample consists of forty three countries. His results show that there is a statistically significant and economically large relationship between banking development (measured as credit allocated by commercial and other deposit-taking banks to the private sector divided by GDP) and long-run rates of economic growth. Furthermore, differences in creditor rights and efficiency of the judiciary explain more than half of the variation in the level of banking development. Basically, the legal environment influences the banking sector and this component of banking-sector development is strongly linked with economic growth. He stresses that his paper does *not* show that economic growth does not influence the banking system. Unfortunately, he does not test for it and still concludes that the banking development leads economic growth.

Two years later he put an additional effort, together with his colleagues, to control for endogeneity. Levine et al. (2000) use dynamic panel analysis on a sample of seventy four countries for the period 1960 to 1995 with five-year averages. Financial intermediation measures are similar to those in King and Levine (1993a; 1993b), and instruments to those in Levine (1998), except that they use some internal instruments too. The main result is that financial system is positively correlated with economic growth and that this relationship is not a result of simultaneity, omitted variables or reverse causation. Their policy advice is to carry through legal and accounting reforms that would strengthen creditor rights, contract enforcement and accounting practices in order to boost financial intermediary development and thereby accelerate economic growth.[7]

"Finance causes growth" hypothesis is supported by Odedokun's (1996) findings as well. Unlike previously mentioned authors, he uses time-series regression analysis (71 developing countries, varying periods that generally span the 1960s and 1980s) and concludes that financial intermediation promotes economic growth in roughly eighty five percent of the countries and that the growth-promoting patterns of financial intermediation are practically invariant across various countries and regions. Calderon and Liu (2003) analyse a larger

[6] The most commonly used instrumental variable is "legal origin". However, it is questionable that it influences economic growth only through financial intermediation. Furthermore, it is not very useful in transition economies which have rewritten their laws.

[7] In a sequel to Levine et al. (2000), Beck et al. (2000) examine the channels through which financial intermediary development is associated with growth. They argue that the finance-growth nexus runs primarily through total factor productivity growth and not through savings and physical capital accumulation.

number of countries (one hundred and nine countries from 1960 to 1994) and on pooled data employ Geweke decomposition test. Their results are the following: "a) financial development generally leads to economic growth; b) the Granger causality from financial development to economic growth and the Granger causality from economic growth to financial development coexist; c) financial deepening contributes more to the causal relationship in the developing countries than in the industrial countries; d) the longer the sampling interval, the larger the effect of financial development on economic growth; e) financial deepening propels economic growth through both a more rapid capital accumulation and productivity growth, with the latter channel being the strongest".[8]

Unlike Calderon and Liu, but on a sample of 10 developing countries[9] from 1970 to 2000, Christopoulos and Tsionas (2004) find that long-run causality runs from financial development to economic growth but that there is no evidence of bi-directional causality. However, they do not find any short-run causality between financial deepening and output. The authors stress that an important policy implication is that policies at improving financial markets will have a delayed effect on growth, but that this effect is significant. Fink et al. (2005) get the opposite result in terms of the time perspective. They find a strong finance-growth link in 11 transition countries[10] (1990-2001) and the main growth impact runs via the productivity channel. However, financial sector development is triggering short run growth effects rather than spurring long term growth. Their financial indicator includes not only bank credit, but also stock market capitalization and value of outstanding debt securities divided by GDP.

In sum, authors of papers presented in this section use different econometric methodologies (cross-section, panel analysis, time-series), observe different time periods, as well as countries, and all conclude that finance leads to economic growth. Should we be sceptical about their conclusion? The answer follows.

Finance only sometimes causes growth

The authors in this section emphasize country heterogeneity, which makes them more careful in making their conclusions. For example, De Gregorio and Guidotti (1995) did a similar survey to King and Levine (1993a). They extend the sample to 98 countries for the period from 1960 to 1985 but use only one financial indicator: ratio of bank credit to the private

[8] Ang (2008) points out that analyses based on Granger causality test may misinterpret the results because expectations about future economic development may induce financial development. If firms anticipate stronger economic performance in the near future, indicating higher demand for financial services, they may invest more in financial services related investments in anticipation of higher future profits. This makes financial development only a leading indicator rather than a causal factor. In addition, Granger causality test is only an examination of whether past values of one variable are useful in predicting the current value of another variable. If a variable predicts another variable, this does not necessarily imply one causes another.

[9] Colombia, Paraguay, Peru, Mexico, Ecuador, Honduras, Kenya, Thailand, Dominican Republic, Jamaica.

[10] Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia.

sector to GDP. They also separately explore the relationship between financial intermediation and growth for the data set of 12 Latin American countries during 1950 to 1985. The authors show that although the impact of financial development on growth is broadly positive, it changes according to regions, time periods, and levels of income. The positive effect is especially strong in middle- and low-income countries. It is stronger in the 1960s than in the 1970s and 1980s. Furthermore, the effect of financial intermediation on growth is due mainly to its impact on the efficiency of investment, rather than its volume. For Latin America they find negative correlation due to, according to their opinion, financial liberalization during the 1970s and 1980s in conditions of inadequate regulatory environment.

Demetriades and Hussein (1996) partly confirm their finding in a way that they stress country heterogeneity. They apply time series analysis to 16 countries[11] for the period between 1960 and 1990, with the ratio of bank deposit liabilities to GDP and ratio of bank claims on the private sector to GDP as financial development indicators. The authors stress that the direction of causality between financial development and long run growth runs in different ways for different countries. They even find evidence that in quite a few countries growth causes financial development. Hence, it cannot be concluded that it universally holds that finance causes growth nor that finance follows growth: the "average" country for which cross-country regression results hold need not exist. This is why they strongly oppose the use of cross-section equations; differences in financial sector development may reflect different institutional characteristics, different policies, and differences in their implementation.[12]

Ram (1999) shares the opinion of Demetriades and Hussein (1996). He tries to take into account individual-country evidence but for 95 countries, whereby he just looks at covariation between financial development (liquid liabilities to GDP) and economic growth in each country for the period 1960-1989. He finds negative correlations in fifty six countries and the mean of the ninety five correlation coefficients is -0.06. However, when he uses averages for all countries for the whole period, then correlation is 0.33. Later he runs basic multiple-regressions that also indicate a picture consistent with bivariate correlations. Ram suggests that cross-country estimates, which have been used in most studies, might be spurious. He especially stresses that cross-country results cannot be used to make general statements about individual countries.

On the same track are also Neusser and Kugler (1998). They use time-series analysis on a sample of 13 OECD[13] countries for 1970 to 1991. They measure financial depth with the GDP of financial institutions, insurance companies, and pension funds because it covers a broad range of financial activities that includes the deposit and credit business by commercial banks,

[11] Costa Rica, El Salvador, Greece, Guatemala, Honduras, India, Korea, Mauritius, Pakistan, Portugal, South Africa, Spain, Sri Lanka, Thailand, Turkey, Venezuela.
[12] For general critiques of cross-country econometric research of economic growth see McCartney (2006).
[13] USA, Canada, Japan, Germany, France, Italy, Great Britain, Australia, Belgium, Denmark, Norway, Sweden, Finland.

service charges, commissions related to stocks and bond issues and off-balance activities. Based on their results they conclude that it is not possible to make a general statement whether financial development is truly an engine of growth or just a sign of the evolution of the whole economy due to independent factors. The causal link is empirically weak for most of the smaller countries, which the authors explain by different degrees of capital mobility.

Luintel and Khan (1999), by applying multivariate time-series, find bi-directional causality between financial development (ratio of total deposit liabilities of deposit banks to one period lagged GDP) and economic growth for all 10 countries in their sample and so do Hassan et al. (2011) for most regions in their sample (1980-2007; 168 countries).[14] However, for the two poorest regions causality is one-way: from growth to finance. Heterogeneity is especially emphasized by Favara (2003) who finds out that the effects of financial development vary considerably across countries and that there is no obvious pattern related to geographic location, the level of economic development, or institutional characteristics (85 countries in the sample; 1960-1998). This leads him to conclusion that standard growth regressions estimated by previous authors, which tend to "disguise" these properties of the data, might be misspecified. In sum, level of financial development has ambiguous effects on economic growth. For some specifications effects are positive, and for some negative. Favara believes that business cycles and measurement errors are the driving force of these findings.

The most scepticism towards importance of finance and growth can be found in papers written by Shan (2005) and Zang and Kim (2007). The first author applies time-series and the other two panel analysis, but their results are similar. Based on Shan's variance decomposition analysis, there is little evidence that financial development leads economic growth in the 11 countries in his sample (from 1985 to 1998, quarterly data). Also, no substantial differences were found between eight Western countries[15] that have more developed financial systems and the three Asian countries[16] with less developed financial systems. The author concludes: "To the limited extent that one does find some support for the hypothesis that financial development leads economic growth, it seems clear that financial development is no more than a contributing factor and, almost certainly, not the most important factor. It is clear that whatever causality may exist, it is not uniform in direction or strength, and highlights the inappropriateness of cross-sectional analysis in this regard".

Zang and Kim (2007) use the large panel data set provided by Levine et al. (2000) but get completely different results: there is no evidence of any positive unidirectional causal link from financial development indicators to economic growth. On the contrary, there is substantial indication that economic growth precedes subsequent financial development. The authors emphasize that their result does not imply that the role of financial development is not

[14] Colombia, Costa Rica, Greece, India, Korea, Malaysia, Philippines, Sri Lanka, South Africa, Thailand.
[15] Australia, Canada, Denmark, Finland, Italy, Portugal, UK, USA.
[16] China, Japan, South Korea.

important, but that the bottom line is that a more balanced approach to studying the relationship between finance and growth need to be adopted. The motivation for their paper came from the "casual observation that superstar East Asian countries with the world's highest growth rates for the last four decades, such as Japan, South Korea, and China, could not be classified as more financially developed than their competitors". This is especially true for South Korea whose financial institutions did not operate under market forces until very recently.

When it comes to transition economies, existing research does not show a strong link between finance and growth. Koivu (2002) analyzes 25 countries during 1993-2000 and emphasizes that a large banking sector is not in itself something that promotes economic growth. In her paper she finds no robust link between the amount of credit to the private sector and economic growth. Also, causality seems to run mostly from economic growth to credit growth. In addition, she uses the margin between lending and deposit interest rates as a measure of banking sector efficiency because it is closely linked to theoretical models of finance and growth. Her result is that the interest rate margin is negatively and significantly associated with economic growth.[17] Dawson's (2003) result is similar: financial development, measured by liquid liabilities as a proportion of GDP, has an insignificant effect on economic growth: economic growth in 13 Central and East European countries[18] (1994-1999) is not constrained by underdeveloped financial sectors. Mehl et al. (2005) also do not find evidence that financial deepening impacted growth positively in Southeast Europe during 1993-2003.[19] They offer several explanations for this result: 1) short time series; 2) standard growth regression framework which is maybe ill-suited for transition countries; 3) maybe quality of banking sector matters for economic growth rather than financial deepening per se.

In a follow-up paper to Fink et al. (2005), but on a sample of nine accession countries[20] (1996-2000), Fink et al. (2006) state that there is some evidence that total financial intermediation (the same indicator as in the previous paper) contributed to economic growth in accession countries. More precisely, stock market capitalization turned out to be insignificant, as well as private credit, while bond markets and domestic credit (volume of loans of deposit money banks and monetary authorities to all residents divided by GDP) played an important role in promoting growth. The difference in importance between domestic and private credit stems from many bad loans to private sector, while the former one also includes bank credits to local and central government, which have very low default probability.

[17] Botrić and Slijepčević (2008) use the same indicator for banking efficiency and show that the fall in interest rate spread could enhance growth in six South-eastern European economies (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, FYR Macedonia and Romania).

[18] Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Moldova, Poland, Romania, Russian Federation, Slovak Republic, Ukraine.

[19] Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Serbia & Montenegro, Bulgaria, Romania, and Moldova.

[20] Bulgaria, Czech Republic, Slovakia, Hungary, Slovenia, Poland, Romania, Malta, Turkey.

To sum up this section, the number of economists who are less keen in concluding that finance causes growth is larger than the number of those who are self-assured. Their results do not give uniform policy prescriptions. The authors show that the results differ depending on the observed countries, time periods, proxies for financial intermediation, etc. A few emphasize that the results change depending on the countries' income level. This leads us to the next section.

1.2.2 Non-linearity

After developing a theoretical model of multiple steady states, Berthelemy and Varoudakis (1996) test it on a sample of 95 countries for the period from 1960 to 1985. In their model one of the steady states leads to a poverty trap in which financial sector disappears and the economy stagnates. The other steady state is characterized by positive endogenous growth and normal development of financial intermediation. In the empirical part of their paper the authors try to find convergence clubs based on the starting level of financial development and human capital. Based on these criteria they organize the countries in four groups where two are especially interesting from the standpoint of finance and growth. They find out that in countries with very high starting levels of human capital, and low level of financial development, the financial variable (measured as ratio of M3 to GDP) does not have any effect on growth. Their explanation is that above a certain level of educational development, the benefits from the accumulation of human capital become conditional on changes in the sectoral allocation of investment. These changes are difficult to carry out if a sufficiently developed system of financial intermediation does not exist.

In other words, financial repression (e.g. the one in Latin America in 1960s and 1970s) can be a great obstacle to growth in countries in which basic conditions such as certain level of human capital are met. It is interesting that in that group of countries government consumption has a positive effect on growth, probably because the undeveloped financial system inhibits the growth of private sector savings and investment. The authors believe that in these countries externalities generated by public goods are the only potential source of endogenous growth because there is no private investment dynamism. In countries in which the starting levels of human capital and financial development are low, education, financial system, openness, and government spending do not have any effect on economic growth. The only significant variable is the number of coups and revolutions. These countries form a convergence club around the poverty trap.

By applying a threshold regression model to King and Levine (1993b) data set Deidda and Fattouh (2002) find that in low income countries there is no significant relationship between financial development and growth whereas in high income countries they find that this relationship is positive and strongly significant. In other words, financial development is not

associated with higher growth rates at all levels of economic development. Results obtained by Rioja and Valev (2004) are along similar lines. They use GMM dynamic panel techniques on the sample of 74 countries for the period from 1960 to 1995 in order to find out whether influence of finance on economic growth depends on the development level of financial system. They split the countries in three groups and find out that in countries with low financial development additional improvements in the financial markets do not have a clear effect on growth - depending on used financial indicators it is either positive (ratio of commercial bank assets to commercial bank and central bank assets) or non-existent (share of credit to private sector to GDP). They explain this difference with the fact that some indicators are better at measuring the size of the financial system, and the others efficiency. In countries where financial development has passed a certain threshold (the "middle" region), it exerts a strong positive effect on economic growth. In the "high" region, the growth effect of financial development declines once it reaches very high levels. Common characteristic of countries in the "low" region is that they all have high level of inflation (above a certain threshold), which maybe explains why there is no link between finance and growth.

Huang and Lin (2009) observe the same time period like the previous authors, and 71 countries. Basically, they use the Levine et al. (2000) dataset. However, they apply instrumental variable threshold regression approach to deal with endogeneity of financial intermediary development and check if there are any nonlinearities. They find that financial intermediary development leads to higher long-run growth rates. Moreover, such growth-enhancing effects are much stronger for the low-income countries than high-income ones because of diminishing returns to bank specialization at higher stages of economic development. The result might be influenced with the fact that the structure of financial markets evolves as an economy becomes more developed; capital markets may expand at the expense of banks. The authors also find that financial development affects capital accumulation in the high-income countries, while in low-income countries financial development promotes productivity growth and capital accumulation.

Favara (2003) also finds out that the relationship between financial development and economic growth is non-linear. However, the financial sector exerts positive effects on growth only at intermediate levels of financial development. Durfenot et al. (2010) conclude that financial intermediation positively influences economic growth in the OECD countries, while its effect is negative in the developing countries. They observed 89 countries in the period from 1980 to 2006. Similar period (1980-2007) was also observed by Hassan et al. (2011), but the results are completely opposite: there is a positive relationship between financial development and economic growth in developing countries. However, the authors used different proxies for financial intermediation.

The most recent paper in which authors take into account non-linearities (Cecchetti and Kharroubi, 2012) shows that the level of financial development is good only up to a point,

after which it becomes a drag on growth. The sample consists of 50 advanced and emerging economies over the period 1980-2009. Dependant variable is real GDP-per-worker growth, and independent financial variables private credit to GDP, private credit by banks to GDP and financial intermediation share in total employment. Basically, at low levels of finance a larger financial system goes hand in hand with higher productivity growth, but after a certain point (after it exceeds GDP) more banking and more credit are associated with lower growth. When it comes to employment measures, the threshold is when the financial sector represents more than 3.5% of total employment; after that point further increase tends to be detrimental to growth. Similar results were obtained by Arcand et al. (2012) who showed that the threshold level, after which financial depth negatively influences growth, is between 80 and 100% of GDP. Their sample consists of 133 countries over the period 1960-2010.

Related research was carried out by Aghion et al. (2005) but the focus was on convergence. The main finding is that countries above a certain threshold of financial development converge to the same long-term growth rate, while countries under the threshold have lower long-term growth rates. They use the same data (71 countries, 1960-1995) and methodology like Levine et al. (2000), but they add an interaction term between initial GDP per capita (relative to the USA) and financial development indicator (share of private sector credit to GDP). The assumption is that low financial development decreases the probability to converge to growth rate of the country which is the technology leader (in their paper USA); due to insufficient financial development, there is no technology transfer. The main channel by which finance influences growth is productivity, and not capital accumulation. The threshold is the share of credit to GDP of 25%; half of the countries in the sample is above it. The authors do robustness tests and once they include institutional variables significance of financial variables decreases. They conclude that some unspecified combination of financial development and institutions matters for development.

Brezigar-Masten et al. (2008) also use level of financial development as the threshold variable and find explicit threshold effects: less developed countries in their sample (transition economies) benefit more from the development of domestic financial markets than EU-15 economies. However, the time period they observe is shorter (1996-2004), they apply dynamic panel analysis, and use both macro and industry-level data. Fung (2009) gets the similar result for 57 countries in the sample running from 1967 to 2001: low-income countries with a relatively well-developed financial sector are more likely to catch up to their middle- and high-income counterparts. The relationship between financial development and economic growth diminishes as sustained economic growth gets under way.

Even though it was stated at the beginning of this review that paper with industry data will not be taken into account, one of them should be mentioned because the authors take a different

perspective. Namely, Coricelli and Roland (2008) extend Rajan and Zingales (1998)[21] in order to study the potential asymmetric effects of financial markets on growth. Their sample covers one hundred fifteen countries across twenty eight manufacturing industries between 1963 and 2003. When replicating the analysis of Rajan and Zingales they fail to uncover any robust evidence of a significant positive effect of financial sector development on industrial growth. However, they discover that financial development plays an important role during episodes of output decline. "In particular, industries which are relatively more dependent on external finance decline relatively faster in countries with lower financial sector development, measured as the credit-to-GDP ratio. These findings suggest that credit markets play a more important role in softening (or, depending on the quality of credit market institutions, magnifying) output declines than in fostering growth, which support the conjecture that the impact of financial development on growth is asymmetric." Basically, credit markets matter most during recessions.

What can we conclude from this section? Simply, there is no consensus among researchers for which countries financial deepening would be the most beneficial in terms of economic growth, although there is more evidence that it would benefit countries that are not already rich. One thing is certain: taking non-linearities into account is very important. Let us now see how the time dimension influences the results.

1.2.3 Time perspective

One way of investigating the finance growth nexus is to go further into the past or expand the time periods of previous influential papers. Rousseau and Wachtel (2011) did the second. They try to see whether the link between finance and growth in cross country panel data has weakened over time. They find that the impact of financial deepening on growth is not as strong with more recent data (1990 to 2004) as it appeared in studies with data for the period from 1960 to 1989. In fact, the effect of financial depth on growth disappears. The authors explain it by financial crisis which were often in the 1990s. In other words: "There is a thin line between financial deepening that comes from the expansion of financial intermediary activity and financial deepening that is the consequence of a credit boom. In the first instance increased intermediation is likely to be growth enhancing, while in the second instance credit standards deteriorate, nonperforming loans proliferate and a banking crisis ensues." The authors conclude that in order to understand better the finance growth nexus, systemic study of the financial development experience of individual countries becomes necessary.

[21] Rajan and Zingales (1998) show that industries that are more dependant on external finance grow faster in countries with a developed financial system. Their sample consists of 38 industries in 41 countries for the period from 1980 to 1990. Manning (2003) found out that their results change when Asian countries are included, and in those countries as far as economic growth is concerned, the main credit is not given to financial factors. For example, Park (1993) writes that deepening of the financial system was not crucial for mobilization of savings or improvement of allocation efficiency in South Korea and Taiwan. Exactly the opposite: fast development of the financial system was a result of high growth rates, high propensity to save and price stability - finance has in a passive way adjusted to changes in the real economy.

In their paper they mention research done by Loayza and Ranciere (2005) who make a distinction between the short- and long-run effects of financial intermediation. They find that in the long run financial development supports and promotes economic growth. However, systemic banking crises, cycles of booms and busts, and overall financial volatility can harm economic growth. This holds for the short run. Financial depth leads to higher growth, and financial fragility has negative growth consequences. Total effect of financial liberalization and intermediation may be a combination of these effects, with weights for financial depth and financial fragility depending on the country's stage of financial development. They obtain their results on the sample of 82 countries with annual data during the period 1960-2000. As it was mentioned earlier, Christopoulos and Tsionas (2004) and Fink et al. (2005) also do not "agree" on the short run vs. long run effects.

When it comes to the first group of papers, those that go further into the past, there are empirical papers in economic history which deal with the finance growth nexus. Already in 1969 Goldsmith studied the link between financial development (share of bank assets in GDP) and economic growth on a sample of 35 countries for the period from 1860 to 1963 and established a positive correlation. McKinnon (1973) focused on the link between financial system and economic growth for Argentina, Brazil, Chile, Indonesia, Korea, Germany and Taiwan after the Second World War and showed that financial system can contribute to economic growth but that it depends on many factors (political, legal, industrial). It is difficult to figure out importance of each of them. When it comes to causality, the author concludes that it is country and period specific.

One of the most mentioned papers in this area comes from 1990s and is written by Rousseau and Wachtel (1998). They apply time series analysis on data for USA, Great Britain, Canada, Norway and Sweden during industrialization (1870-1929). As financial indicators they use commercial bank deposits and assets of commercial banks, savings banks, and insurance companies. Their conclusion is that in that period and in these countries financial intermediation caused economic growth. It is interesting that their data series ends in 1929. Namely, Friedman and Schwartz (1963) wrote that banks contributed to intensifying of Great Depression because they decreased shareholders' wealth and led to a fast decrease in money supply. Bernanke (1983) adds that banks decreased the number of loans (especially to households and small enterprises) and thereby extended the crisis until 1933. A similar situation happened in Canada.

Rousseau and Sylla (2005) analyse the relationship between financial markets and economic growth in the USA for the period from 1790 to 1850, which is a long time series compared to other papers, but still their data sets are more limited than contemporary ones. They apply time series analysis and show that financial development helped USA to, at the beginning of the 19th century, cross on a higher path of economic growth compared to other countries.

They conclude that: "Judging by US history, the widespread contemporary interest in developing and improving financial system to foster economic growth is not misplaced." However, they use different measures of financial development than other papers reviewed in this paper: money stock and number of listed securities.

Burhop (2006) examined the relationship between growth of banks assets and economic performance (growth, capital accumulation, productivity) using a data set for Germany, covering the years 1860-1913, and a new data set for joint-stock credit banks covering the years 1851-1913. His result is that joint-stock credit banks played a vital role in the early industrial development of 19th century Germany. Total assets of credit banks positively influenced capital formation in the industrial sector between 1851 and 1882. However, using economy-wide data for financial depth, national income, capital stock and productivity, they detect no leading role of the financial sector during 1860-1913. Basically, role of credit banks was the greatest in the early phases of Germany's industrialization when its economy may have been relatively backward. The debate on the role of banks in Germany's development is still on-going among economic historians. The same is true for England, France, Japan, etc.[22]

Bordo and Rousseau (2006) expand this historical line of research with institutional variables. They use data for 17 countries for the period from 1880 to 1997 in order to explore the link between finance, growth, legal origin and political environment. The authors find that political variables such as proportional representation election systems, frequent elections, universal female suffrage, and infrequent revolutions or coups seem linked to larger financial sectors and higher conditional rates of economic growth. However, a large part of the growth-enhancing role of financial development remains unexplained with institutional fundamentals. Still, they stress that institutions are important for avoidance of financial crises, which can also influence economic growth. It is important to mention that there are several papers/books which cover historical case studies in which econometrics is not applied. The most influential ones are: Cameron et al. (1967), Cameron (1972), Gerschenkron (1962), Sylla et al. (1999), Cassis (2002) etc.

A general conclusion from this section is that every country is specific, and that even for a single country there are different views on the role of financial development in economic growth, even if the same time period is observed. It is not clear whether financial intermediation is more important for economic growth in short or long run, even though there is more evidence in favour of the long run. It will definitively be interesting to observe how the results will change when the data series expands to the present. Let us now focus on the proxies used for financial intermediation.

[22] For a short review of papers written on the role of financial revolutions in economic growth of Germany, Belgium, Sweden and Japan, see Rousseau and Sylla (2006).

1.2.4 Proxies

Probably the most important problem in the whole finance-growth literature is that theory and empirics are disconnected. While theory focuses on financial efficiency, data limitations determine the focus of empirics, which is financial depth (share of private sector credit in GDP) or size (share of bank assets in GDP). Basically, theory is not confronted with data (Trew, 2006). This leads to another important issue: is it possible that, due to data limitations, the role of finance in determining economic growth is exaggerated? Furthermore, there are no clear quantitative lessons to be drawn from the existing literature. Here is a list of the most pronounced problems regarding the proxies used in research:

- Monetary aggregates, which are often used in the literature, are probably not a good measure of financial intermediation because they show how good the financial system is in providing liquidity. For example, low level of M1 in GDP can show that financial system is developed and that individuals need not hold a lot of cash. Fortunately, these proxies are used less and less.
- The trend of financial development measured by the credit-to-GDP ratio is itself rising over time across countries. As a result, those countries that did converge have necessarily had a higher measure of financial development over the observed period (Trew, 2006). It should be necessary to compare countries at a similar stage of economic development, which several papers confirm.
- Research does not differentiate between loans to companies and consumers. A notable exception is a paper by Beck et al. (2008).
- Countries for which data are not available (usually undeveloped economies) are excluded from the sample, and their inclusion would probably change the results. This is the selection bias towards the developed economies. In addition, papers that observe a large number of countries mostly exclude former socialist countries. It is recommendable to study groups of similar countries, or each country individually.
- Increasing share of credit to private sector need not be a sign of growing financial development. Rather, it can be a sign of a forthcoming financial crisis. This has been ignored by most researchers.
- It is hard to believe that any single aggregated financial measure would be sufficient to capture most aspects of financial development because countries differ in terms of their financial structure, degree of concentration of financial institutions, size of financial institutions and instruments, efficiency of financial intermediaries, volume of financial transactions and effectiveness of the financial regulatory framework (Ang, 2008).

Benhabib and Spiegel (2000) think that there are indications that the financial development indicators are proxying for broader country characteristics. Namely, they find that indicators of financial development are correlated with both total factor productivity and investment. However, indicators that are correlated with total factor productivity growth differ from those

that encourage investment. Research done by Hasan et al. (2009) differs from the "standard" research in so far they suggest a more direct measure of the quality of finance rather than it's quantity (credit to private sector). They test if bank profit efficiency, estimated at the firm-level (around 7,000 banks in 11 EU countries[23] between 1996 and 2004) significantly spurs economic growth. The authors establish a positive relation between banking quality and economic growth in EU-11 and find out that the quality channel has approximately three times the effect compared to the quantity channel. Koivu (2002) also uses a non-standard proxy, net interest margin, which was already mentioned. Greenwod et al. (2010) gauge financial sector productivity by interest-rate spread and show that financial intermediation is important for economic development, but that around 65% of cross-country variation (45 economies) in GDP cannot be accounted for by variation in financial systems. Namely, there are huge differences in the productivity of the non-financial sector. They calibrate a model to match facts about the US economy and then use it to study international data, which is an approach different form other researchers'.

Capelle-Blanchard and Labonne (2011) gauge the size of the financial sector based on its inputs, rather than its outputs. Namely, they take into account two non-standard variables: 1) the number of employees in the financial sector divided by the total workforce and 2) the ratio of private credit divided by the number of employees in the financial sector. The former accounts for the size of the financial workforce relative to the rest of the economy, while the latter indicates performance. The authors consider that an increase in credit volume does not necessarily mean that the financial sector fulfils its functions better; excessive growth of credit can undermine economic growth. Since allocation of talent is an important determinant of growth, the authors consider the possibility that the financial industry has attracted too many talents to the detriment of other industries. Apart from labour measures, they also use classical measures of financial deepening (private credit/GDP, liquid liabilities/GDP, bank credit/total credit). Their study does not show a robust positive relationship between financial deepening and GDP for OECD countries over the last 40 years. A similar proxy, share of financial intermediation in total employment, was also used by Cecchetti and Kharroubi (2012), as previously mentioned.

An overview of proxies used in the finance and growth literature can be seen in Appendix A. Future research should focus on the efficiency of financial intermediation, rather than on financial deepening. Standard proxies for financial intermediation could be enhanced with other variables in order to add dynamics into the relationship between finance and growth. This leads us to interaction terms.

[23] Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Spain, Sweden.

1.2.5 Interactions

A gold-mine regarding future progress on the finance and growth literature could be interactions, and not only those between financial variables and GDP. It is surprising that such a small number of "combinations" has been used so far. Ahlin and Pang (2008) focus on the interaction between corruption control and financial development in order to find out whether they work as complements or substitutes in promoting economic growth. They find out, using dynamic panel analysis on both macro and industry data during 1960-2000 that financial development and low corruption are substitutes. In other words, the growth impact of reducing corruption is higher when the financial system is less developed. Conversely, the growth impact of improving the financial system is higher when corruption is high. They however point out that there is overlap in the institutions and other ingredients behind financial development and corruption control. Detragiache et al. (2005) also analyse this link and find out that corruption is associated with a shallower and less efficient financial system in the sample of low-income countries. However, they find no significant relationship between legal origin and characteristics of the supervisory and regulatory framework with financial system performance. Furthermore, better contract enforcement and information about borrowers are associated with more private sector credit.

Demetriades and Law (2006) interact financial development and institutional quality indicators for 72 countries for the period 1978-2000. Their main result is that in low-income countries institutional quality represents a more robust determinant of long-term economic development than financial development. "It seems that without good institutions any positive effects of financial development are weakened substantially, if they are to be found at all". Their conclusion is that improvements in institutions are likely to deliver much larger direct effects on economic development than finance on its own. Allen et al. (2005) point out that China is an important counterpart to the findings in law, institutions, and growth literature: "neither its legal nor financial system is well developed, yet it has one of the fastest growing economies". Their conclusion is that the faster growing private sector in China, compared to the public one, is supported by alternative financing channels and governance mechanisms, such as those based on reputation and relationships. They challenge the view that property rights and the lack of government corruption are crucial in determining financial and economic outcomes. China's advantage in that respect seems to be the fact that China has got a high level of social trust, which is influenced by Confucian beliefs. This shifts the focus of research from formal to informal institutions. However, Garretsen, Lensink and Sterken (2004) find that societal norms are not important in explaining the supply of bank credit, while they do matter in explaining stock market capitalization (cca 40 countries in the sample; 1976-1993).

1.3 Discussion

A general conclusion which could be made from the existing literature is that there is a broadly positive correlation between financial development (i.e. financial deepening) and economic growth but there is still no consensus on the direction of causality. Progress in research has been achieved in terms of econometric methodology, paying more attention to nonlinearities as well as heterogeneities, and including transition economies in this field of research. However, it seems that breakthrough papers still have not appeared. Rather, the progress is slow and researchers seem to go round in circles. This section consists of pinpointing the most "problematic" issues in theoretical and empirical research. It ends with a suggestion of a possible way ahead in this area of research.

1.3.1 Shortcomings of theoretical models

In most theoretical papers financial system is static: the relationship between agents and intermediaries does not change over time, and this need not be the case. The static relationship requires that the level of financial depth remains constant as the economy grows and that is at odds with empirics. The only exception is paper written by Blackburn et al. (2005). Furthermore, in most models financial intermediation refers to banking systems with perfect competition while in reality banking systems are characterized by monopolistic competition. Some authors consider securities markets, but usually agents in the models have to choose between banks and securities which exclude each other. The exception is again Blackburn et al. (2005) who consider parallel existence of banks and securities markets. Furthermore, researchers usually do not include the possibility of multiple equilibriums. Saint-Paul (1992) is an exception; in his model there is equilibrium with low growth rates and low financial development and equilibrium with high growth rates and highly developed financial system.

Some of the problems with theoretical models are also that they to a great extent clash with the "real world".

- Investment is determined not only by availability of finance, as it is assumed in models, but also by macroeconomic stability, public investment, exchange rate, uncertainty, etc. Johnson, McMillan and Woodruff (2002) showed on sample of ex-socialist countries that weak protection of property rights discourages companies from reinvesting their net profit more than credit availability.
- Widespread opinion is that bankers mostly lend to already well-established and successful companies; this is true - if bankers behaved differently, they would soon be out of business. In models it is assumed that bankers lend to entrepreneurs who are just starting their business.

- Stiglitz and Weiss (1981) showed that credit rationing can occur even endogenously because of information asymmetries.[24]
- Internal finance is the main source of financing industry.
- Socially most productive activities need not be profitable for banks, i.e. projects with the highest return do not necessarily have large social returns.
- It is always difficult to estimate whether the real problem is in banks that do not provide enough funds for investment, or that there is no demand for those funds.
- Weinstein and Yafeh (1998) showed that in Japan large banks have more use of the relationship between them and companies. Furthermore, they discourage companies from investing in risky, profitable projects. The main banks in Japan have used their monopolistic position to transfer funds from industrial to financial sector.
- Theoretical models neglect principal agent problem when stressing the importance of banks for improving corporate governance.

In the following text attention will be given to empirical research.

1.3.2 Problematic issues in empirical research

Given all available results, it is surprising how sometimes easily researchers conclude that finance causes growth - everywhere and all times. It was even an official stand of the World Bank (World Bank, 2001). In a more recent paper, two World Bank researchers conclude: "In summary, despite the weaknesses and qualifications, the accumulation of evidence suggests that financial development is *crucial* for growth. While the evidence may not convince all sceptics, it is strong enough to motivate the policymakers to *prioritize* financial sector policies and devote attention to policy determinants of financial development as a mechanism for promoting growth" (Demirgüç-Kunt and Levine, 2008:36). It is interesting to note that in their review they present results of only two papers written by "the sceptics": Rioja and Valev (2004) and Loayza and Ranciere (2005). In addition, Levine appears as author on most of the mentioned papers.

Less attention is given to stressing that it can be difficult to separate the individual influence of finance from other correlated factors. In a stagnating economy it is difficult to say what hinders economic growth: lack of financial funds, lack of entrepreneurship or something else. For example, innovations in telecommunications and computers have influenced the development of financial system. Similar could be said about legal system and political institutions that influence both financial system and economic growth. All generalizations could lead to wrong policy advice. There is one more obvious problem in the reviewed papers: almost everybody ignores the dark side of finance, i.e. the financial crises, and they can also influence economic growth.

[24] As the interest rate goes up, the average quality of agents who borrow money decreases because those with the more secure projects are the first to give up. After some time, further increase of the interest rate decreases the expected return of agents who are ready to lend and this is why supply curve shifts backwards. Hence there is excess demand for loans.

However, it is important to note that there is a vast literature on the effects of financial liberalization on economic growth, where authors usually focus on financial crises. Unfortunately, this strand of literature is not merged with the literature on finance intermediation and growth. Since bank crises are numerous, but also expensive, authors should take this into account when making conclusions about the importance of finance for growth. Also, there is not much attention given to differentiating transitory growth based on unsustainable debt and sustainable based on production increase. Furthermore, the authors do not differentiate between financial development based on consumer loans to the one based on investing in production. Beck et al. (2008) point out that this differentiation is very important. Namely, according to their findings, bank lending to enterprises, not to households, drives the positive impact of financial development on economic growth.

Several researchers checked the robustness of economic growth determinants. Sala-i-Martin et al. (2004) employ Bayesian Averaging of Classical Estimates to check the robustness of explanatory variables in cross-country economic regressions. Of 67 explanatory variables they find only 18 to be significantly and robustly partially correlated with long-term growth. Surprisingly, they do not check robustness of any financial intermediation variables. Durlauf et al. (2008) find little evidence, by using model averaging methods, that new growth theories play an important role in explaining aggregate growth. In contrast, they find that variation in growth rates across countries are more robustly explained by differences in macroeconomic policies and unknown heterogeneity associated with regional groupings. They suggest more work in uncovering potential nonlinearities and heterogeneity in growth processes across countries and more attention to microeconomic and historical studies. Just like Sala-i-Martin et al. (2004), they do not check the robustness of financial intermediation variables. The same holds for Levine and Renelt (1992).

Hanousek et al. (2008) emphasize one more important point: measured rates of growth in real per capita income differ drastically depending on the data source. They replicate several recent studies of growth determinants and show that results are sensitive to the choice of data (PWT, WDI, IFS). These studies include Aghion et al. (2005): significance of the key interaction variable (financial development and initial GDP) tends to be both smaller in magnitude and less significant than reported in the original paper when using IFS, rather than PWT, growth rates. PWT adjustments bias upwards measures of growth for rich countries and downwards those for low income countries, leading to underestimates of the degree of convergence.

In sum: empirical research does not give clear answers on the importance of financial intermediation by banks for economic growth. The findings differ with countries in the sample, control variables and financial proxies used, the time period covered, the econometric

techniques employed, the level of economic development, etc.[25] Although the direction of causality is a very important question, it seems that it is keeping the researchers away from trying to understand the "bigger picture". They are "always crashing in the same car".[26] The most important lesson, which was already pointed out by Henderson et al. (2008:34) is that "failure to account for nonlinearities, variable interactions, and parameter heterogeneity could lead to gross misconceptions about what is really going on. If one ignores nonlinearities, policy recommendations based off a specific growth theory may not offer the correct prescription." This is what we so far know about finance and growth. However, the key question still remains unanswered: if finance matters for growth, why do some countries have financial systems that spur economic growth, and the other do not? It is important to find out when and under what circumstances does financial sector have a positive influence on economic growth and what determines its efficiency in this context? The broad comparative analyses are unable to capture and account for the complexity of the financial environments and histories of each individual country. Countries have different institutional structures and different financial policies, as well as different effectiveness of those institutions and policies. Instead of pushing the causality issue, changing countries in the sample, choosing between the short run and the long run, a different approach is needed. Suggestion of a possible way ahead follows in the next section.

1.3.3 Which way ahead?

One natural way ahead is multidisciplinarity. Cassis (2002) suggests that we should study the interaction between economic, political and social aspects of finance as well as different level of each of these aspects for each country individually. Economic aspect refers to the share of finance in the economy, social on the position of financial elites, and political on the influence of financial interests on politics. One of the reasons why financial system has always been interesting as a determinant of growth is because the government can influence it. Since the financial system determines who will use society's savings, political factors have always shaped policies directed at the financial system and its functioning (Levine, 2005). Economic historians Sylla et al. (1999) wrote that the more historical roots and the development of modern financial system are studied, the more obvious it becomes that in most critical points when financial system changed, for better or worse, the role of government was of crucial importance. This does not surprise because government has always needed financial funds, mostly for political ambitions, of which the most important one has been war financing.

Haber's (2008) analysis also indicates that the major reforms in banking law in the United States and Mexico were motivated by governments seeking source of public finance, and that one feature of those government initiatives was constraints on competition. Apart from

[25] For a general description of the "credibility revolution" in empirical economics see a review by Angrist and Pischke (2010).
[26] "Always Crashing in the Same Car" is a song by David Bowie (album Low, 1977).

needing financial funds, the government also had the ability of coercion which enabled it to collect taxes. This also means that it had greater ability of borrowing and returning debts compared to private agents. Furthermore, the government had the power to create financial institutions and markets, as well as to influence their development, through legislation. Sylla (2002:291) later adds: "In this age of neo-liberalism, the disproportionate emphasis given especially to banks and also stock markets, with a corresponding de-emphasis of the role of the state, its public finances, and to a lesser extent its central banks seems not fully in accord with history's lessons. In history, when the state got right its finances, stabilized the currency, and had an effective central bank, the securities markets, banks, and other financial intermediaries usually flourished."

Appendix A shows that government's role does seem to be deemphasized. Government usually enters the growth regressions as part of the conditioning set in terms of the share of government consumption in GDP, i.e. government size. Other than that, possible way of government influencing the results in reviewed studies is through political stability and institutional variables such as property rights, corruption, administrative barriers, efficiency of the bureaucracy, etc. With a surge in institutional fundamentalism, institutional variables are more and more present in growth regression. However, studies on finance and growth largely ignore the role and the character of government intervention in the financial markets.

The goal of the next chapter is to provide an overview of literature dealing with interaction between government and banks, mostly from the political economy point of view, in order to discover possible "hidden" factors which are left out from the finance-growth theory and empirics. By concentrating on a smaller part of financial intermediation, maybe it is possible to find out under which circumstances banks have a positive influence on economic growth.

2 RELATIONSHIP BETWEEN GOVERNMENT AND BANKS IN FINANCIAL INTERMEDIATION

Men of money can buy men of power.
(Landes, 2002:520)

Cameron (1972:9) wrote that in no other economic sector, apart from maybe in foreign trade, has government intervened so broadly, so consistently, and with such telling effect - usually bad. Several decades later, Fry (1995:371) also concludes that only in a small number of countries has government intervention been benign. According to La Porta et al. (2002), there are two approaches to government involvement in financial markets. The first one is an optimistic, developmental approach which is attributed to Gerschenkron (1962). His opinion was that in some countries in the 19th century, Russia especially, economic institutions were not developed enough for private banks to have a key developmental role. The banking system could not attract enough financial funds for industrialization because of a severe capital shortage, and besides, the level of distrust in the country was enormous. In such conditions, the government had to assume the function of industrial banks.[27] This idea has been accepted across the world: in 1960s and in 1970s, governments have nationalized the existing commercial banks and founded new ones in Africa, Asia and Latin America (La Porta et al., 2002).

According to the second, political approach to government involvement in financial markets, the government gains control over banks and companies in order to provide employment, subsidies and other benefits to its supporters, who in turn vote for a specific party, finance its campaign or give bribes.[28] Political control over banks is the largest in countries with underdeveloped financial systems and weak protection of property rights, because the government does not have to compete with the financial sector for resources.

In general, state intervention in financial markets is usually justified by market failures and externalities. Another viewpoint, by which government intervention is necessary, finds its justification in basic ingredients which are required for a developed financial system (Rajan and Zingales, 2003:18): 1) protection of property rights; 2) accounting standards which promote transparency; 3) legal system which enables inexpensive enforcement of contracts; 4) regulatory infrastructure which protects consumers, encourages competition and controls excessive risk taking. Although all this might be achieved through private agreements, the government has the ability to coordinate standards and use coercion. Government intervention

[27] Gerschenkron was at that time not the only one with such attitudes about the need for government ownership of companies in strategic industrial sectors. Lewis (1950) was also in favor of government ownership over banks. According to his opinion, controlling finances would lead to development of strategic industries.

[28] Even Gerschenkron (1962:20) wrote that, because of the incompetence and corruption of government officials during industrialization, there was a large waste of resources. Despite that, he thought that the financing of industrialization by the government in Russia was a great success.

is larger in the banking sector than in other sectors, because banking is generally considered vital for the economy and is an important source of fiscal revenues. Apart from intervening directly (through for example subsidies to certain industrial sector), and controlling the banking system through regulation, the government can influence financial intermediaries by monetary and fiscal policies; e.g. inflation has a significant impact on financial intermediation, as has taxation.

Montiel (2003:2002-205) describes three types of policies by which government can enhance market efficiency: 1) enabling policies; 2) policies directed towards developing the financial market infrastructure; and 3) policies created to resolve special problems in the financial sector. Enabling policies are those that improve the environment in which financial intermediaries operate. They are not directed towards the financial sector exclusively. The enabling policies decrease risk and enhance the ability of financial intermediaries of monitoring. They also include avoiding a large tax burden on financial intermediaries and their clients. The enabling policies have an institutional and a macroeconomic dimension. Institutional policies promote financial sector development by enabling financial intermediaries to deal with credit market imperfections (which are a basis for external financing premium) in a less expensive way. These policies decrease information costs and the costs of contract enforcement by imposing an adequate legal framework.

The main components of an adequate legal framework are: defined property rights, accounting standards, standards on information disclosure, insider trading laws, commercial laws and bankruptcy laws to protect shareholders and creditors, and efficient judiciary. The macroeconomic dimension refers to policies which influence the external financing premium. Policies directed at infrastructure include the provision of regulatory and supervision framework which promote competition in the financial sector and alleviate the moral hazard problem by preventing excessive risk taking. Here it comes to three special functions: 1. setting up and applying standards for obtaining working licenses for banks; 2. developing market infrastructure for stock and bond trading; 3. introducing and applying anti-trust laws for banks. Policies aimed at special problems of the financial sector include preventing and dealing with bank crises and asset market bubbles.

In sum, the government is deeply involved in the banking sector. However, the government is not a disinterested party. It simultaneously regulates banks and sees them as a source of finance (e.g. taxes on bank capital or profits, dividends from bank ownership, credit lines from banks, mandatory purchase of government bonds). Hence, the government has a conflict of interest. The government can structure institutions that govern banking to meet demands coming from the private economy, or it can structure them in a way which would enable its own political survival. It may, for example, create bank monopolies that share rents with the government or allocate charters only to politically favoured constituents. Government officials can also demand bribes. It seems natural to assume that political institutions that

limit the government's authority and discretion have an important role in the banking system development. Indeed, the main message of a book edited by Haber, North and Weingast (2008) is that political institutions are the most important determinants of financial institutions. Sometimes financial markets provoke political change, but it is the political institutions as well as their enforcement characteristics that determine which financial institutions are stable in the long run.

The goal of this chapter is to analyse the interaction between government and banks in financial intermediation, mostly from the political economy point of view. It will be done by looking into financial market and government failures. Apart from problems including the quality of public governance, attention will be drawn to the fact that banks can have significant influence on the government and its regulatory bodies, with a consequence of misallocation of resources.

2.1 Financial market failures

Financial markets, in comparison to other markets, have some specific characteristics which also manifest themselves in their failures. Since one of the main roles of the financial markets is the collection and processing of information, one can assume that problems mostly occur in that segment. The problem of information as a public good appears on financial markets in at least two contexts (Stiglitz, 1994). The first one relates to information on the solvency of financial intermediaries, which are important for investors or depositors wishing to take a loan or entrust their funds to a specific financial intermediary respectively. The second problem concerns information on the management of financial intermediaries, which influences the risk and the rate of return on investments. In both cases, the problem is actually in the information asymmetries, which is especially pronounced in banks, since they are less transparent than other companies. For example, in banking it is not easy to estimate the loan quality, or in other words, one can hide the true quality of the loan for a long time.

With asymmetric information, markets do not have to be in equilibrium and Pareto efficient. On the loan markets, investors who are ready to pay the most are not necessarily those who can ensure the highest return. Expected return can fall as the interest rate goes up, since the risk of default increases. The consequence can be credit rationing; even when there is excess demand for loans, banks will not necessarily increase interest rates. Instead, interest rates will be set on a level which maximizes banks' expected return. This situation was first described by Stiglitz and Weiss (1981). The problem is also that, on financial markets, private and social returns are not aligned, and this is why markets can continuously avoid financing certain projects. Good projects can be forced out from the market, and the biggest part of loans can go into consumer goods and real estate.

Bank management is in charge of efficient allocation of resources, but the question is: who monitors the managers? Who supervises the supervisory board? According to Stiglitz (1994), monitoring is a public good, which means that there is insufficient supply of it: shareholders and depositors do not put enough effort in monitoring financial intermediaries. This can have damaging consequences for two reasons. First, managers know that they are not being monitored, which motivates them to undertake very high-risk projects, or to use the assets of the intermediary for their personal benefit. This problem is described as moral hazard and it can be explained by the principal agent relationship: the agent has always had incentives to make decisions which benefit him at the expense of his principal. For example, the agent (bank manager) is prone to offer high interest rates to attract depositors and then invest in risky projects with high rate of return so that he can keep a large share of net profits.

From microeconomic perspective, bank managers operating as agents will lead to misallocation of resources because they will undertake risky activities that maximize their private expected return, and not the expected gain for the society as a whole (Montiel, 2003:242). Second, insufficient monitoring builds distrust among investors. Therefore, less funds will be allocated through financial intermediaries who will therefore not be able to perform their functions as they otherwise could. The moral hazard problem has become widespread and it partly explains the worldwide outbreak of banking crises. Economists have still not found the most appropriate way to correct the incentive and moral hazard problems for banks. Possible solutions are requiring higher (and more narrowly defined) capital-to-assets ratios, mandating stricter definition and disclosure of nonperforming loans, installing "world-class" supervision etc.

Apart from moral hazard, a specific characteristic of financial intermediation is adverse selection. One of the most important functions of banks is choosing between alternative projects and monitoring the use of allocated funds. With the mere fact that there are "bad" companies on the market, it is difficult for good companies to obtain funds, because potential investors (banks) do not easily distinguish between these two groups of companies. The selection, therefore, has its consequence - the cost, and besides, bad companies can "spoil" the market. Another characteristic of financial markets is that failure of only one financial intermediary can have significant effects. A failure of one bank can disrupt the flow of loans to certain investors. Furthermore, after the bank failure, investors have to decrease the volume of their business activities, which then influences their clients. The domino effect should also be taken into account: even if the collapse of one intermediary does not cause financial panic, some depositors will withdraw their funds out of fear that their bank might fail, too. Banks do not take into consideration these externalities, which makes the public interest for financial intermediaries' solvency greater than the private interest of owners and managers.

An important characteristic of the banking system is imperfect competition, that is, limited competition. Each bank has data on its clients in its database. If a certain client is reliable

from one bank's perspective, this information is not automatically transmitted to another bank. For the other bank, this client is unknown and hence riskier than for the first one. Therefore, if there are ten banks on the market, this does not mean that they are all available to potential investors (Stiglitz, 1994:29). Competition can be observed as a double- edge sword. On the one hand, lack of competition can lead to higher interest rates, while on the other hand, high interest rates generate larger profits which enhance the strength of financial intermediaries and reduce the risk of insolvency. Finally, uninformed investors cannot be considered as market failures, but they can be a justified reason for state intervention (Stiglitz, 1994:31). Banks can misuse the fact that their average clients do not understand compound interest, indexing etc., and this is why regulations should be formulated in a way which prevents banks from abusing uninformed clients.

In the following text, the focus will be on government failures, narrowed under four sections: financial repression, financial liberalization and bank crises, quality of public governance, and interest groups. These four aspects have been chosen because they can give a good insight into the complexity of the government-banks relationship.

2.2 Financial repression

The fact that some government interventions are justified does not imply that every intervention is justified. The best example of this is financial repression. Policy measures which can be characterized as financial repression are the following (Montiel, 2003:215-217; Agénor, 2000:56-57):

- Controls of capital inflows and outflows. Under financial repression, domestic residents are typically not allowed to hold foreign assets, and domestic firms are not permitted to borrow abroad. The consequences are that a country is characterized by financial autarky and that foreign financial intermediaries cannot compete with the domestic financial industry.
- Restrictions on entry into the formal financial sector. Under financial repression, there is no possibility of free entry in and exit from the domestic financial sector, and many banks are government-owned. The consequence is that domestic financial sector does not operate under competitive conditions. The banking sector is usually dominated by a few banks, the largest of which are government-owned.
- High reserve and liquidity requirements on banks. Banks are required to hold high reserve ratios on which they do not earn interest. In addition, they often have to hold liquidity ratios in the form of government securities which typically yield a return much lower than would be required for banks to choose to hold them voluntarily. This can be considered as forced allocation of assets by commercial banks to the public sector. Through both mechanisms banks indirectly pay taxes and lose freedom of allocating a large portion of their assets into productive loans.

- Interest rate ceilings on bank assets and liabilities which usually lead to negative real interest rates. Ceilings on interest rates imply that banks cannot compete in price and that they cannot increase deposit interest rates in order to compete with nonbank intermediaries on the informal financial market. If there are ceilings on loan interest rates, it means that banks cannot allocate their loans on the basis of price, and are forced to engage in non-price rationing of credit.
- Directed credit restrictions on the composition of bank asset portfolios. Policy makers can force banks to allocate funds in certain sectors or activities which they believe should have priority. These credits must often be given under preferential interest rates. This measure, along with the high reserve requirement, additionally reduces the funds available to financial intermediaries.
- The use of bank credit ceilings as instruments of monetary control. Monetary authorities set targets for the amount of overall crediting which is then distributed among individual banks.

These policies cause distortions in financial intermediation and therefore reduce efficiency of resource allocation and negatively influence growth (Montiel, 2003:223-225). More specifically:

- Restrictions on competition may impair allocative efficiency because government-owned and protected banks do not have incentives to carefully select and monitor their borrowers.
- High reserve requirements mean that a larger portion of household savings will be channelled into government spending. Investment undertaken by government might not have high enough return in order to compensate for missed investment in the private sector. Reserve requirement can be observed as tax on banks which increases the cost of intermediation.
- High price ceilings prevent financial system from allocating capital into the most productive uses. Informal market can be developed (which can be less efficient) or credit rationing can occur.
- Because of the obligation of directing credit into certain sectors or activities, banks give credits to companies which might not qualify for them under market conditions.
- Limitations on the flow of capital reduce competition in the financial sector and hence reduce incentives to lower the intermediation costs.

Roubini and Sala-i-Martin (1992), on a sample of 98 countries in the period 1960-1985, show that the financial repression policies do reduce the growth rate of the economy.

When it comes to government ownership of banks, which is still widespread around the world,[29] most of the evidence shows that it cannot be connected with positive results (Barth,

[29] La Porta et al. (2002) take a sample of 92 countries to show that in an average country in 1970, 59% of the assets of 10 largest banks was owned by the government, while in 1995, the share of government ownership was 42%.

Caprio and Levine, 2004). La Porta et al. (2002) elaborate that government ownership politicizes the allocation of resources and impairs its efficiency. Their main result is that larger government ownership of banks is correlated with lower growth rates and lower productivity in the following periods, including in poor countries. However, when the authors include schooling and initial financial development in their model, the significance of government ownership of banks falls. Government ownership is especially pronounced in poor countries, countries with low protection of property rights, underdeveloped financial systems and large government interventionism in the economy as a whole. It is important to point out that a large share of government ownership is not necessarily negative if there is a long and good tradition of government ownership, as is the case in Germany, but such examples are rare.

From the "political" point of view, state-owned banks are widespread because this is in the interests of politicians, since it enables them to direct credit and favours, such as employment and subsidies, to political supporters. This then enables corrupt politicians to attract votes, political contributions and bribes, which give rise to a vicious circle of bad economic decisions and re-election of corrupt politicians. Andrianova et al. (2008) challenge La Porta et al. (2002) results. They emphasize that state banks might be useful at low levels of institutional development. They find the privatization of state banks in such conditions at best unnecessary and at worst detrimental. Specifically, state banks will die naturally when they are no longer useful, assuming removal of subsidies. The government should rather build institutions that foster the development of private banks. Körner and Schnabel (2011) also criticize La Porta el al. (2002) findings. Their paper shows that the relationship between public ownership of banks and lower GDP growth does not hold for all countries. Rather, it depends on a country's financial development and political institutions. Public ownership is harmful only if a country has low financial development and a low institutional quality.

China is an interesting example, since its banking system is dominated by state banks and it has still had very high growth rates in the last twenty years or so. Dinç's (2005) paper shows that government-owned banks in major emerging markets[30] in the 1990s increased their lending in election years relative to private banks. This does not hold for developed economies. He adds that politicians can use the power of government to influence private banks as well, but he does not focus on that in his paper. Bonin et al. (2005) investigate the impact of bank privatization in transition economies (the largest banks in Bulgaria, Czech Republic, Croatia, Hungary, Poland and Romania). Their empirical results show that government-owned banks are least efficient, while foreign greenfield-banks are the most efficient.

[30] Argentina, Brazil, Chile, Colombia, Czech Republic, Hungary, India, Israel, South Korea, Malaysia, Mexico, Peru, Philippines, Poland, Russia, Singapore, South Africa, Taiwan, Thailand, Turkey, Venezuela.

Financial repression is usually not motivated by correcting market failures in the process of financial intermediation, and therefore it is doubtful to what extent can it improve its functioning from the aspect of financial market imperfections. The main motivation for financial repression is fiscal (Montiel, 2003:214); the government relies on implicit taxing of financial sector because it has difficulties in collecting taxes in the conventional way. Giovannini and Melo (1993) provide empirical evidence on the effects of financial repression on government finances. They show that the revenue from financial repression (the difference between the foreign and the domestic cost of funds, times the domestic stock of government debt) can be quite large, and for several countries it is in the same order of magnitude as seignorage. In their case, financial repression is a combination of controls of international capital flows and restrictions on domestic interest rates.

Exemptions from the negative relationship between financial repression and economic growth are Japan and four Asian tigers. However, financial repression in these countries was different from others because it was moderate: there were no large negative real interest rates, banks were trying to decrease interest spread so that a larger share of savings could go into investment, and repression was carried out in conditions of financial stability (Montiel, 2003:229). Besides, the government did not direct loans to consumption. Funds were allocated for investment based on the amount of exports as criterion. These countries were successful because they did not exaggerate in the financial repression and because the repression was going on under special circumstances which could hardly be found somewhere else. When financial repression has other goals than removing market inefficiencies, then its net effect is damaging.

2.3 Financial liberalization and bank crises

In the 1970s, McKinnon (1973) criticized financial repression because it reduced the depth of the financial system and efficiency of savings allocation. His proposal was complete liberalization. The basic idea behind liberalization was that it would be followed by higher real interest rates, which would increase savings and make loans more available.[31] Financial liberalization actually represents the removal of the earlier mentioned restrictions on financial intermediation. After the liberalization, competition and market efficiency should ensure adequate functioning of a deregulated financial system. The key problem with this approach has already been described in this chapter: it is not reasonable to assume that deregulated markets will be efficient; in a totally liberalized system there is a threat of a systemic misallocation of resources and sensitivity to crashes. These crashes include bank crises (solvency problems) and bank panics (liquidity problems). Evidence has shown that financial liberalization is usually followed by a financial crisis. In general, there is not enough evidence

[31] It has been evidenced that financial liberalization can decrease liquidity constraints and hence lead to a temporary increase of consumption, not saving (Agénor, 2000:56-57); elasticity of saving to real interest rate is low or equal to zero.

that after the financial liberalization, the efficiency of the allocation of resources increases in terms that they are used in the most productive way (Caprio, 1994:2).[32]

From 1970 to 2011, there were 147 systemic banking crises (Laeven and Valencia, 2012). Crises are obviously numerous, but also expensive, which is especially damaging in developing countries. Apart from influencing growth (Gorton and Winton, 2002), they produce large fiscal costs - these funds could have been used, e.g. for healthcare and education. Caprio and Honohan (2008) estimate that the total fiscal costs of crises in developing countries since the 1970s have exceeded USD 1 trillion - which is above the total development aid provided in advanced economies. Laeven and Valencia (2012) state that the median fiscal costs of a bank crisis are 6.8% of GDP. In addition, median output losses are 23% of GDP. It is interesting that there is a low correlation between the size of fiscal costs and output losses, suggesting that the crisis is paid either through fiscal costs or heavier output losses. Since more recent crises also affect advanced economies (and not only the emerging ones), the authors raise a question whether there has been any systematic change that increases the fragility of banking systems in advanced economies which otherwise have deeper financial markets and higher-quality institutions.

Reinhart and Rogoff (2008) show that banking crises considerably weaken fiscal positions, with government revenues contracting and fiscal expenditures sharply expanding. Three years after a financial crisis, the central government debt increases on average, by about 86%. The fiscal burden of banking crises extends beyond the cost of the bailouts; the burden comes from prolonged recessions and fiscal expansions designed to combat them. Recently, Furceri and Zdzienicka (2011) have shown that financial crises have a permanent and significant effect on output in transition economies; they lower long-term output by about 17%.

As far as the determinants of bank crises are concerned, there are quite a few possible reasons. According to Demirgüç-Kunt and Detragiache (1998) the determinants of bank crises in developing countries from 1980 to 1994 were the following: low GDP growth, excessively high real interest rates, high inflation and low legal system effectiveness. Eichengreen and Arteta (2000) pinpoint rapid domestic credit growth, large bank liabilities relative to reserves, and deposit-rate decontrol as the determinants of bank crises. Caprio (2008) sees the roots of crises in either bad banking (mismanagement) or bad policies - those that permit or encourage bad banking. Reinhart and Rogoff (2008) find that systemic banking crises are usually preceded by asset price bubbles, large capital inflows and credit booms, in both rich and poor countries.

[32] Loayza and Ranciere (2005) find that financial liberalization has a positive impact on economic growth in the long run, while in the short run it is characterized by financial crises and low GDP growth rates or recession.

After each crisis, there is a call for more official prudential regulation and supervision in order to prevent a new crisis. The government reacts in case of a bank crisis, because it does not want the public to think that it will lead to a financial system collapse, or because it does not want citizens to suffer losses. However, if the government intervenes in the case of a financial collapse, this creates expectations that it will always bear the cost of financial crises by "saving" banks and protecting depositors. Since banks expect to be rescued, they will be less careful in giving loans, i.e. in considering the applications for loans. In other words, banks will take higher risks than they would if there was no government backup. Furthermore, as long as a single bank behaves like other banks, the probability of the government rescue grows. In order to prevent bank crises, governments usually introduce safety nets, such as deposit insurance, but this can lead to moral hazard for banks.

Barth, Caprio and Levine (1999) find a negative correlation between the quality of public governance and probability of bank crises. In general, it has been shown that the effects of financial liberalization depend on the institutional structure of the economy, that is, the quality of public governance (Arestis and Demetriades, 1997). Furthermore, before liberalization, macroeconomic stability and adequate prudential supervision and regulation of banks should be ensured, which is usually not the case. Liberalization without an appropriate regulatory framework has disappointing results, which was obvious in the case of Latin American countries. Even though it could be claimed that financial liberalization should not be discussed in the context of government failures, this paragraph will prove otherwise.

2.4 Quality of public governance

Cameron (1972:19) wrote that if we want to achieve that the banking system effectively contributes to capital formation, then the government has to provide minimal conditions for financial and political order, and refrain from random and ad hoc interference that increases uncertainty on long-range investment planning. If the banking system is distorted by bad regulation and policy measures, it can thwart the country's economic growth. It could be said that Cameron stressed the importance of the quality of public governance, i.e. the way in which the government uses its authority in managing the country's institutional environment. The government engages in correcting market imperfections, assuming that it has the ability or will to do it, but a market failure does not necessarily imply government success. Normative literature presumes the existence of a benevolent dictator, but that "species" is all too rare in the real world of economic policy making (Grossman and Helpman, 2001). Recently, economists have developed a new approach to analysing the policy influence on the economy, treating policy makers as agents who want to maximize their personal benefit, and not like benevolent social planners. This approach is known as the "new political economy" (Pagano and Volpin, 2001:503). By applying political economy to finance, it can be understood why financial regulation often has flaws and why it hinders the market

development instead of promoting it. In other words, it helps to understand why some countries have poorly designed financial institutions and regulation.

Most policy measures directed at the financial system implicitly assume that the government will strive for common good, but such attitude neglects the incentives with which policy makers are faced and the political structure within which they operate. For example, in a World Bank publication (World Bank, 2001:130), it is stated that banks will contribute to economic growth if there is a large enough number of well-motivated regulatory bodies for financial intermediaries. However, when it comes to regulation, there is the problem of incentives: in the "real" world, regulators often earn less than those who they should regulate. Because of this, there is often a lack of quality staff in regulatory agencies, or widespread corruption. Even if there is no corruption, every kind of monitoring is fallible; there should be agencies for monitoring monitory agencies.[33] In addition, Barth, Caprio and Levine (1999) point out that banks are quite difficult to regulate: "information problems affect all participants, whether they are creditors, shareholders, senior banks managers, or even regulators".

The main problem is the following: how can policy makers remove market inefficiencies if they are working in their own interest? Furthermore: what is the probability that good financial policy will be adopted if it is opposite to interests of policy makers currently in power? Too often personal interest of policy makers created and sustained distorted incentives in financial sectors, which led to a crisis or the allocation of resources of government-owned banks for political or personal causes (Haggard and Lee, 1993). Since the financial development requires government action, the key question is when and where there is political will to carry out such policies. Who can force the government to hold on to its commitments? It has been shown that the will to form a good regulatory framework is more important than the ability to regulate (Haggard and Lee, 1993). It should also be taken into account that political and institutional obstacles to financial sector development slowly change. Path dependency exists: initial laws shaped the differences between financial systems.

Even if the role of the government is initially justified, it can lead to rent seeking. The financial sector is different from other sectors in the sense that it includes an (implicit or explicit) safety net which, combined with banking regulation may enable some institutions to enjoy economic rents. Rent can be defined in several ways (Buchanan, 1980:4): as a 1) part of the payment to an owner of resources over and above that which those resources could command in any alternative use; 2) receipt in excess of opportunity cost; and 3) allocatively unnecessary payment not required to attract resources to the particular employment. Just like the rent, rent seeking can be described in several ways: as a 1) socially expensive search for wealth transfers (Tollison, 1997:506); 2) process by which an individual, organization or

[33] A possible problem is that regulators often become employees of companies they used to regulate.

company tries to obtain benefits by manipulating economic environment instead of trading and producing added value; 3) description of behaviour in institutional environment where individual efforts to maximize value result in the waste of social resources, rather than social surplus (Buchanan, 1980:4); or simply 4) using the government to obtain higher than normal returns - rents (Rosen and Gayer, 2008).

On an individual level, behaviour is not different from profit seeking in market interactions. Rent seeking is a rational behaviour but it reduces the amount of resources available to the society. "The unintended consequences of individual value maximization shift from those that may be classified as 'good' to those that seem clearly to be 'bad', not because individuals become different moral beings and modify their actions accordingly, but because the institutional structure changes. The setting within which individual choices are made is transformed. As institutions have moved away from ordered markets toward the near chaos of direct political allocation, rent-seeking has emerged as a significant social phenomenon." (Buchanan, 1980:4)

Public governance can be categorized as bad if it results in institutions which stimulate rent seeking and consumption instead of production and saving (Hall and Jones, 1999). If the culture of rent seeking prevails, individuals believe that influence over political allocation is the main source of personal benefit. In order to get rich and improve their private position, individuals focus their activities on obtaining favourable government decisions. Namely, rent is received when a third party, usually the government, makes it impossible for one party to have access to otherwise available transaction possibilities, by which a nominally consensual transaction between two parties becomes an opportunity for rent collection for one party. Furthermore, if somebody gets a monopoly right, others will not patiently observe it. They will instead invest effort, time and other productive activities to win over the policy makers' favour, which would bring them personal benefit.

Buchanan (1980:12-14) identified three types of expenditures in rent seeking which can be wasteful from the society point of view: 1) efforts and expenditures of potential monopolists (lobbying etc.); 2) efforts of state officials in order to obtain or react to expenditures of potential monopolists (e.g. bribes); 3) distortions caused to third parties by monopolists or the government as a result of rent seeking activities (efforts of others to receive subsidies or at least form an oligopoly). The main point is that those resources could have been used in a more productive way. If a company can calculate the cost of lobbying, bribery or any other way of obtaining favourable regulations from the state, than this cost can be compared to the cost of obtaining similar benefits within the market by investment or increased productivity. If buying a favourable regulatory environment is cheaper than increasing the production efficiency, than it will lead to a suboptimal allocation of resources (money spent on lobbying instead on improving production) and productivity slowdown.

In theory, the notion of rent seeking usually refers to rents from regulation, monopoly or tariffs. Rent seeking can be observed as a two-phase game. In the first phase, agents are competing for control over the political apparatus which creates and distributes rents through legislation. In the second phase, agents are competing for rents which stem from monopoly and regulation (Tollison, 1997:519). Instead of looking at private companies as government victims, they could be observed as government's accomplices in forming institutions (laws, acts, regulations) which create rent seeking opportunities for both parties. Rents are shared between government officials and companies through government interventions and distribution of legal and regulatory advantages to some companies.

Political economy does not take regulation as given. Instead, it is trying to understand it - when and why it changes and develops, taking into account demand and supply factors. From the demand side, it is dealing with the pressure of interest groups on legislators and regulators in order to promote policies for their own private interest, rather than contribute to social welfare. In some environments, regulators can be a special interest group (Kroszner, 1998). Regulatory equilibrium in financial markets is influenced by technological, economics and legal shocks (Kroszner, 1998), or it can come to a crisis which changes the distribution of power among existing interest groups. Traditional approach of economists to regulation is that it exists in order to correct market imperfections and hence maximize social welfare. This is the public interest theory.

The economic theory of regulation (e.g. Stigler, 1971; Peltzman, 1976; Becker, 1983), or the private interest theory, is based on the assumption of the regulatory process, characterized by competition among interest groups which use government's power to obtain rents at the expense of other groups. These interest groups can be so strong that they can capture regulators. For this reason, this theory is also called the capture theory. The continuous existing of a dysfunctional regulatory framework can be partially explained with politicians and regulators being captured by those they should be regulating. In these cases the regulatory policy works in the private interest and not in the interest of the general public. Even if regulation seems strict, there can be loopholes in the law.

According to Braun and Raddatz (2009), evidence is in favour of the capture view when it comes to banking. They gathered new data showing that, in a large number of countries, former cabinet members, central bank governors, and financial regulators are much more likely to become board members at banks than an ordinary citizen. Politicians and bankers are deeply intertwined and results show that connected banks tend to be the largest in the country, more profitable, and have higher returns on assets. Connected banks also seem to take less risk since they tend to have a lower proportion of write-offs and impaired loans relative to gross loans. This is all true, regardless of whether the government has some participation in their ownership. The prevalence of banker-politicians is higher in countries with higher corruption and more powerful, yet less accountable governments. The authors define total

rents as the net interest revenue to assets, and the share of rents accruing to bank owners as the returns on assets (net income to assets) to total rents.

Prevalence and rents are positively correlated, but the effect and its significance drop when controlling for GDP p.c. and total population. The percentage of total rents accruing to bankers is significantly and positively associated with the prevalence of the banker-politician phenomenon in the presence of controls. In short: in places where the banker-politician phenomenon is more prevalent, whatever rents are created are much more likely to accrue to bank owners than to politician's constituencies. Also, countries with higher prevalence have less developed banking sectors (the ratio of bank credit to the private sector to GDP). Barth et al. (2008) also find evidence of the private interest theory when studying bank supervision and regulation. They find a positive link between empowering official supervisors and corruption in lending. The data also show that empowering official supervisors has little impact on the efficiency of intermediation as measured by bank overhead costs. The authors suggest that private monitoring of banks tends to enhance the efficiency of intermediation and integrity of bank-firm relations. Information disclosure seems to be very important for financial development.

McNulty et al. (2007) explore the level of financial intermediation in 17 transitional economies (from 1993 to 2001) and document that the rule of law and legal enforcement increase intermediation. Weill (2011) finds out that corruption diminishes bank lending in Russia and favours lending to government entities over lending to households and firms. Haselmann and Wachtel (2007) explore how legal environment affects bank behaviour in 20 transition economies. They find that if banks operate in a well-functioning legal environment they lend relatively more to SMEs and provide more mortgages. If the legal system is unsound, banks lend more to large enterprises and to the government. The authors identify as a transmission channel banks' willingness to accept collateral which depends on the bankers' perceptions of the prevailing laws regarding collateral. Banking regulation is an area in which political factors can have a significant role - Kroszner and Strahan (1999) have shown that the timing of interstate branch banking regulations in the USA since the 1970s has been determined by the relative power of interest groups which would be influenced by reform. Deregulation happened earlier in states with a lesser number of small banks, states in which small banks were financially weaker and states with more small companies dependent on banks. In the next section, more details will be given about banks as interest groups.

2.5 Interest groups

Already in his Logic of Collective Action, Olson (1965) argued that the market power of those organized into groups will be exerted at the expense of others, and inefficient allocation will follow. In other words, special interests negatively affect economic activity, i.e. economic growth (Olson, 1982). Empirical evidence on that issue is mixed (see e.g.

Heckelman, 2000; Horgos and Zimmermann, 2009), which can be partly explained by the different (imperfect) proxies that the authors use. Potters and Sloof (1996) provide a review of empirical models that try to assess the influence of interest groups. They show that studies incorporating interest group activities other than donating to campaigns are rare.

Hellman, Jones and Kaufmann (2003) focused in their research on two concepts: state capture and state influence. State capture refers to payments by private companies to state officials in order to have impact on the rules of the game (institutions), and state influence has the same goal but without paying to state officials. This kind of corruption cannot be considered as extortion, since it is based on voluntary companies' decisions. The authors conducted their research on a sample of 22 transition countries (Eastern Europe and former Soviet Union) in order to stress that, after only a decade of transition, the fear of government as Leviathan has been replaced with a new reason to worry: powerful oligarchs who manipulate politicians and shape institutions in order to advance and protect their empires at the expense of social interests (Hellman, Jones and Kaufmann, 2003:752).

The authors have shown that influential companies are usually large, state-owned, privatized and have close formal and informal ties with the state. Their influence is the legacy of the past. On the other hand, companies which capture the state are newly founded private companies with weaker government ties. The authors have found out that both groups of companies grew faster than other companies and that social costs of capture and influence for other companies (especially small) have been significant. There are two groups of countries: countries with high state capture and countries with low state capture. In the first group of countries, regulatory framework is distorted for the benefit of a few powerful companies. In the second group of countries, companies might want to capture the state, but there are limitations which prevent government officials from the abuse of power. The authors also provide some evidence that private gains to capture are associated with substantial social costs in capture economies in terms of overall economic performance.

Participation of interest groups in policy making is not specific for transition countries only; it can be generally stated that politics is a battle between numerous competing interests. Unfortunately, Hellman, Jones and Kaufmann (2003) did not include banks in their survey, but banks can be a strong interest group. Interest group can be formed more easily if the number of potential members is small (Mueller, 2003:473) and the banking sector is characterized by monopolistic competition, i.e. a small number of participants.[34] Animosity is

[34] Landes (1958) wrote that in banking, it was always easier to absorb rivals than to fight them. Banks cooperated even if they were competitors; before they entered their bids for some project, they usually came to some arrangement prior to that. Furthermore, "only the new, the ambitious, or the desperate resorted systematically to price competition" (Landes, 1958:41). Another economic historian, Rondo Cameron (1967:313) concluded that "there is no historical justification for believing that competition in banking is, in general, detrimental to the interests of society as a whole".

often felt towards banks; it is believed that banks control everything, that they are above everything and that they are a symbol of power of the rich. The following quotes support these views:

- "History records that the money changers have used every form of abuse, intrigue, deceit, and violent means possible to maintain their control over governments by controlling money and its issuance." (James Madison)
- "What is the crime of robbing a bank compared with the crime of founding one." (Bertolt Brecht)
- "I believe that banking institutions are more dangerous to our liberties than standing armies." (Thomas Jefferson)
- "The bank is something more than men, I tell you. It's the monster. Men made it, but they can't control it." (John Steinbeck)
- "Give me the power to issue a nation's money, then I do not care who makes the law." (Anselm Rothschild)

James (2002:118) stresses that banks do not operate in some neutral, antiseptic environment; they are a part of a larger financial and social system in which government plays the leading role, and government is susceptible to many economic and political influences. When Willie Sutton, a famous bank robber, was asked why he robbed banks, he replied: Because that's where the money is. The connection between politics and special interests can be very close if for nothing else, then because banks are where the money is.

Bankers have always enjoyed close relationships with political power, most often as advisors to politicians (Cassis, 2002), because they had good technical knowledge about finance. This relationship has become even closer as government officials often had leading manager positions in banks. Through their influence on politics, banks have always tried to defend their own interests (e.g. preventing competitors from entering the market), as well as to stay independent from government interference. Naturally, the bankers' influence on politicians has not always and everywhere been the same. For example, in Great Britain, at the end of the 19th century, bankers enjoyed better social status from bankers in Germany, i.e. they were better integrated in higher classes. In general, British bankers have been very successful in defending their interests until 1946, when the Bank of England was nationalized, but even then the government's authority over banking stayed limited. Interests of the financial community were successfully presented as the interests of the whole society.

Cassis (2002) has shown that banks have, throughout history, quickly learned how to avoid the main purpose of different types of regulation. Bankers' influence on government officials has depended on how successful they were compared to other interest groups. David Landes (1958) gives many historical examples of various types of close relationships between rulers and bankers. He wrote the following about banking in Europe in the 18th century: "…one may be sure that much influence with governments was bought - tactfully, through gratuities and

accommodations, and crudely, by bribes". According to his findings, corruption was definitely a tool of banking policy.

In addition to bribery, influence can nowadays be exercised through lobbying and the financing of political campaigns, which are also forms of rent seeking (Mueller, 2003:498). It is interesting that in the USA in 1999, financial and real estate industry had the largest share in federal lobbying expenditures (Grossman and Helpman, 2001).[35] Lobbying is a unidirectional transfer of information from an interest group to the government (Mueller, 2003:494). The way in which lobbyists function is that they help legislators in formulating new laws. Their advantage is that they have access to information; legislators cannot master all technical and very complex questions in all fields and this is why they need the resources and expertise of lobbyists. Another way of exercising influence is campaign financing. Even if it is regulated by strict laws (which is usually not the case, except in highly developed countries), interest groups find a way to circumvent them. With their contributions interest groups buy influence: a loophole can be created, amendment not put forward etc. All this affects the composition of laws, which then influences policy outcomes: "the link between a contribution and a legislator's action need not be made explicit, but nonetheless, influence is there: candidates know where their money is coming from" (Grossman and Helpman, 2001:12-13).

Johnson and Kwak (2010) show that campaign-finance contributions in the US by financial industry have influenced the financial deregulation preceding the crisis, helped shape the response and is influencing post-crisis efforts at regulatory reform. They present America's big banks acting as oligarchy, a group that has gained political power because of its economic power and then used the political power for its own benefit. The influence is not made only through campaign contributions but also through revolving door of jobs in government and on Wall Street, and the creation of culture that equated Wall Street's gain with America's gain.

Often corruption and lobbying are thought to be very similar. However, lobbying is usually focused on changing existing laws, and corruption on avoiding enforcement of existing laws and regulations. In addition, bribing is illegal in all countries, while lobbying is admitted and institutionalized in many countries. The shift from bribing to lobbying occurs at higher levels of economic development. According to Tollison (1997:508), technically, bribe is not a rent-seeking cost. Bribe is a transfer and as such represents a method of influence on government's behaviour and that does not include explicit costs of rent seeking (consumption of expensive resources in order to get a transfer). Hiring a lawyer or lobbying to get a favourable law is rent seeking; bribing a legislator for the same purpose is not.

[35] Anyone who spends at least 20% of his or her time for a particular client on lobbying activities must register with the US government (Grossman and Helpman, 2001:6). Also, according to the Lobbying Disclosure Act, from 1995, firms in America must report an estimate of their income from lobbying.

Lambsdorff (2002) has a different view on the costs of lobbying and corruption. He claims that the traditional rent-seeking theory misunderstands three factors: "first, the impact of a corrupt monopoly on the rent's size; second, corruption as a motivation for supplying preferential treatment and third; that corruption involves a narrower range of interests than those of competitive lobbying". Taken all that into account, corruption actually has worse welfare implications than alternative rent-seeking activities. Since corruption impedes the organizing of broad interests it goes along with larger expenses for rent-seeking and higher inducements for public decision-makers to create market distortions. In addition, corruption motivates the creation of inefficient rules that generate rents.

Even though the literature on lobbying is growing, the empirical research is rare. Empirical papers are usually limited to developed countries and concentrate on characteristics of companies as determinants of lobbying (within one country) or differences in GDP in cross-country comparisons. Campos and Giovannoni (2007) conducted their research on a sample of around 4000 companies in 25 transition countries using BEEPS (World Bank, 1999) data for the year 1999. By using Tobit econometric analysis they have found that lobbying and corruption work as substitutes and that lobbying is generally a more efficient instrument for influencing policy makers than corruption, even in poor, less developed transition countries. This especially refers to highly positioned government officials. The notion "substitutes" in this context means that lobbying is an important alternative instrument to corruption in influencing policy makers in transition countries.

Their analysis also suggests that there is a larger probability for lobbying to occur in countries which have parliamentary systems (more players with veto rights) and high level of political stability. In addition, the size of companies has significant influence on whether they will become lobby members, and probability of membership increases with the share of foreign ownership in a company as well as with the size of GDP (e.g. in Hungary and in Slovenia 77% and 67% companies stated they are lobby members respectively). Furthermore, in countries in which corruption is decreasing, the influence of lobbying is growing.

The nature of state interventionism in the field of finance depends on the type of relationship between government and financial elite. Financial elite can be connected with political elite only, or it can, together with political and industrial elites, form a single elite as it was the case in France in the last couple of decades (Cassis, 2002:13). The question is if bankers are a special interest group or connected with somebody. Morck et al. (2005) think that powerful families are those who control both banks and the political system. According to the authors, business elites (majority owners, often powerful families) manage to transform their business power in political influence. They use this influence to create, with the help of policy makers, policies which would protect them from competition and enable subsidies for their business operations. In countries in which corporate ownership is highly concentrated, the probability of influencing policy measures in a way to stimulate rent seeking and stifle growth is large.

Growth can also be hindered through direct influence of business elites on other companies and banks. Groups of influential companies often own banks as members of these groups. Also, economic and political elites can have shared control over the financial system.

Caprio, Laeven and Levine (2003) analyse 10 largest banks in each of the forty-four countries in the sample and discover that half of shareholders with controlling packages of banks' shares are rich families. The problem in banking is frequently that politically powerful families control the banks and the political system, so that regulatory policies are often used to impede, not support, effective corporate governance (Levine, 2004). Bankers can exert a powerful influence over governments and regulators, so that regulations serve to promote the interests of incumbent bankers rather than promote social welfare. Powerful banks may "capture" politicians and induce official regulators to act in the best interest of banks rather than in the best interest of the society (Levine, 2004). Research also shows that countries that are more autocratic tend to use government-owned banks to direct credit towards the interests of the politically powerful, to limit competition in banking in order to protect incumbent banks, and to create regulatory restrictions, so that bankers need to lobby politicians for special exemptions (Barth et al., 2006).

Haber and Perotti (2008) conclude that countries with weakly limited government are dominated by an alliance between political elite and entrenched economic elite (family-based business groups) that enjoys special privileges. This system maintains high oligopolistic rents, high financial barriers and prevents new initiatives. It is important to point out that in the cases when politicians promoted the interests of bankers, it was not necessarily at the expense of others - e.g. financial stability is in the interest of others, too. Furthermore, the relative power of interest groups changes over time. A question that should be asked is why it was believed in some periods of time that bankers had a great influence on the government, i.e. that government was captured by bankers. It is not impossible that in some cases, government officials tended to blame the financial community for their own mistakes.

It is often assumed that the influence of foreign banks is not as pronounced as that of domestic banks. However, Landes (1958:65) gives as an example a speech delivered by Sir William Clay in 1864 in front of the shareholders of Ottoman Bank (which came to existence by merging a couple of banks from the West and from the East). This is how he explained why it was worthwhile to build relations with Turkish banks: "…there were many financial operations connected with the government, others with municipal bodies, and other again with individuals, in which local experience, knowledge, and connections of the native bankers and capitalists of Constantinople made them the most fitting instruments". The "problem" with the strong presence of foreign banks is that they can reduce government control over the economy.

The ability of interest groups to achieve their goals depends on the interest of politicians and structure of state institutions (Haggard and Lee, 1993). In countries in which banks are faced with regulations full of flaws, corruption and frequent preferential measures, they are in a better position to get central bank policies which suit them better (Haggard and Lee, 1993). The scope of influence of sector interests over politicians depends on political rules within which they operate, and maybe even on social norms. A financially and politically strong private banking community is more likely to oppose active government intervention in financial markets, although they may accommodate themselves to it. In their paper Baum et al. (2008) investigate whether banks with political affiliations to members of the Ukrainian parliament behave differently from those lacking such associations. Banks seek political connections in order to overcome many obstacles and improve the conditions for doing business, and in return for their services politicians seek political rents which might take the form of donations, charitable activities or the availability of below-market-rate loans. They add that in that sense, banks with important political affiliations may be operating with a different objective function than that of strict profit maximization. A bank that is making loans for politically motivated ends is sub-optimizing relative to a profit maximizing bank operating on more objective criteria.

In their research, they use a panel of 150 banks covering the 2003Q3-2005Q2 period. In order to identify the political links, they examine the biographies of 467 members of Parliament during 2002-2006: "a parliamentary deputy is considered as affiliated with a bank if he/she was a member of the board of a bank, worked in bank management, or served on the board of a business group that included banks". Their findings are the following: 1) the interest margins of affiliated banks grow significantly more slowly than those of non-affiliated banks; 2) the increase in the capitalization rate is higher for connected than for non-connected banks; 3) in periods of negative growth, the capitalization ratios of the non-affiliated banks decrease more strongly; 4) the activity level of affiliated deputies lowers the interest rate margin and stimulates the capitalization of their affiliated banks.[36] Furthermore, their results suggest that "deputy-affiliated banks increase their capitalization ratios, which are generally lower, to pave the way for a merger with a foreign bank".

Findings by Coates and Wilson (2007) suggest that the number of interest groups is negatively related to the level and volatility of national stock market returns, and that the magnitude of the relationship is quite large. Interest groups are associated with an inefficient allocation of resources; they thwart innovation, and protect incumbent firms. The authors measure interest group activity with a count of the total number of "trade associations" in a country in 1970, and their dataset consists of a cross-section of 55 countries over the period

[36] "A bank that gives loans for politically-motivated ends (e.g. in return for its affiliated deputies' exerting influence on its behalf on legislation or regulations) is sub-optimizing to a profit-maximizing bank operating on more objective criteria. However, such a bank may be attracting a larger customer base by offering more attractive loan and deposit rates, thus enhancing its value to a foreign investor by increasing the market share at the expense of short-term profitability" (Baum et al., 2008).

1970-2000. Another interesting research was carried out by Mian, Sufi and Trebbi (2010a). They examine congressional voting patterns in the US on the American Housing Rescue and Foreclosure Prevention Act of 2008 (AHRFPA) and the Emergency Economic Stabilization Act of 2008 (EESA). They find that constituent interests strongly influenced politicians' voting patterns on the AHRFPA, with Republicans being more likely to vote in favour of the legislation if their district is experiencing high mortgage default rates. In addition, special interest campaign contributions from the financial services industry are positively related to votes in favour of the EESA. The EESA is a bill which transfers wealth from tax payers to the financial services industry.[37]

In their follow-up research, Mian et al. (2010b) examine how special interests, measured by campaign contributions from the mortgage industry, and constituent interests, measured by the share of subprime borrowers in a congressional district, influenced the U.S. government policy towards the housing sector during the subprime mortgage credit expansion from 2002 to 2007. The authors show that, beginning in 2002, mortgage industry campaign contributions increasingly targeted U.S. representatives from districts with a large fraction of subprime borrowers. During the expansion years, the mortgage industry campaign contributions and the share of subprime borrowers in a congressional district increasingly predicted congressional voting behaviour on housing-related legislation. Their findings suggest that the pressure on the U.S. government to expand subprime credit came from both mortgage lenders and subprime borrowers.

Interesting research was carried out by Campos and Coricelli (2009). They find a nonlinear relationship between financial and political liberalization, which is closely linked with the relative power of political and economic elites/interest groups. The authors stress the heterogeneity of elites and the fact that the functioning of financial sectors may affect asymmetrically different elites. In autocracies, political elites have greater power than economic elites. The government represents political elite that maximizes its own interest - staying in power. They have to build consensus in population in order to avoid the risk of being overthrown and, at the same time, they rely on specific economic elites. In intermediate regimes, the balance tilts towards economic elites, while and in full-fledged democracies - towards the majority of population. The power of economic elites reaches its peak in intermediate regimes, regimes of partial democracy, in which economic elites capture the government. This means that the lowest level of financial reform tends to occur in partial democracies. Between autocracy and democracy, countries can get stuck in equilibrium with

[37] In his farewell letter from the financial industry, the American hedge fund manager Lahde wrote (FT, 2008): "On the issue of the U.S. Government, I would like to make a modest proposal. First, I point out the obvious flaws, whereby legislation was repeatedly brought forth to Congress over the past eight years, which would have reigned in the predatory lending practices of now mostly defunct institutions. These institutions regularly filled the coffers of both parties in return for voting down all of this legislation designed to protect the common citizen."

incomplete democracy and incomplete economic reform.[38] The financial sector is one of the areas in which autocratic governments have carried out significant reforms. The authors show that reversals happen often both in political and financial reforms, and that they are linked.

Campos and Coricelli (2009) believe that the link between the financial sector and political reforms works through two distinct channels: defence of rent-seeking through barriers to financial development and the other one that has to do with government revenues: financial repression can be an important way for the state to raise revenue (high reserve requirements or ceiling on deposit rates increase bank margins and, consequently, taxable income from banks). While one elite benefits from financial repression, the other elite and the population are negatively affected. The elites controlling financial institutions have a direct interest in expanding their activities, and large manufacturing firms may support them because they need funds. When the banking system is controlled by the state, political elites can use the banking sector as an economic lever in their own interest. Rajan and Zingales (2003) have studied the role of interest groups in opposing financial development. Power groups may gain strength even in a democracy and push for reversals of financial sector reform in order to create barriers to entry and protect their monopoly rights as incumbents.

The importance of interest groups in financial development was studied by Becerra et al. (2012) too. On a sample of 84 countries for the period 1965-2003 they showed that high interest group opposition to financial development and low government capabilities determine lower levels of financial development. Their proxy for interest groups' incentive to block financial development is the country-level average of Rajan and Zingales's (1998) measure of dependence on credit, where weights are given by the size of each sector in the country's industrial value added. Governments' policymaking capabilities are proxied by the quality of bureaucracy (ICRG dataset). Private credit to GDP serves as the benchmark measure of a country's financial development.

2.6 Which way ahead?

To summarize, there seem to be two confronting streams when it comes to the banks-government relationship. On the one hand, government officials are not benevolent social planners and they will, if not prevented by law, try to maximize their own wealth, not the social welfare. They are open to any collaboration with different interest groups if it will benefit them. On the other hand, there are the bankers, a fundamentally pragmatic interest group (also ready to cooperate with whomever it takes), who will use their power to maximize

[38] Their sample consists of 25 Eastern European and former Soviet Union countries observed from 1989 to 2005. They proxy financial efficiency by two variables: ratio of bank overhead costs to total assets and net interest margin. Larger values indicate less competition and less reform. They also generate a composite index of political reform by combining Freedom Houses' Civil Liberties and Political Rights, Nations in Transition Democracy and the Presidential Power Index.

profits, regardless of the impact on aggregate economic activity (McKinnon, 1973:74).[39] Government has the power to regulate the banking system (and indeed, banking industry is the most heavily regulated one), but the banks have the power to capture the regulators. In addition, bankers and politicians can share rents which are mutually agreed upon. Bankers put political entrepreneurs on their board of directors, make loans with no expectation of repayment or bribe them. There are a few reasons for optimism when it comes to strong government involvement in financial intermediation, but consequences of total government withdrawal can be detrimental.

It is very clear that the relationship between government and banks is much more complex than it is assumed in the standard finance and growth empirical research. Finding the right balance is very difficult in everything, and this relationship is not an exemption. In general, the debate on the government's involvement in the economy is still open. Chang (1997) identifies three phases of government involvement after the WW2. The first one is the age of regulation (1945-70), when government intervention increased in most countries, in the forms of increased government expenditure, nationalization, extension of regulation, with accompanying developments in interventionist economic theories. The second phase is the transition period (1970-80), when government intervention came under significant political attack, supported by the rise of anti-interventionist economic theories. The age of deregulation (1980-the present) is the third phase; then many countries tried to reduce government intervention by privatization, budget cuts, and deregulation, often taking justification from the extensions of the anti-interventionist theories that originated in the 1970s and were elaborated during the 1980s. The most recent financial crisis shows initiatives for government comeback, up to the extent of nationalising banks.

Kroszner (1998) states that from the political economy perspective, crises are associated with reform because crises are likely to upset the old political-economy equilibrium. There are four reasons for this: 1) crises rarely affect all parties similarly and tend to have important distributional consequences; 2) economic upheaval can change the relative costs and benefits of particular regulations; 3) a crisis can also affect bureaucratic incentives for regulatory change; 4) enormous costs of a financial crisis may serve an important educational role for the public.

In the next two chapters, attempts will be made to incorporate the findings of this chapter into more careful examination of the link between financial intermediation by banks and economic growth. This will be done by analysing the determinants of bank financial intermediation costs and of economic growth. The goal is to combine government and market failures and include them into empirical models relevant for explaining the finance growth nexus. Naturally, the problem with political economy models in general is that they are hard to test because they reduce the number of variables that can be considered as given (exogenous in

[39] Banks are not special in this view; all economic agents are led by the profit motive.

the economic, not econometric terminology). This lowers the number of predictions these models are able to produce, a problem sometimes compounded by the existence of multiple equilibria (Pagano and Volpin, 2001). For example, documenting that money affects policy outcomes is not an easy task because it is difficult to know what a bill would have looked like, absent the net effect of all contributions. Despite these difficulties, attempts will be made to make the best use of available data.

3 DETERMINANTS OF FINANCIAL INTERMEDIATION COSTS BORNE BY BANKS

Not everything that can be counted counts, and not everything that counts can be counted.
(Albert Einstein)

The focus of this chapter will be exclusively on the cost of financial intermediation, namely on bank interest margin as its indicator. Bank margin can also be observed as an indicator of the banking system efficiency (Demirgüç-Kunt and Huizunga, 1999). Efficiency tends to be a broad term with different meanings. One could say that a bank is efficient if it has got high net profits. On the other hand, that doesn't mean that the bank contributes, through intermediation, to high returns on savings or investment. If the incentives for saving are low, if there is severe credit rationing for entrepreneurs, and if at the same time the banking industry is the most profitable one in the country, can the banks be considered as efficient? Is the bank efficient if the interest margin is high, which also means large profits,[40] or when the interest margin is low?

Berger and Mester (1997:898-901) distinguish among three efficiency concepts: cost, standard profit, and alternative profit efficiencies. These concepts are about estimating how well a bank performs compared to a best practice bank, or depending on a particular given level of input and output prices. They are all economic efficiency concepts, based on economic optimization in reaction to market prices and competition. According to Tobin (1984:2-3), there are at least four concepts of efficiency by which the financial system can be measured: information arbitrage, fundamental valuation, full insurance and functional efficiency. From the perspective of this chapter, the last one is the most interesting.

Functional efficiency includes risk pooling, general insurance and administering the payment mechanism, but also resource allocation and mobilizing saving for investment. Having that in mind, interest margin is actually an indicator of banks' functional efficiency. Banks mobilize funds and channel (allocate) them from lenders to borrowers; from the social welfare perspective it is important that the intermediation work is carried out with the lowest possible cost (Maudos and Guevara, 2004:2260).[41] The lower the banks' interest margin, the more functionally efficient their financial intermediation, because the wedge between net return on lending and the gross cost of borrowing is smaller. That increases not only lending and

[40] Wong (1997) reported that earnings from the margin typically account for 80 per cent or more of bank profits.

[41] Financial intermediation involves incurring brokerage costs (costs of identifying potential borrowers), evaluation costs (gathering information about them), agency costs (monitoring their loans) and enforcement costs (enforcing the payment of loan contracts) (Montiel, 2003, pp. 197-199). Banks are profitable because they can carry out these functions more cheaply than individuals, but still their charges may not be low enough from the social welfare perspective. Saunders and Schumacher (2000:814) claim that relatively large margins may bring a degree of stability for a banking system, insofar that they can add to the profitability and capital of banks so as to insulate them from macro and other shocks. This doesn't seem to be confirmed by the real world experience of Southern Cone countries.

borrowing, but also saving and investment (Fry, 1995:296). When the bank margin is high, it also implies that the cost of using the financial system may become prohibitive to certain borrowers. Furthermore, potentially highly productive projects would not be undertaken since high costs of obtaining external funds deter entrepreneurs from undertaking all but the most remunerative projects, reducing aggregate investment and hence economic growth (Montiel, 2003:198). The impact of high margins is likely to be more damaging in developing countries where, given that capital markets are small and under-developed, a bigger percentage of firms and individuals tend to depend on banks to meet their financial needs (Martinez Peria and Mody, 2004:512).

This chapter is organized as follows: it starts with a review of the previous work, followed by an empirical analysis which will contribute to the existing literature in several aspects. Firstly, a panel data estimation will be used in examining the determinants of bank margins on a sample of EU countries plus Croatia for the period from 1996 to 2009. Secondly, a comparison will be made between "old" EU countries, twelve new EU member countries plus Croatia and seven other transition economies. Thirdly, the main goal of this chapter is to investigate the importance of institutions and provide new insight into how the relationship between governments and banks may influence the cost of financial intermediation.

3.1 Literature review

3.1.1 NIM and economic growth

As already stated in the first chapter, the cost of financial intermediation matters for economic growth. The smaller the cost of intermediation, the greater the amount of investment corresponding to a given amount of savings, since savers and investors both have to bear the costs of intermediation. Furthermore, the greater the returns to investment, and the lower the cost of intermediation, the greater the net return on savings, and hence the greater the incentive to save. Montiel (2003: 208-209) presents interactions between these mechanisms, which reinforce each other, in a simple aggregate growth model. We assume that aggregate output is produced using two kinds of capital, K1 and K2, with constant returns to scale.

Hence, we can write the aggregate production function as:

$$Y = F(K_1, K_2). \quad (1)$$

The total capital available to the economy is given by:

$$K_1 + K_2 = K, \quad (2)$$

which changes over time according to the amount of investment undertaken in each period:

$$\Delta K = I. \quad (3)$$

Investment is equal to "effective" saving, i.e. the portion of aggregate saving not absorbed by the process of financial intermediation. Aggregate saving is proportional to the level of output:

$$I = \sigma s Y \,. \qquad (4)$$

Here $(1 - \sigma)$ is the cost of financial intermediation per unit of saving, in the form of spreads between borrowing and lending rates, commissions, etc. Put in a different way, $(1 - \sigma)$ refers to the resources absorbed in producing intermediation services. In the process of transforming saving into investment, financial intermediaries absorb resources, so that a dollar saved by the households generates less than one dollar worth of investment – the fraction σ. The remaining fraction $1 - \sigma$ goes to banks as the spread between lending and borrowing rates, and to securities brokers and dealers as commissions, fees and the like (Pagano, 1993). The absorption of resources by the financial sector is primarily a reward for services supplied, but it may also reflect inefficiency, market power, taxation etc.

In order to see how financial intermediation matters for economic growth, let $\theta = K_1 / K_2$. Then we can rewrite equation (1) as:

$$Y = F(\theta,1)K_2 = F(\theta,1)K/(1+\theta) = A(\theta)K \,, \qquad (5)$$

where $A(\theta) = F(\theta,1)/(1+\theta)$. This means that the change in Y over time (denoted by ΔY) is given by:

$$\Delta Y = A(\theta)\Delta K = A(\theta)\sigma s Y$$

or:

$$\Delta Y / Y = A(\theta)\sigma s. \qquad (6)$$

This model shows us that growth depends on the productivity of the capital stock A, the efficiency of financial intermediation σ, and the rate of saving s. Montiel (2003) points out that we should notice the following:

1. By allocating funds to their most productive uses, the financial sector can increase A. The value of θ that maximizes A satisfies:

$$f'(\theta)/(1+\theta) - f(\theta)/(1+\theta^2) = 0 \,,$$

or:

$$f'(\theta) = f(\theta) - f'(\theta)\theta \,,$$

which is the requirement that the marginal product of the two types of capital be equalized. This outcome will emerge if financial institutions are able to identify the marginal product of capital in alternative uses, and channel funds in such a way as to give priority to high-productivity projects.

2. By operating efficiently (at lowest cost per dollar of funds intermediated), it can increase σ.

3. Moreover, the combination of high return on investments and low intermediation costs means a potentially large return to savers, which may increase s.

3.1.2 Measurement issues

The cost of financial intermediation is usually proxied by the bank interest rate spread or bank interest margin. Empirical measures of bank spreads and margins usually try to estimate the cost of financial intermediation as the difference between what banks charge borrowers and

what they pay depositors. However, many problems arise in that process. Firstly, banks do not charge only one loan rate or pay a single deposit rate. Also, banks tend to increase their revenues through different fees and commissions which are not included in the interest charged (or paid) but which effectively increase the costs paid by bank borrowers and reduce revenues received by depositors. Moreover, there are differences in bank behaviour regarding attitude toward risk or regarding field of specialization (e.g. retail or wholesale), which influences banks' operating costs. Usually larger operating costs mean higher spreads.

Because of these issues, most studies of bank spreads are based on bank-specific data. Bank spreads are estimated from data in banks' balance sheets and income statements in order to obtain "implicit" loan and deposit rates offered by each individual bank, since banks mostly do not report the whole array of specific interest rates charged and paid (Brock and Rojas Suarez, 2000:121). Unfortunately, there is not a single best method to estimate such an implicit rate. A number of studies approach the financial intermediation costs by calculating the so-called "net interest margins" (NIMs). They represent the difference between bank's interest earnings and expenses as a percentage of interest earning assets. The NIM measures the gap between what the bank pays the providers of funds and what the bank gets from firms and other users of bank credit. By including expenditures and income from all types of deposit and loan operations, the NIM forms an average interest spread (Brock and Franken, 2002:1).[42] The biggest advantage of this method is its simplicity, but its shortcoming is that it does not take into account bank charges or income revenue associated with fees and commissions. An additional problem is that the interest income and loan loss reserving associated with a particular loan tend to materialize in different time periods (Demirgüç-Kunt and Huizinga, 1999**:**380).

Brock and Rojas Suarez (2000:121-122) present six alternative proxies for bank spreads. They distinguish between the "narrow concept" – one that includes loans on the asset side and deposits on the liability side – and the "broad concept" where all interest-earning assets and liabilities plus the associated fees and commissions are included. Their definitions are as follows:

- 1(narrow) = (interest received/loans) – (interest paid/deposits);
- 1(broad) = (interest received/all interest-bearing assets) – (interest paid/all interest-bearing liabilities);
- 2(narrow) = (interest plus commissions received/loans) – (interest paid plus commissions paid/deposits);
- 2(broad) = (interest plus commissions received/all interest-bearing assets) – (interest plus commissions paid/all interest-bearing liabilities);

[42] Wong defined the spread as the difference between the yield rate on average interest-earning assets and the cost rate on interest-bearing funds, with both elements expressed in percentage terms. He decided to be "a bit informal" in his paper and neglect the difference in the definitions of NIM and bank spread.

- 3(narrow) = (interest received on loans only/loans) – (interest paid on deposits only/deposits);
- 4(broad) = (interest received – interest paid)/total assets.

Demirgüç-Kunt and Huizinga (1999:380) use the term 'ex post spreads' for net interest margin as well. They define 'ex ante spread' as the difference between the contractual rates charged on loans and the rates paid on deposits. The two spreads differ by the amount of loan defaults. They find the ex post spread a more useful measure because it controls for the fact that banks with high-yield, risky credits are likely to face more defaults. The biggest problem with the ex-ante spread is that the data are put together from a variety of sources and thus they are not completely consistent.

Researchers use the BankScope electronic database as the main source of bank-specific data. Financial Development and Structure database (Beck et al., 2000) compiles BankScope data on a country level. Data on net interest margins are presented as well. The ex ante spread data can be obtained from the World Bank's World Development Indicators (2010), for some countries even from the 1960s. Brock and Rojas Suarez (2000) showed that methodology matters a lot; depending on the definitions used, one can show extremely high or relatively moderate bank spreads for each country. So far, researchers have avoided using the simple difference between the lending rate and the deposit rate as a measure of the bank spread in their econometric work. Brock and Franken (2002) did use the actual (instead of implicit) loan and deposits interest rate data, but at an individual bank level. The World Bank publishes aggregate interest spread data for countries only.[43]

3.1.3 Theoretical models

Since the focus of this chapter is on empirics rather than on theory, the part of the literature review regarding theoretical models is kept short.[44] Few theoretical models have been developed to analyse the determinants of bank spreads/margins. The best known models of bank behaviour are the hedging hypothesis and the models developed from the microeconomics of the (banking) firm (Ho and Saunders, 1981:581). In the former approach banks are viewed as seeking to match the maturities of assets and liabilities in order to avoid the reinvestment or refinancing risks which arise if assets are either too short or too long. In this type of models the major portfolio risk stems from interest rate fluctuation. In the latter group of models it is assumed that the banks seek to maximize either the expected profit or the expected utility of profit. The micro-model of the banking firm (e.g. Zarruk, 1989; Wong,

[43] Interest rate spread is defined as the interest rate charged by banks on loans to prime customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits (World Bank, 2010), which is not very precise. For example, there can be big differences between the interest rates charged and those paid, depending on the currency (national or foreign) of the loan or deposit.

[44] For a more detailed review of the interest rate spread models, see Brock and Franken (2002:2-5).

1997) views banks in a static setting where the demand for and supply of deposits and loans simultaneously clear both markets.

The most cited paper is the one written by Ho and Saunders (1981). They tried to integrate the hedging and expected utility approaches in order to analyse the determinants of bank spreads. In their model, the bank is viewed as a dynamic dealer - a demander of one type of deposit and supplier of one type of loan. In that process banks face uncertainty and, hence, cost. This cost appears because deposit supplies (inflows) tend to arrive at different times from loan demands (outflows). In order to provide immediacy of (depository and/or loan) service in the face of the transaction uncertainty generated by asynchronous deposit supplies and loan demands, banks demand a positive interest spread or fee as their price.

The model of Ho and Saunders (1981) indicates that the optimal mark-up (sum of fees) for deposit and loan services depends on four factors: 1) the degree of bank management risk aversion; 2) the market structure in which the bank operates; 3) the average size of bank transactions; and 4) the variance of interest rates. Their model also shows that positive spreads will tend to exist even in a world of highly competitive banking markets. As long as the transaction uncertainty is present, interest spreads cannot disappear.[45] Although Wong (1997) used a firm theoretical model under multiple sources of uncertainty and risk aversion, his results are complementary to the dealership model implications. Bank interest margin is positively related to the: 1) bank's market power; 2) operating costs; 3) degree of credit risk; and 4) degree of interest rate risk.

Although the two groups of models provide conclusions that are appealing for empirical testing, they don't say enough about the way macroeconomic variables affect the interest spread. Even when theoretical models concentrate on the influence of macroeconomic shocks on the spread, the results are ambiguous (Brock and Franken, 2002:5). Furthermore, they completely neglect the institutional structure. Then again, most models do. However, theoretical models are still useful because they provide a good starting point for empirical testing, which can then be expanded with additional variables.

3.1.4 Empirical evidence

In their empirical work, researchers have discovered that many variables, apart from those analysed in theoretical models, seem to influence the bank interest margin and spread. Both of these variables will be used in the literature review since researchers either consider them as synonyms or focus on one of them. However, preference will be given to the term margin in order to simplify the text. In this section, previous results will be organized, based on groups

[45] This dealership model has been extended by Allen (1988), Angbazo (1997), McShane and Sharpe (1985) and Maudos and de Guevara (2004), and criticized by Lerner (1981) and Freixas and Rochet (1997). The authors have added different kinds of loans and deposits to the model, the volatility of money market interest rates, credit risk and operating costs.

of independent variables for which there is evidence that they determine the size of the bank interest margin/spread. These groups are: 1) bank-specific variables; 2) bank concentration; 3) macroeconomic variables; 4) regulatory variables; 5) financial structure; and 6) institutions.

Researchers tried to empirically explain bank margins either for a single country (Angbazo, 1997; Barajas, Steiner and Salazar, 1999; Beck and Hesse, 2009; Brock and Franken, 2002; Chirwa and Mlachila, 2004; Fungáčová and Poghosyan, 2011; Ho and Saunders, 1981; Maudos and Solisa, 2009; McShane and Sharpe, 1985; and Horváth, 2009;), a specific group of countries, usually Latin American or high-income economies (Brock and Rojas Suarez, 2000; Claeys and Vander Vennet, 2008; Crowley, 2007; Drakos, 2003; Gelos, 2006; Hawtrey and Liang, 2008; Maudos and de Guevara, 2004; Martinez Peria and Mody, 2004; Saunders and Schumacher, 2000; Schwaiger and Liebeg, 2009; and Valverde and Fernández, 2007;) or a large number of countries following no special pattern (Demirgüç-Kunt and Huizinga, 1999; Demirgüç-Kunt, Laeven and Levine, 2004 - later in the text: DKLL).

They have used either a single-stage approach or followed a two-step procedure first used by Ho and Saunders (1981). In the first step, a regression of bank margins is run for a cross-section of banks (in each country for each observed period) on bank-specific variables in order to obtain the "pure" margin, which is the constant term of the regression. It represents the portion of the margin that cannot be explained by bank-specific characteristics. Theoretically, this pure margin should be equal across all banks in any country at any point in time (Saunders and Schumacher, 2000:815). In the second step, the constant terms are regressed against macro variables in the form of panel data for a certain number of countries and years. Here, the (new) constant term captures the portion of the margin that cannot be attributed either to bank-specific characteristics or to macroeconomic factors. It shows the effect of market structure on the determination of the "pure" margin.

The longest time period covered in previous papers was from 1974 to 1996 for Colombia (Barajas, Steiner and Salazar, 1999); usually researchers analyse panel data for 5 to 8 years and for hundreds of banks. The largest number of countries in a panel was 80 (Demirgüç-Kunt and Huizinga, 1999), and the latest year covered was 2007 for Russia (Fungáčová and Poghosyan, 2011).

Bank-specific variables

Research has shown that individual bank characteristics explain a substantial part of the within-country variation in financial intermediation costs. Bank-specific variables include: bank size, bank equity, fee income, liquidity, bank risk, credit risk, operating costs and market share.[46]

[46] A majority of definitions regarding all, and not only bank-specific variables were taken from DKLL (2004).

- **Bank size** equals the logarithm of total bank assets. The results are ambiguous: DKLL (2004) showed that large banks tend to have lower NIMs than small banks because of scale efficiency, while Demirgüç-Kunt and Huizunga (1999) showed that bank size has a positive impact on interest margins. Results for Czech Republic (Horváth, 2009) show that larger banks seem to set lower margins because there is a greater scope for risk diversification within large banks. Claeys and Vander Vennet (2008) find no systematic relationship on a sample of new EU member states, while Beck and Hesse (2009) establish that in Uganda, larger banks charge lower spreads, but earn higher margins. In Russia, larger banks have lower margins (Fungáčová and Poghosyan, 2011).
- **Bank equity** is measured by the book value of equity divided by total assets. Highly capitalized banks have higher margins (DKLL, 2004) because they can charge more for loans and/or pay less on deposits due to lower bankruptcy risks (they are "safer"). Maudos and de Guevara (2004) used it as a measure of the degree of risk aversion and showed that it is positively related to interest margins. Capital adequacy influences bank margins positively in Claeys and Vander Vennet (2008) too. The effect is twice larger for CEE countries than for Western European economies. This indicates that in an environment characterized by lower levels of economic and institutional reform, depositor discipline is even stronger, which decreases the deposit cost of well-capitalized banks, leading to higher interest margins. Holding capital in excess of what is required by bank supervisors is often the only solution for banks to signal solvency and inspire depositor trust. Horváth's (2009) result show that higher capital adequacy of a bank is associated with lower interest margins: less capitalized banks have the motivation to accept more risk (associated with a higher margin) in order to receive higher returns. Analogously, better-capitalized banks invest more cautiously, as there is more capital at risk (Brock and Franken, 2002).
- **Fee income** equals non-interest operating income divided by total assets. Because banks have different product mixes, these differences may influence the pricing of loan products. Research showed that banks engaging in fee-based activities tend to have lower margins due to cross-subsidization of bank activities (DKLL, 2004; Maudos and Solisa, 2009). Fee income does not have any explanatory power in Horváth's (2009) paper for Czech Republic. Lower interest margins are not compensated with higher fee income and vice versa. Schwaiger and Liebeg (2009) find that in CEE countries increase in non-interest revenues causes interest margins to drop.
- **Liquidity** equals the liquid assets of banks divided by total assets. Banks that hold a large fraction of liquid assets (cash, government securities) have lower net interest margins (DKLL, 2004) because they receive lower interest income. This is valid for Russia, too (Fungáčová and Poghosyan, 2011). Brock and Rojas Suarez (2000) have found that the liquidity ratio (the ratio of short-term assets to total deposits) is positively correlated with the spread for their sample of Latin American economies.

- **Bank risk** can be measured as a standard deviation of the rate of return on bank assets over a certain period. If banks operate in a more risky environment, they will have high NIMs in order to compensate for that risk (DKLL, 2004).
- **Credit risk** is proxied by the loans/total assets ratio. The risk of non-repayment or default on a loan requires the bank to apply a risk premium implicitly in the interest rate charged for the operation. Maudos and de Guevara (2004) showed that banks that assume greater credit risk present higher interest margins, which is also true for OECD economies (Hawtrey and Liang, 2008) and CEE countries (Schwaiger and Liebeg, 2009). However, in Latin American economies (except Colombia), non-performing loans were found to be associated with smaller spreads, probably due to inadequate provision for loan losses and remaining deficiencies in supervisory practices (Brock and Rojas Suarez, 2000). Another explanation is that banks with a high proportion of bad loans may lower spreads as a way of trying to grow out of their problems. Horváth (2009) also shows that, for Czech banks, interest margins are higher for banks with a higher loans-to-assets ratio: banks providing credit for riskier projects require higher margins as compensation. However, Hawtrey and Liang (2008) find that the log of the volume of loans produces a negative effect on bank interest margins, showing that increased volume of loans may result in a reduction of unit cost, which achieves economies of scale. In Russia, there is a negative relationship between the NIMs and the ratio of nonperforming loans to total loans; depositors require a higher premium for depositing their savings in riskier banks (Fungáčová and Poghosyan, 2011).
- **Operating costs** (wages, depreciation, intermediate input costs such as computer expenses and advertising, etc.) are proxied by the ratio between operating expenses and total assets. This variable is used to measure cross-bank differences in the organization and operation of banks. It was shown to be highly statistically significant: banks that bear higher average operating expenses have higher margins (Demirgüç-Kunt and Huizinga, 1999; Šonje et al., 1999; Maudos and de Guevara, 2004; Maudos and Solisa, 2009; Hawtrey and Liang, 2008; Fungáčová and Poghosyan, 2011; and Schwaiger and Liebeg, 2009). Banks simply pass on their operating costs to their depositors and lenders. Brock and Rojas Suarez (2000) got the same result for Latin American economies, but they stressed that differences in costs may reflect differences between state-owned banks and private banks.
- **Market share** equals a bank's assets divided by total commercial bank assets in the economy. This measure is different from concentration because it's computed at the bank, rather than the national level. When individual banks enjoy market power, they charge higher net interest margins even after controlling for other bank-specific traits, overall market concentration, regulatory restrictions on banks, and overall level of institutional development (DKLL, 2004). Maudos and de Guevara (2004) used Lerner index as an alternative indicator of the degree of competition in banking markets and

showed that market power positively affects the interest margins.[47] The same result was obtained by Claeys and Vander Vennet (2008) for Central and Eastern European economies (but not for Western European economies - larger banks are not able to use their market power to reap comparatively higher interest margins), Maudos and Solisa (2009) for the Mexican banking system and Hawtrey and Liang (2008) for 14 OECD economies. Banks with monopoly power can charge a higher loan rate and offer a lower deposit rate.

It is interesting to see that DKLL (2004) got the same results for the country-specific variables when they omitted the bank-specific variables altogether.

Bank concentration

There is an enormous part of finance literature dealing with various aspects of bank concentration and competition.[48] However, only recently have researches started to evaluate the impact of bank concentration on interest spreads/margins. In their papers concentration is usually estimated as the fraction of bank assets held by the three largest commercial banks in the country. What is important to notice is that high bank concentration is not only a developing country phenomenon (DKLL, 2004). Theory gives ambiguous results: a few powerful banks can stymie competition with deleterious implications for efficiency, but on the other hand, competitive environments may produce concentrated and efficient banking systems (Demsetz, 1973; Peltzman, 1977).

Martinez Peria and Mody (2004) found that greater concentration raises spreads in Latin America in an economically important manner. DKLL first (2004) showed that bank concentration enters positively and significantly in their regressions, but that the economic magnitude is not huge. After they had controlled for regulatory impediments to competition and macroeconomic stability, concentration was unrelated to NIMs. Hellman et al. (2000) suggested that increasing competition in an inadequate regulatory banking environment (with high margins due to high risk premia) might induce gambling behaviour by banks, causing financial instability. Saunders and Schumacher (2000) found out that for six selected European countries and the US (for the period 1988-1995) only 0.20% of margins could be explained by market structure (i.e. rents generated by monopoly power). However, the effects of market structure on spreads appear to be quite heterogonous across countries, which relates to DKLL (2004) results.

Claeys and Vander Vennet (2008) found on their sample that banks earn higher margins in more concentrated markets, which was true for Western economies and accession countries,

[47] Lerner index is defined as the difference between the price and the marginal cost, divided by the price (Maudos and de Guevara, 2004:2266). It measures the capacity to set prices above the marginal cost, being an inverse function of the elasticity of demand and of the number of banks. The index value ranges from 0 (perfect competition) to 1 (monopoly).

[48] For an excellent review see Berger et al. (2004).

but not for non-accession countries (Bulgaria, Croatia, Romania, Russia, Ukraine). Kraft (2007) showed that in Croatia, despite a decrease in number of banks from 1998 to 2005, competition increased. Even though bank interest margins fell, profits were sustained. Schwaiger and Liebeg (2009) find that in CEE countries (EU member states plus Croatia) higher concentration increases margins. Beck and Hesse (2009) find only a weak link between market structure and margins in their cross-country comparisons, while in Russia market concentration is found to be a significant determinant of NIMs for foreign banks only (Fungáčová and Poghosyan, 2011). They point out that determinants of margins differ depending on the bank ownership. Only the influence of operating costs and bank risk aversion is homogeneous across ownership groups.

Macroeconomic variables

Research has shown that higher **inflation rates** are positively associated with margins (Demirgüç-Kunt and Huizunga, 1999; Brock and Rojas Suarez, 2000; DKLL, 2004; Chirwa and Mlachila, 2004; Beck and Hesse, 2009, and Horváth, 2009), and that **interest-rate volatility** (both short-term and long-term)[49] has a significant impact on margins as well (Saunders and Schumacher, 2000, and Maudos and Solisa, 2009). This suggests that macro-policies consistent with reduced interest-rate volatility (e.g. low inflation policies) could have a positive effect on reducing bank margins. According to Martinez Peria and Mody (2004:520), there are at least three reasons why the inflation rate might be important for bank spreads: 1) given that bank spreads are the difference between two nominal rates, if inflation shocks are not passed to both rates equally fast, then spreads should reflect this; 2) inflation can affect flexibility of loan rates and therefore of bank spreads; 3) inflation exacerbates informational asymmetries. Claeys and Vander Vennet (2008) use the short-time interest rate to capture the stance of monetary policy and show that it has a positive effect on margins in all countries of their sample except in the European non-accession countries subsample. Beck and Hesse (2009) also find that banks in countries with higher T-Bill rates earn higher margins.

There is a weak tendency for higher **GDP growth rates** to lower the margin; this may reflect the fact that high growth generally raises the capitalized value of firms and reduces the cost of lending by lowering the default risk (Brock and Rojas Suarez, 2000). A similar explanation is that the real growth of output can pick up the business cycles effects: changes in output can affect lending rates, and, consequently, margins, because borrowers' creditworthiness is countercyclical. Faster growth will tend to promote more creditworthy firms, as well as to improve the institutional environment for financial intermediation. On both accounts, the external finance premium will fall, promoting the growth of financial intermediation

[49] In Saunders and Schumacher (2000:821), short-rate volatility was calculated as the annual standard deviation of weekly interest rates on 3-months securities in each country. Long-rate volatility was calculated as the annual standard deviation of weekly interest rates on 1-year securities.

(Montiel, 2003:203). Because macroeconomic cycles tended to be accompanied by swings in the net worth of firms, and because these swings in net worth cause the external finance premium to move in the opposite direction (countercyclically), the balance sheet effects on firms will cause borrowing to move more procyclically. This tends to aggravate the severity of macroeconomic shocks, and thus aggravate macroeconomic stability (Montiel, 2003:211). Also, deflation or exchange rate devaluation can, when debt is unindexed, result in a contraction of net worth that sharply increases the premium on external finance (Montiel, 2003:211).

Clayes and Vander Vennet (2008) show that in Western Europe, higher economic growth is associated with higher margins, "as a reflection of more lending and lower default rates". In CEE countries no such relationship is found. They explain it by the relatively high volatility of the business cycle in transition economies - periods of growth are interrupted with periods of crisis. Demirgüç-Kunt and Huizunga (1999) were not able to establish any link between the level of real GDP p.c., GDP p.c. growth rate and the NIMs. The same holds for Horváth (2009).

Crowley (2007) checked the significance of the GDP share of the **fiscal primary balance** in English speaking African economies. In a long-run regression with interest rate spreads as a dependant variable it was significant and negative, which could indicate that, when the government is trying to stimulate the economy with deficits, it pressures banks not to dampen that stimulus by raising lending rates. However, a simple regression of net interest margins on the share of **government expenditure in GDP** had a significant positive coefficient, suggesting a conflicting story that an environment of loose spending allows banks to raise lending rates, or that it is perhaps associated with inefficiencies that require higher margins. In sum, Crowley managed to find a relationship between spreads and the size of government, but it was not robust. There was no evidence of crowding out. Beck and Hesse (2009) show that **exchange rate changes** also play an important role in explaining the size of bank margins. They specifically point out for Uganda that margins are higher in periods of exchange rate appreciation, since (especially) foreign banks hold a large share of their assets in foreign-currency accounts overseas.

Cooray (2011) tried to identify determinants of financial sector efficiency, which she measured by overhead costs and net interest margins. One of the explanatory variables was the size of the government sector, which she proxied by the share of government expenditure in GDP and government ownership of banks. The rationale was that if governments try to increase their market power, the financial sector development may be constrained due to the disincentive effects of taxes, increased rent seeking and the crowding out effect on private investment. Her results for a cross-section of 71 countries (data averaged over the 1990-2005 period) suggest that increases in government expenditure and the government ownership of banks lead to increases in overhead costs and net interest margins. Control variables were the

share of private investment in GDP, net secondary enrolment ratio, religious fractionalization, French colonialism dummy variables and latitude. It is interesting that Cooray also shows that the size of government positively influences financial sector size, particularly in low-income countries.

Regulatory variables

There is evidence that regulatory restrictions substantially increase bank margins. Research shows that restrictive bank regulations boost NIMs even when controlling for macroeconomic conditions (DKLL, 2004). The more restricted the banking system (by activity), the larger appears to be the monopoly power of existing banks, and the higher their margins (Saunders and Schumacher, 2000). Furthermore, inadequate regulatory banking environment and a high degree of information asymmetry can increase margins because of high risk premia (Claeys and Vander Vennet, 2008).

Regulatory variables analysed in previous papers are: 1) fraction of entry denied; 2) activity restrictions; 3) reserve requirements; 4) deposit insurance and 5) corporate income tax.

- The '**fraction of entry denied**' variable equals the fraction of entry applications denied. In countries that deny a higher fraction of bank entry applications, margins are larger (DKLL, 2004). A problem with this measure is that, in the absence of applications (which may itself indicate the presence of high entry barriers), this variable is not defined. DKLL (2004) replaced the missing values with the ones in those countries that received zero entry applications, and got similar results.
- '**Activity restrictions**' is an indicator of the degree to which banks face regulatory restrictions in securities markets, insurance, real estate and owning shares in non-financial firms. In countries that restrict banks from engaging in non-traditional activities, margins tend to be larger and the economic size of this effect is substantial (DKLL, 2004). Activity restrictions can reduce competition and limit economies of scale.
- The '**reserve requirements**' variable in DKLL (2004) takes on the value of one if there are reserve or liquidity requirements, and zero if otherwise. Their results suggest that reserve requirements boost the NIMs but the relationship is not very strong. In selected Latin American economies, reserve requirements still act as a tax on banks that gets translated into a higher spread (Brock and Rojas Suarez, 2000). Hawtrey and Liang (2008) also show that the opportunity cost measured by cash and balance with central bank to average total assets ratios presents a positive sign.
- The '**deposit insurance**' variable is a dummy variable that takes on a value of 1 if there is an explicit deposit insurance scheme, and a value of zero if otherwise. It was shown that it lowers the NIMs (Demirgüç-Kunt and Huizunga, 1999).

- **Corporate income tax** was estimated by Demirgüç-Kunt and Huizunga (1999) as a bank's tax bill divided by its pre-tax profits. They showed that this variable has a positive impact on the NIMs and that it is passed through to bank customers.

The results change when institutional variables are included into models, which will be described in the section on institutions. Claeys and Vander Vennet (2008) used EBRD indices of bank and enterprise reform as proxies for the regulatory environment and showed that they matter for margins in Central and Eastern European economies.[50] They also noted that their indices are closely related to the ones used by DKLL (2004).

Financial structure

In the existing literature on bank margins, financial structure was proxied by: 1) total value traded; 2) the ratio of stock market capitalization to GDP and banking assets; and 3) the share of state ownership of the banks. We can also add foreign participation to this group.

- '**Total value traded**' equals the trading of domestic equities on domestic exchanges as a share of GDP. It is a measure of stock market development. Countries with better functioning markets may create a competitive environment that puts downward pressure on bank margins. It was indeed shown that total value traded is negatively related to NIMs (DKLL, 2004).
- The '**ratio of stock market capitalization to GDP**' also measures the extent of stock market development. A larger ratio increases bank margins (Demirgüç-Kunt and Huizinga, 1999), which suggests that there is complementarity between debt and equity financing. However, the ratio of stock market capitalization to banking assets enters the interest margin equation negatively. It may be that a larger stock market relative to the banking sector lowers the bank margins, reflecting substitution between debt and equity. The effect of the stock market development on interest margins is muted in wealthier countries.
- '**State ownership**' equals the share of the banking system assets that are in state-owned banks, where 'state-owned' is defined as 50% or more in state ownership. It measures the government's involvement in the banking industry. Banking systems dominated by state-owned banks tend to be inefficient and less open to entry (DKLL, 2004:605). The degree of state ownership in the banking industry was shown to be positively linked with the NIMs (DKLL, 2004). However, Drakos (2003) showed that in the CEECs, state-owned banks typically set narrower NIMs. It is not explained whether that is a reflection of inefficient practices or of the possible subsidization of socially beneficial projects, such as infrastructure, by state-owned banks. Crowley (2007) points out that in African economies, the public sector involvement (the share

[50] The index of bank reform is constructed by taking into account the number of banks (and the share of foreign banks), the asset share of state-owned banks, the percentage of bad loans, credit to the private sector and stock market capitalization (Claeys and Vander Vennet, 2008).

of publicly owned banks) is found to be associated with higher spreads due to the inefficiencies it can cause. The relationship is weaker with net interest margins because the public sector involvement can be associated with loans made on favourable terms to insiders and not captured in broad measures of lending rates.

- '**Foreign participation**' - DKLL (2004) have found that foreign ownership per se is not important for accounting for interest margins. Martinez Peria and Mody (2004) got completely the opposite results on a sample of five Latin American economies: 1) foreign banks are able to charge lower spreads and have lower costs than domestic banks; 2) foreign banks that acquired domestic institutions have higher spreads than those that established *de novo* operations, suggesting some market segmentation or differences in pricing strategies; 3) greater participation of foreign banks lowers costs all around, but there are no direct spillover effects on spreads; 4) the benefits of foreign entry may be offset, where concentration levels also increase. Demirgüç-Kunt and Huizunga (1999) showed that foreign banks realize relatively high NIMs in relatively poor countries because their technological edge is strong enough to overcome any informational disadvantage. Claeys and Vander Vennet (2008) document that the presence of foreign banks in CEE countries effectively reduces bank interest margins, irrespective of the fact that foreign banks have by now acquired relatively large market shares. Drakos (2003) got the same result for 11 CEECs. Schwaiger and Liebeg (2009), using a sample of 11 CEE countries (2000-2005), show that foreign banks charge higher interest margins than domestic banks. They explain this by the relatively low refinancing costs of foreign banks in CEE countries as these banks have access to cheaper funds from parent banks based in developed countries. Fungáčová and Poghosyan (2011) find that NIM's in Russia (1999-2007) are the lowest for foreign-owned banks.

Institutions

There is a growing strand of literature saying that policies stem from national institutions and that better institutions promote greater competition throughout the economy (e.g. Acemoglu et al., 2003; Beck, Demirgüç-Kunt and Levine, 2003; and Acemoglu, Johnson and Robinson, 2004). According to this view, better institutions should lower bank margins. Jappeli, Pagano and Bianco (2005) showed that improvements in the institutional environment (higher-level judicial efficiency, stronger contract enforcement and better property rights) increase the value of collateral for bank loans and therefore reduce the cost of financial intermediation for existing borrowers. However, such improvements can extend the credit market to low-grade borrowers and thereby raise the average interest rate paid on loans. Hence, the impact of better institutions on bank margins could be ambiguous.

To our knowledge, there are only four papers in which institutions were examined as a determinant of bank margins: Demirgüç-Kunt and Huizinga (1999), DKLL (2004), Beck and

Hesse (2009) and Cooray (2011). Demirgüç-Kunt and Huizinga (1999) included three institutional variables in their regressions: contract enforcement dummy, law and order index and corruption index. Law and order index was taken from the International Country Risk Rating agency, while the sources for the other two variables were not stated. All the three variables had negative signs because banks want to compensate for the risk related to poor contract enforcement, ineffective legal system or widespread corruption. For contract enforcement and corruption, an interaction with GDP had a coefficient with a positive sign, suggesting that the effects of institutional differences are muted in wealthier countries.

DKLL (2004) show that there is a strong link between institutions, such as economic freedom (Heritage Foundation), property rights protection (Heritage Foundation) and WGI institutions indicators (Worldwide Governance Indicators), and the NIMs. Countries where the overall institutional environment is conducive to private sector competition tend to have lower interest margins. What is especially interesting is that once they controlled for property rights, DKLL (2004) found that bank-specific regulations and bank competition (concentration) do not provide additional explanatory power - they become statistically insignificant.[51] It seems that bank regulations reflect something broader about the competitive environment. They concluded that there are broad national approaches to competition and property rights that help explain efficiency throughout the economy, including in the banking industry. Beck and Hesse (2009) also show that countries with better developed institutions have smaller margins. They use the WGI institutions index. Apart from investigating the effect of the size of government on the financial sector efficiency, Cooray (2011) also checked the influence of the government sector quality on the financial sector efficiency. Quality was proxied by legal origin and the level of governance using the dataset compiled by Kaufmann, Kraay and Mastruzzi (2009), with the data ending in 2005. Cooray finds that the effect of government expenditure on overhead costs and net interest margins is increased when governance is low. Her conclusion is that good governance is a pre-condition for the financial sector development.

Although Pagano's (2008) paper does not directly relate to the determinants of NIM's, it is important to mention his results. Namely, he examines the effect of corruption and government control of the banking system for 18 Western hemisphere countries (during 1978-2001) on the sensitivity of commercial lending rates to changes in international financial conditions. The author finds that most countries' lending rates are insensitive to these conditions, the only exemption being the least corrupt countries. The responsiveness of lending rates is nonlinearly related to corruption and government control of the banking system. The net effect of a 2-standard deviation increase in both government control (government ownership of banks) and corruption is a decline in lending rates of about five percentage points. The partially offsetting and nonlinear effects of corruption and government

[51] They got the same results after controlling for the other two institutional variables - KKZ index and Index of Economic Freedom.

intervention suggest that low-to-moderate levels of corruption may lower commercial lending rates while high levels of corruption can raise lending rates. The opposite holds for the effect of government intervention on lending rates. The author concludes that both the developmental and political views of the governmental involvement in financial markets (see La Porta et al. (2002) are operant in his sample of countries.

3.1.5 Where to go next?

A broader perspective

In a way, this chapter will continue where DKLL (2004) have stopped. We will explore a little wider. Economic historians have concluded that throughout history, rulers have tried to form institutions which would benefit them and the elite in power (North, 1981). What mattered for economic consequences of their behaviour was the extent to which their power was constrained. Laws are important in this sense because they restrict the government's use of authority and enhance the credibility of policy by raising the cost and lowering the benefit from deviating from a given policy. They have a penalty attached so there are explicit costs to break them. However, if the policymaker does not really believe to be punished (due to, for example, corruption in the judicial system), he will be free to behave in any way that would benefit his constituents. The rule of law is important in this aspect because it is based on a premise that all citizens are equal before the law and that every violation of law will be credibly sanctioned. Hence, if, for example, a government official misuses his/her power for private gain, he/she will have to suffer the consequences like any other citizen.

Corruption is also important because, rather than looking at private enterprises as governments' victims, they could be perceived as governments' allies in setting up institutions (i.e. laws, rules, decrees and regulations) that create rent-seeking opportunities for both parties. Of course, that does not hold for all enterprises in a country, it may be that it is mostly valid for "men of money", or economic elites. Bankers could be a part of those elites as well. After all, they best fit into the "men of money" category.

Implications for bank interest margins

How should this complex banks-government relationship reflect itself on bank margins? The government can, by increasing macroeconomic and institutional instability, raise uncertainty and disrupt the workings of the market and economic relations. In order to protect themselves from country risk, banks will increase their interest margins. This can be tested not only by including macroeconomic and institutional variables as the explanatory variables for bank margins, but also by a proxy for the government size. If the government's role in the economy is large and if, at the same time, the government does not face binding legal constraints and/or

is corrupt, its effect on the bank margin should be even more pervasive. In this situation, the government is the true leviathan which should be feared of with good reason.

Theories (and real world experience) on special interest groups, as well as rent-seeking theories suggest that it is possible for bankers to influence the contents of different laws and regulations. When it comes to bank margins, the most logical thing the banks would be interested in is to block competition. [52] Strict entry regulations would be beneficial, as would activity restrictions for certain banks (maybe small banks). It should be noted, however, that monopolistic competition is typical for the banking sector. Testing whether regulations and concentration influence bank margins seems natural, but what could also be done is to check whether the capture of the state or influence on it by banks also affects the margin. This is not an easy task.

What could be tested is the following: countries in which mechanisms of control over government are weak have higher average bank margins, i.e. higher cost of financial intermediation. The rationale behind this follows from Hellman et al. (2003): a possibility for state capture will be lower where constraints prevent public officials from misusing their power. So, in a way, the institutions indicator is a good measure of the negative (from the social welfare perspective) influence of both banks and governments on the bank margins. Despite the recent attempts to investigate rent-sharing between politicians and banks (Braun and Raddatz, 2009), this is still a very challenging task since the relationship between bankers and politicians can be based on informal ties as well. Braun and Raddatz (2009) define rents as net interest revenue from assets and show that they are larger in countries with higher prevalence of the banker-politician phenomenon.

In short, this chapter revolves around two hypotheses. Firstly, *higher government´s involvement in the economy has a negative effect on bank financial intermediation cost.* The goal of this hypothesis is to check whether a stronger government's involvement in the economy has a negative influence on the financial intermediation cost, i.e. whether it increases it. The government's involvement includes a set of different variables which proxy for the government's role in the economy. The government's influence could be negative for several reasons. Firstly, in financing its consumption the government depends on taxing banks, which try to transfer that burden to their clients by increasing lending interest rates or fees. Secondly, the government can force banks to buy its bonds. In order to compensate for lower interest rates charged to government, the banks can give loans to the private sector at higher interest rates – which also increases the cost of financial intermediation. In general, large government expenditure programs are often supported by intrusive regulations that curb the private sector's activities and may also require heavier taxation. Moreover, as government

[52] The influence of banks can be based on informal ties, which can be investigated for a single country, but not more than that (unless one is really masochistic or has an extremely long life expectancy). In a small economy, it is not very difficult to see (providing that you move in the right circles) that former politicians become bank managers or that a current minister's relative sits in the management board of a bank, etc.

spending programs grow larger, they may become counterproductive if they are poorly designed. In some cases, larger government programs create new opportunities for rent seeking. Also, increasing government expenditure raises the country risk.

The second hypothesis is that *the influence of the government's involvement on financial intermediation cost is larger in countries with widespread corruption.* Based on this hypothesis, we try to explore how corruption and inadequate institutional constraints on the political authority can influence financial intermediation costs. The rationale behind this is very simple: a possible negative influence of the government is stronger when the government is not only large but also corrupt. Corruption makes interest groups' activities easier, especially if they are strong – like banks. In a situation when government interventionism is strong and the officials use public authority for private gain, interest groups will find it easier to exert influence. Banks can influence policy makers in terms of regulations and monopoly power with the goals to seek rents, which they can share. The final outcome is an increase in financial intermediation costs. Corruption also alters the composition of government expenses for less productive activities. Consequently, the larger the government expenses, the greater the negative effects of corruption.

3.2 Methodology and data

3.2.1 Econometric specification

In this thesis, we model interest margins at the level of each country's banking sector, treating the banking sector in terms of a single representative agent, and we are interested in the determination of industry margins on a national basis. Hawtrey and Liang (2008) use the same approach on a sample of 14 OECD countries (1987-2001), considering that "each industry is like a national team, competing globally but with its own cost structure and regulatory framework". Campos and Coricelli (2009) apply a similar approach but on a different topic, which was described in Chapter two. Here, the following model will be estimated:

$$NIM_{it} = \alpha_i + \beta_0 NIM_{i,t-1} + \beta_1 [government]_{it} + \beta_2 [institutions]_{it} + \beta_3 [macro]_{it} + \beta_4 [banks]_{it} + crisis + \lambda_t + \varepsilon_{it}$$

$NIM_{i,t}$ - net interest margin

$NIM_{i,t-1}$ - net interest margin in period t-1 (lagged value)

government - a set of variables describing government role/interventionism

institutions - variables describing institutions

macro - macroeconomic variables

banks - bank-specific variables

crisis - a dummy variable indicating bank crisis

i - country

t - year
α_i - country fixed effects
λ_t - common time effects
ε_{it} - error term

The list of possible variables that influence bank margins is quite large, so that it is difficult to decide which ones to include in the model. In this paper, we will check the significance of four groups of variables: 1) government role; 2) institutions; 3) macroeconomic variables; 4) bank-specific variables. The focus will be on the first three groups, since the last one would require a microeconomic analysis. We also include a bank crisis dummy variable. The sample consists of EU15 countries, EU13 economies (new members + Croatia) and, as a robustness check, seven other transition economies with the most available data: Albania, Armenia, Georgia, Kazakhstan, Kyrgyz Republic, Russian Federation and Turkey. The panel is unbalanced and the observed period is from 1996 to 2009.

We estimate the model using the System GMM procedure (Arellano and Bover, 1995; Blundell and Bond, 1998). As pointed out by Roodman (2009), this methodology addresses several potential econometric problems, since it is designed for situations with: 1) few time periods and many individuals; 2) a linear functional relationship; 3) a single left-hand side variable that is dynamic, depending on its own past realizations; 4) independent variables that are not strictly exogenous (possibly correlated with past and current realizations of the error); 5) unobserved heterogeneity at country level; 6) and heteroscedasticity and autocorrelation within individuals, but not across them.

It is important to stress that the econometric analysis of the financial intermediation cost is just a means of understanding economic growth. As previously mentioned, the financial intermediation cost is an indicator of banks' functional efficiency. If we find out which variables influence bank efficiency, then we can indirectly see what conditions need to be fulfilled in order for banks to have a positive impact on economic growth.

3.2.2 Data

The most important data source is a database on Financial Development and Structure (Beck, Demirgüç-Kunt and Levine, 2000), revised in November 2010. It covers the bank-specific variables. Other important sources are the following: World Development Indicators (World Bank, 2010), Governance Matters VIII dataset – WGI (Kaufmann, Kraay and Mastruzzi, 2009), World Economic Outlook database (IMF, 2011), and Index of Economic Freedom (Heritage Foundation, 2011). DKLL (2004) also used the World Bank governance database and the aggregate index consisting of all the six components: 1) voice and accountability; 2) political stability; 3) government effectiveness; 4) regulatory burden; 5) rule of law, and 6) freedom from graft. In this paper, we will use several individual components. Williams and

Siddique (2008) give a great overview of governance/institutions indicators. Given the many challenges of measuring institutions, there is little likelihood of any considerable progress in this area in the near future. Hence, we have to use the available indicators and be aware that the empirical evidence cannot be strong. However, the same is valid for financial intermediation proxies. A list of all variables and data sources used in estimations is set out in the Appendix C.

When it comes to the government role in the economy, the following variables will be used: general government final consumption expenditure/GDP (WDI), government spending/GDP (Heritage Foundation), general government expenditure/GDP (WEO), general government deficit/surplus in GDP (WEO), general government debt/GDP, general government revenue/GDP (WEO) and government consumption share of PPP converted GDP per capita at current prices (PWT). Other proxies for the government role would be beneficial (share of bank loans to government in total loans, share of public investment in GDP, share of the whole public sector in GDP, etc.) but adequate data are not available.

The proxy for the financial intermediation cost will be the net interest margin. Even though it has often been used in the literature, it is not a perfect measure of the financial intermediation cost. According to the Washington Post, the Government Accountability Office in the US reports that banking fees are rising and often undisclosed even though federal rules require them to be disclosed (Tse, 2008). DKLL (2004) find an inverse relationship between measures of fee income and interest margins. It is difficult to obtain data on banking fees that would be comparable across countries because of a high degree of heterogeneity in bank fees and cross-subsidization between different bank products. Dvořák and Hanousek (2009) study the determinants of bank fees by using a representative fee index for five Central European countries (Austria, Czech Republic, Hungary, Poland and Slovakia) and find that there is a positive relationship between industry concentration and prices. Furthermore, the degree of reliance on cashless payments and differences in labour intensity and the technological level of banks' operations are significant cost factors that determine the levels of fees. Basically, overhead costs play an important role just like in the case of bank margins. The authors expect that in the future, the levels of fees will converge in line with the convergence in economic fundamentals. There is a negative relationship between the economic level of a country and the levels of fees scaled by GDP per capita. As far as macroeconomic variables are concerned, we will check the significance of the growth rate of GDP p.c., GDP p.c., inflation and money market interest rate.

Table 1 shows mean and standard deviation for all variables that will be used in the panel analysis. It is evident that there are differences among EU15, EU13 and other transition economies. They are actually the smallest when it comes to bank concentration, and the gap between NIMs is quite large – it is between two and three percentage points between EU15 and EU13, and the same difference exists between EU13 and other transition economies.

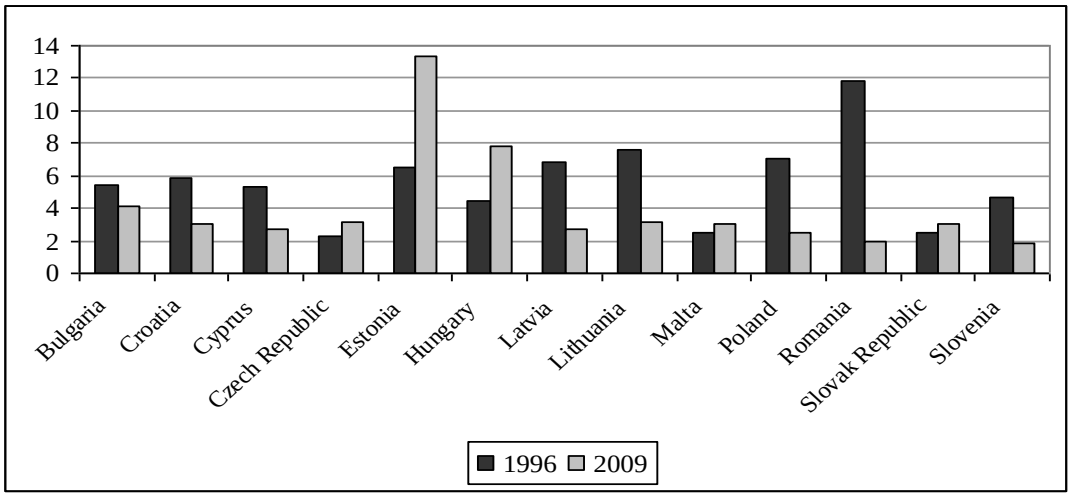
Figure 1 shows differences in the NIMs between 1996 and 2009 for EU13 economies. Even this small sample proves that the downward trend in NIM's has not been present in all countries: Czech Republic, Estonia, Hungary, Malta and Slovak Republic had higher NIMs in 2009 than in 1996. Campos and Coricelli (2009) find NIMs to be the largest in partial democracies because of the strongest influence of interest groups.

Table 1. Summary statistics

	EU-15		***EU-13***		***Other transition economies***	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Net interest margin	2.31	0.93	4.24	2.10	8.14	4.79
General government final consumption expenditure (% of GDP)	20.49	3.54	18.13	3.89	13.40	4.01
General government final consumption expenditure (annual % growth)	2.47	2.23	2.36	6.32	6.15	12.15
General government expenditure/GDP	47.17	6.20	41.72	5.65	27.05	5.60
General government revenue/GDP	37.42	11.04	39.33	9.07	34.01	7.67
Government spending	32.91	16.93	46.74	15.32	75.83	11.93
General government deficit/surplus in GDP	-1.31	3.42	-3.39	2.96	-3.83	4.83
General government debt/GDP	61.22	26.95	34.51	19.79	49.09	29.27
Government consumption share of PPP converted GDP per capita at current prices	9.89	2.88	8.45	2.34	8.72	2.04
Rule of law	1.49	0.38	0.62	0.45	-0.65	0.40
Control of corruption	1.66	0.55	0.45	0.44	-0.72	0.33
Voice and accountability	1.35	0.21	0.86	0.31	-0.55	0.33
Government effectiveness	1.62	0.44	0.63	0.46	-0.43	0.33
GDP p.c. growth rate	1.83	2.69	3.85	4.74	5.25	5.38
GDP p.c. (PPP)	23,988	8,778	6,062	3,395	1,652	1,280
Money market interest rate	3.73	1.84	9.51	15.52	18.67	19.26
Inflation (GDP deflator, annual %)	2.22	1.52	13.84	74.68	14.58	17.78
Bank concentration	69.85	20.44	71.40	15.19	67.77	22.22

	EU-15		*EU-13*		*Other transition economies*	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Bank overhead costs/total assets	2.86	1.38	4.16	2.33	6.21	2.64
Bank deposits/GDP	91.55	68.56	55.20	43.82	19.38	15.61
Private credit by banks/GDP	105.93	44.48	53.44	41.97	15.26	13.85
Liquid liabilities/GDP	97.28	68.54	44.38	15.81	27.16	18.43
Deposit money bank assets/GDP	120.04	41.76	67.35	52.68	23.36	17.43

Figure 1. Net interest margin in EU13 in 1996 and 2009



3.3 Results and sensitivity analysis

Old EU member states

We do separate analyses for EU15, EU13 and a group of other previously mentioned transition economies. We obtain our results by gradually adding new variables to the NIM model described earlier. First we start with bank-specific variables (liquid liabilities/GDP, bank assets/GDP, private credit by banks/GDP, bank deposits/GDP, overhead costs and concentration), which we treat as endogenous variables and instruments with two lags.

Statistically significant bank-variables in the EU15 economies are bank deposits/GDP (negative sign), liquid liabilities/GDP (positive sign) and overhead costs (positive sign). Bank crisis is also significant (negative sign), as well as lagged NIM (positive sign), which points to the right choice of dynamic specification (column 2 in Table 2). The negative sign on the bank deposits variable reflects a larger size of the banking sector correlated with smaller NIMs.

Table 2. Determinants of NIMs in old EU member states

(1)	*Bank-specific variables (2)*	*Macroeconomic variables (3)*	*Government involvement (4)*	*Institutions (5)*	*Institutions (6)*	*Institutions (7)*	*Interest groups (8)*
Net interest margin (t-1)	0.663***	0.589***	0.551***	0.553***	0.475***	0.562***	0.520***
	(0.045)	(0.060)	(0.062)	(0.064)	(0.070)	(0.061)	(0.063)
Liquid liabilities/GDP	0.054***	0.046	0.065**	0.072**	0.034	0.037	0.095***
	(0.018)	(0.028)	(0.030)	(0.032)	(0.036)	(0.030)	(0.032)
Bank assets/GDP	-0.004	-0.005	-0.007	-0.008	-0.013**	-0.001	-0.014**
	(0.005)	(0.005)	(0.005)	(0.006)	(0.034)	(0.006)	(0.006)
Private credit/GDP	0.005	0.006	0.008	0.010*	0.017***	0.001	-0.004
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.005)	(0.007)
Bank deposits/GDP	-0.055***	-0.050*	-0.068**	-0.075**	-0.038	-0.043	-0.095***
	(0.018)	(0.027)	(0.028)	(0.031)	(0.034)	(0.028)	(0.030)
Overhead costs	0.120***	0.121***	0.124***	0.125***	0.127***	0.105***	0.119***
	(0.026)	(0.039)	(0.039)	(0.039)	(0.041)	(0.040)	(0.039)
Concentration	0.001	0.004	0.002	0.004	0.001	0.003	0.003
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Crisis	-0.384*	-0.390*	-0.399*	-0.304	-0.498**	-0.456**	-0.483**
	(0.197)	(0.221)	(0.218)	(0.242)	(0.223)	(0.229)	(0.219)
GDP p.c.	...	5.4e-07	9.9e-06	2.3e-07	-0.00006**	-0.00002	2.3e-06
		(0.00001)	(0.00001)	(0.00002)	(0.00002)	(0.00002)	(0.00001)
GDP p.c. growth rate	...	-0.076***	-0.061**	-0.062**	-0.054*	-0.075**	-0.101***
		(0.029)	(0.030)	(0.030)	(0.032)	(0.031)	(0.033)
Inflation	...	0.044	0.062	0.051	0.045	0.077*	0.065
		(0.040)	(0.040)	(0.042)	(0.044)	(0.041)	(0.040)
Money market interest rate	...	0.112**	0.119**	0.124**	0.079	0.189***	0.096**
		(0.052)	(0.052)	(0.054)	(0.057)	(0.061)	(0.052)
General government final consumption expenditure	...	...	0.045*	0.045*	...	...	-0.038
			(0.023)	(0.024)			(0.042)
Government spending	...	...	...	...	-0.129***	...	
					(0.005)		
General government deficit/surplus in GDP	...	...	...	...	...	-0.037**	...
						(0.018)	
Control of corruption	...	...	...	-0.120	...	...	...
				(0.174)			
Voice and accountability	...	...	...	...	0.861*	...	...
					(0.456)		
Rule of law	...	...	...	...	...	0.431*	...
						(0.259)	

	Bank-specific	*Macroeconomic variables*	*Government involvement*		*Institutions*		*Interest groups*
Interaction term between general government final consumption expenditure and private credit/GDP	...	...	...	...	...	...	0.0008** (0.0003)
Observations	180	126	126	126	113	124	126
Countries	15	12[1]	12[1]	12[1]	12[1]	12[1]	12[1]
Sargan test [p-value]	0.71	0.86	0.84	0.87	0.88	0.95	0.87

[1] Data on money market interest rates are not available for Austria, Luxembourg and Netherlands.
Notes. First step System GMM results. All regressions include common time effects. Bank-specific variables are treated as endogenous and instrumented with two lags. Standard errors in parentheses. Significance at the 1/5/10% level is indicated by ***/**/*. Constant not reported. Sargan test of overidentifying restrictions tests the validity of the instrument set.

After adding macroeconomic variables (GDP p.c., GDP p.c. growth rate, inflation and money market interest rate), the lagged NIM, bank deposits, overhead costs and bank crisis remain statistically significant. Among macroeconomic variables, GDP p.c. growth rate and money market interest rate are significant. The former lowers the NIM, while the latter increases it (Table 2). This shows the importance of business cycles in the NIM determinations, as well as monetary policy. Unfortunately, the inclusion of money market interest rate reduces the number of countries in the sample to twelve. Data for Austria, Luxembourg and Netherlands are not available.

In the next step we include, one by one, proxies for government's role in the economy mentioned in Table 1. Three of them turn out significant: the share of the general government final consumption expenditure in GDP, government spending and general government deficit/surplus in GDP (Appendix D, Table D1). They all come with the expected signs: a) the larger the government consumption expenditure/GDP, the larger the NIM, b) the better the score on the government spending indicator of the Heritage Foundation, the smaller the NIM, and c) the better the budget balance, the lower the NIM. In Table 2 we present the results for the first variable only. After adding that variable, other statistically significant variables are the following: lagged NIM, bank deposits/GDP, liquid liabilities/GDP, overhead costs, GDP per capita growth rate, money market interest rate and bank crisis (column 4 in Table 2).

When we add the institutional variables from Table 1 to the model with the general government final consumption expenditure/GDP, none of them is significant. This does not surprise because the EU15 economies have on average a sound institutional setting. Since we are especially interested in corruption, we present the results for that variable in Table 2. It comes with an expected sign: better control of corruption is correlated with lower NIMs. Not surprisingly, higher government effectiveness also lowers NIMs, but the rule of law and voice

and accountability increase NIMs. The statistical significance of other variables remains almost unchanged (private credit/GDP becomes significant and bank crisis is not significant any more) and government variables stay significant with all institutional variables. The positive signs of the rule of law and voice and accountability variables puzzles, especially since they are both statistically significant in models with the general government deficit/surplus in GDP and government spending variables (columns 6 and 7 in Table 2).

Since in more developed economies corruption is substituted with interest group activities (Campos and Giovannoni, 2007), we try to see whether in countries with a larger share of bank credit to the private sector in government consumption has a stronger effect on NIMs. The problem with the corruption variables is that they usually measure administrative corruption and not state capture, which might be more relevant for the banking industry. The assumption here is that banking sectors have a stronger influence over governments in countries where there is a bigger exposure of private sector to banks. We check this hypothesis by adding an interaction term between the private sector credit/GDP and government final consumption expenditure/GDP to the model. The results are in Table 2 (column 7). These two variables are not significant by themselves anymore, but the interaction term is. At the first quartile level of private credit/GDP, an additional increase in the government final consumption expenditure/GDP increases NIM by 0.02 percentage points, which is economically insignificant, while at the third quartile of private credit/GDP an additional increase in government final consumption expenditure/GDP increases NIM by one percentage point.

This result is probably in line with the voice and accountability and rule of law increasing NIMs in old EU member states. Previous research (e.g. Li et al., 2005) confirms that democracy facilitates the action of interest groups. The power of interest groups substitutes for corruption in highly developed democratic countries, which usually also have a high level of the rule of law.

New EU member states

Now we will repeat the analysis for new EU economies and Croatia in the same way. Unfortunately, since certain bank-specific data is not available for Malta and Cyprus, these two countries are excluded from regressions. In the first step, significant variables are: lagged NIM, overhead costs, liquid liabilities/GDP and bank deposits/GDP (the results are in Table 3). All variables, except bank deposits, have a positive sign. In the next step, we include macroeconomic variables. Statistical significance of bank-specific variables remains unchanged, while all macroeconomic variables except GDP p.c. are significant, as is bank crisis.

Table 3. Determinants of NIMs in new EU member states

(1)	*Bank-specific variables* (2)	*Macro-economic variables* (3)	*Government involvement* (4)	*Institutions* (5)	(6)	(7)	(8)
Net interest margin (t-1)	0.639***	0.501***	0.496***	0.470***	0.432***	0.463***	0.466***
	(0.058)	(0.559)	(0.056)	(0.058)	(0.059)	(0.058)	(0.057)
Liquid liabilities/GDP	0.145***	0.198***	0.199***	0.199***	0.218***	0.225***	0.213***
	(0.047)	(0.038)	(0.038)	(0.038)	(0.038)	(0.040)	(0.038)
Bank assets/GDP	0.047*	0.023	0.015	0.002	-0.011	0.008	0.005
	(0.025)	(0.023)	(0.024)	(0.024)	(0.025)	(0.024)	(0.024)
Private credit/GDP	-0.021	0.004	0.010	0.027	0.039*	0.022	0.021
	(0.021)	(0.019)	(0.020)	(0.021)	(0.022)	(0.021)	(0.020)
Bank deposits/GDP	-0.166***	-0.225***	-0.227***	-0.230***	-0.256***	-0.259***	-0.244***
	(0.053)	(0.042)	(0.042)	(0.042)	(0.042)	(0.044)	(0.042)
Overhead costs	0.183***	0.145***	0.129***	0.125***	0.120***	0.119***	0.124***
	(0.056)	(0.044)	(0.046)	(0.046)	(0.045)	(0.046)	(0.046)
Concentration	0.006	0.008	0.009	0.011*	0.011*	0.009	0.012**
	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Crisis	-0.410	-0.596**	-0.579***	-0.853***	-0.781***	-0.868***	-0.823***
	(0.350)	(0.274)	(0.274)	(0.297)	(0.278)	(0.305)	(0.289)
GDP p.c.	...	0.00004	0.00002	0.0001	0.0002**	0.0002*	0.0001
		(0.00008)	(0.00008)	(0.00009)	(0.0001)	(0.0001)	(0.0001)
GDP p.c. growth rate	...	-0.045**	-0.036	-0.039	-0.046**	-0.038	-0.039*
		(0.023)	(0.024)	(0.024)	(0.023)	(0.024)	(0.024)
Inflation	...	-0.104***	-0.100***	-0.101***	-0.090***	-0.104***	-0.096***
		(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Money market interest rate	...	0.128***	0.128***	0.130***	0.128***	0.128***	0.128***
		(0.014)	(0.014)	(0.014)	(0.013)	(0.014)	(0.014)
General government expenditure/GDP	...	...	0.030	0.045**	0.058***	0.039*	0.046**
			(0.020)	(0.021)	(0.021)	(0.021)	(0.021)
Control of corruption	...	...	...	-0.892**	...	...	...
				(0.363)			
Rule of law	...	...	...	...	-1.169***	...	...
					(0.375)		
Government effectiveness	...	...	...	...	...	-0.965**	...
						(0.432)	
Voice and accountability	...	...	...	...	...	...	-0.935***
							(0.357)
Observations	126	121	121	121	121	121	121
Countries[1]	11	11	11	11	11	11	11
Sargan test [p-value]	0.95	0.83	0.85	0.93	0.91	0.92	0.91

[1] Malta and Cyprus are excluded because of lack of certain bank-specific data.

Notes. First step System GMM results. All regressions include common time effects. Bank-specific variables are treated as endogenous and instrumented with two lags. Standard errors in parentheses. Significance at the

1/5/10% level is indicated by ***/**/*. Constant not reported. Sargan test of overidentifying restrictions tests the validity of the instrument set.

Unexpectedly, when it comes to proxies for government's role in new EU economies, none of them is significant. In addition, signs are mixed with no obvious pattern (Appendix D, Table D2). For example, general government final consumption expenditure/GDP (World Bank variable) decreases NIMs, while general government expenditure/GDP (IMF variable) increases them.

We expect institutions to have a greater importance in new than in old member states, which is confirmed by the results. One of the hypotheses is that the influence of government's involvement in the economy on NIMs is stronger in countries with widespread corruption. Based on the results, this hypothesis should be revised: the government influence on NIMs is twofold: through public finances and through corruption. In countries with better control of corruption, the first effect dominates, while in countries with more pronounced corruption, the influence works through both channels. After adding the control over corruption variable to the model, general government expenditure/GDP becomes significant (results in column 5, Table 3) and GDP p.c. growth rate is no longer significant. Changing different proxies of government's involvement does not diminish the statistical significance of corruption and none of the government variables, except general government/expenditure, becomes significant. The weak result of different proxies of government's involvement gives rise to an opinion that the government consumption variable may still be the best proxy for government's role in the economy.

Unlike in EU15 economies, all institutional variables decrease NIMs and are all statistically significant (Table 3). The rule of law has the strongest effect. When it comes to interest groups, the interaction term between general government expenditure/GDP and private sector credit/GDP is not significant. It is interesting that in specifications with institutions, bank concentration gains in importance and it increases NIM. The bank crisis dummy is important in all specifications, both statistically and economically: it decreases NIM. Inflation is also significant in all specifications, unlike in old EU member countries. It is surprising, though, that the sign is negative. Martinez Peria and Mody (2004) also found a negative impact of inflation on Latin American banks' margins. They explained this by the possibility that banks are slow in adjusting their interest rates, i.e. bank costs increase faster than bank revenues.

Other transition economies

Finally, we look at data for a group of seven transition economies, other than those that are new EU member states, mostly the former Soviet Union countries. As concerns government's role, two variables are significant: general government revenue/GDP and general government expenditure/GDP (Appendix D, Table D3). The former increases NIM and the latter decreases

it. At first, it seems surprising that expenditures come with a negative sign. However, after having a closer look at the summary statistics (Table 1), it is clear why: mean value of that variable is fifteen percentage points lower than in EU13 economies, and twenty percentage points lower than in EU15 economies. At the same time, NIM is higher. In a way, other transition economies are not the right control group for our hypotheses since they have small governments.

When adding corruption to the model, government revenues do not lose significance, as is the case with voice and accountability, but the rule of law and government effectiveness make government revenues no longer significant. Corruption and the rule of law are significant with government revenues, while voice and accountability and government effectiveness are not. Other variables that determine NIM in the model with government revenues and corruption (column 4 in Table 4) are the following: lagged NIM (+), bank assets/GDP (+), GDP p.c. growth rate (+), money market interest rate (+) and bank crisis (-). The effect of bank crisis is the strongest. When replacing government revenues with government expenditures, the latter variable is significant with all institutional variables except of the rule of law. On the other hand, from the institutional variables group, only voice and accountability is not significant.

What is striking in the model with government revenues is the economic effect of corruption and the rule of law. An increase in control of corruption by one unit (to the level of EU15 economies) would decrease NIM by 2.3 percentage points. In the case of the rule of law, the decrease would be 2.9 percentage points. Institutional variables and bank crisis are by far the strongest determinants of NIMs in this group of transition economies.

Table 4. Determinants of NIMs in other transition economies

(1)	*Government involvement*		*Institutions*			
	(2)	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
Net interest	0.414***	0.407***	0.356***	0.340***	0.400***	0.403***
margin (t-1)	(0.070)	(0.075)	(0.075)	(0.076)	(0.075)	(0.076)
Liquid	0.236***	0.179**	0.030	0.014	0.083	0.205**
liabilities/GDP	(0.082)	(0.087)	(0.105)	(0.104)	(0.107)	(0.099)
Bank assets/GDP	0.190**	0.148*	0.210**	0.217**	0.199**	0.128
	(0.087)	(0.088)	(0.089)	(0.088)	(0.093)	(0.096)
Private	-0.029	-0.254	-0.111	-0.103	-0.085	0.004
credit/GDP	(0.068)	(0.071)	(0.077)	(0.074)	(0.081)	(0.090)
Bank	-0.415***	-0.331***	-0.182	-0.187	-0.246*	-0.362***
deposits/GDP	(0.110)	(0.118)	(0.130)	(0.125)	(0.130)	(0.131)
Overhead costs	0.310**	0.097	0.171	0.249*	0.114	0.117
	(0.147)	(0.144)	(0.143)	(0.150)	(0.145)	(0.150)
Concentration	-0.007	-0.008	-0.008	-0.002	-0.014	-0.006
	(0.012)	(0.123)	(0.012)	(0.012)	(0.013)	(0.013)

(1)	*Government involvement*		*Institutions*			
	(2)	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
Crisis	-2.835***	-2.525***	-2.789***	-2.514***	-2.321***	-2.517***
	(0.822)	(0.866)	(0.843)	(0.832)	(0.876)	(0.874)
GDP p.c.	-0.0004	-0.0005	-0.0006	-0.0002	-0.0005	-0.0004
	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0005)
GDP p.c. growth	0.137***	0.184***	0.178***	0.152***	0.179***	0.180***
rate	(0.048)	(0.033)	(0.052)	(0.052)	(0.033)	(0.054)
Inflation	-0.023	-0.028	-0.029	-0.029	-0.023	-0.028
	(0.023)	(0.025)	(0.024)	(0.024)	(0.025)	(0.025)
Money market	0.178***	0.184***	0.189***	0.186***	0.179***	0.184***
interest rate	(0.030)	(0.033)	(0.031)	(0.031)	(0.033)	(0.032)
General	-0.086*	...	...	...	...	...
government	(0.048)					
expenditure/GDP						
General	...	0.078**	0.070**	0.007	0.059	0.070*
government		(0.034)	(0.034)	(0.043)	(0.038)	(0.039)
revenue/GDP						
Control of	...		-2.347**	...	...	...
corruption			(0.985)			
Rule of law	...		...	-2.887***	...	...
				(1.060)		
Government	...		...	...	-1.849	...
effectiveness					(1.201)	
Voice and	...		...	...	...	0.542
accountability						(1.010)
Observations	79	75	75	75	75	75
Countries	7	7	7	7	7	7
Sargan test [p-value]	1.00	1.00	1.00	1.00	1.00	1.00

Notes. First step System GMM results. All regressions include common time effects. Bank-specific variables are treated as endogenous and instrumented with two lags. Standard errors in parentheses. Significance at the 1/5/10% level is indicated by ***/**/*. Constant not reported. Sargan test of overidentifying restrictions tests the validity of the instrument set.

The main conclusion is that the effect of government's involvement (i.e. public finances) in the economy on the financial intermediation cost is not economically strong by itself; it rather depends on the institutional setting and interest group power. The former is especially important in transition/EU13 economies, while the latter is present in EU15 economies. What matters is how strong, and not how big the government is. Weak governments, those that are plagued with corruption and have a low level of the rule of law, have a larger negative effect on financial intermediation costs than big, but (almost) corruption-free governments. This is a useful result for our next chapter where we will empirically investigate the link between governments, banks and economic growth.

4 GOVERNMENT, FINANCIAL INTERMEDIATION BY BANKS AND ECONOMIC GROWTH

We shouldn't slip into the mistake of equating something useful, like financial-sector development or anything else, with a sufficient condition for growth.
(Michael Spence)

Even though there is a large amount of empirical research generated by new growth theories, there is little consensus on which mechanisms are the strongest in explaining cross-country differences. This is not surprising, since the authors specify their regressions in different ways. In addition, different authors choose different proxies for the same variables. Durlauf et al. (2008) find that the canonical neoclassical growth variables, i.e. initial income, investment, and population growth, as well as macroeconomic variables (government consumption and inflation), play more importance in affecting growth than geography, institutions, religion and ethnic fractionalization. There is some evidence that institutions affect growth indirectly via growth proxies. In other words, institutions can affect growth through the promotion of better macroeconomic policies or better incentives for capital accumulation. Furthermore, the differences among growth rates are also explained by unknown heterogeneity associated with regional groupings. As it was previously mentioned in Chapter one, Durlaf et al. (2008) do not even consider financial intermediation variables.

The same situation is in a paper written by Sala-i-Martin et al. (2004), where the authors also use model averaging, and the conclusions are similar: of 67 explanatory variables, they find 18 to be significantly and robustly partially correlated with long-term growth, but the strongest evidence is for the relative price of investment goods, primary school enrolment and the initial level of real GDP per capita. Other important variables include regional dummies, religious dummies, public consumption and public investment (both negatively related to growth). Doppelhofer and Weeks (2011) explore the robustness of economic growth determinants in the presence of model uncertainty, parameter heterogeneity and outliers. They use the robust model averaging approach and find eight of eighteen variables to be significantly related to economic growth by Sala-i-Martin et al. (2004) sensitive to deviations from benchmark model averaging. Among others, government consumption is no longer robust nor economically significant, just like some regional dummies and the share of mining in GDP.

These three review papers (in a way) show that it is difficult to make sense of the empirical evidence on economic growth. To paraphrase Ronald Coase, it seems that the more you torture data, the less they confess. The same conclusion comes from the review of the finance and growth literature done in the first chapter. Simply trying different combinations of possible regressors can lead to spurious inference. Then what to do? In this thesis we will "play it safe" and follow Barro-type regressions (1991). The number of all potential regressors

exceeds the number of countries in the world so here we will limit the analysis to several groups of variables which relate to: "classics", government, financial intermediation by banks and institutions. Basically, the analysis is very similar to the one in the previous chapter and follows the findings from the first and second chapters. First we describe the model and the data, then we present the results, carry out a sensitivity analysis, and conclude with a discussion. Before we continue, it is worth mentioning a paper written by Pushak et al. (2007). There are many studies on growth in transition economies but this one is singled out because its focus is on public finance (fiscal balance and the size of government) and governance.

The authors model economic growth as a function of initial conditions, stabilization, market liberalization, and structural reform. Apart from these factors, they find that fiscal balance matters for growth and that the determinants of growth vary in relative importance, depending on the underlying institutional quality. In countries with better public governance, there could be higher payoffs from macroeconomic stability and public expenditure. Also, the size of government matters for growth in a nonlinear way: above certain expenditure threshold levels, public spending has a negative impact, while at levels below the threshold, there is no measurable effect on economic growth. As government expenditure grows, there might be more intense distortionary taxation and regulatory activities, potentially less efficient provision of services, and new opportunities for rent-seeking and corruption. The linkages between large government expenditure programs and economic growth may be mediated by the quality of public sector governance. In countries where public sector governance is weak, misallocation of public expenditures and weak administrative capacity are likely to grow, making the non-linear impact of large government programs more pronounced. In addition, taxes are likely to be more distortionary when governance is poor, with high compliance costs and bribery of tax officials adding to the impact of high and distorting tax rates.

4.1 Model and data

We have already provided a review of the financial intermediation and growth literature (Chapter 1). Here we will shortly describe the other two important components of the model: institutions and government. Naturally, the literature on the link between institutions and growth, as well as government size and growth, is enormous and complex. Here we will give the basic outline of the results.

The literature on institutions has reached a consensus that institutions matter for growth (Bađun, 2005). According to Glaeser et al. (2004), rich countries can afford good institutions. On the other hand, Rodrik et al. (2004) claim that it is improvements in institutions that drive increases in income. A gathering consensus is that the two variables are endogenously determined, and that both are mutually reinforcing.

Campos et al. (2010) provide a survey of empirical literature on the effects of corruption on economic growth. Thirty-two percent of estimates (in 41 different studies) support a significant and negative impact of corruption on growth, 62 percent suggest a statistically insignificant relationship, while ca. only 6 percent support a positive and significant relation. The authors find that the variation in results can be explained by authors' affiliation (academics report smaller and less negative effect), the use of fixed-effects (which tend to increase the negative effect of corruption on growth), the type of corruption measure and the inclusion in the model of trade and institutions which both tend to deflate the negative effect of corruption on economic growth.

The rule of law can influence growth through security of people, security of property and enforcement of contract, through checks on government, checks on corruption and private capture (Haggard and Tiede, 2011). Also, corruption performs better than measures of property rights or checks on government (in terms of growth), suggesting that private capture may be as damaging to economic performance as predatory government. Corruption and rent seeking introduce policy distortions that constitute barriers to long-run growth: monopolies, restrictions on entry, protectionism, misallocation of government spending, and private expropriation of assets through managerial malfeasance. Corruption may emanate from politicians and bureaucrats and be interpreted as yet another indication of state predation. But corruption typically involves exchanges with private actors who are its beneficiaries. The rule of law involves not only restraints on state discretion but limitations on private power as well. Haggard and Tiede (2011) find that aggregate indices perform better than the discrete components of the rule of law that are highlighted in the theoretical literature.

As concerns the role of government, i.e. government size and economic growth, Bergh and Henrekson (2011) provide the most recent review paper for rich countries. They focus on the newest studies in which panel analysis has been used. The correlation between government size (measured by total taxes or total expenditure) and growth is negative. However, the authors notice that several countries with high taxes have above-average growth. The possible explanation for this is that countries with large governments compensate for high taxes and spending by implementing market-friendly policies in other areas. Also, countries with higher social trust levels are able to develop large government sectors without harming the economy. In short: it matters what governments actually do and how they finance their activities. It is not necessary for the government to shrink in order for growth to increase. There is potential for increasing growth by restructuring taxes and expenditures so that the negative effects on growth for a given government size are minimized. In other words, efficiency has to grow. Also, "transparent rules, the rule of law and well-defined property rights seem to be conducive to growth regardless of government size" (Bergh and Henrekson, 2011:4). However, a negative coefficient on government expenditure in growth regressions does not imply that large government causes slower growth.

Among classics, several variables will be included, based on previous papers: initial log GDP per capita, inflation, investment shares in GDP, human capital (proxied by government size, and openness. The model has the following form:

$$\Delta y_{i,t} = \alpha_i + \beta_0 \Delta y_{i,t-1} + \beta_1 [finance]_{it} + \beta_2 [control\ variables]_{it} + \lambda_t + \varepsilon_{i,t}$$

$\Delta y_{i,t}$ - real GDP per capita growth rate
$\Delta y_{i,t-1}$ - real GDP per capita growth rate in period t-1
Finance - variables showing financial depth and financial efficiency
Control variables - standard variables in economic growth models with addition of institutional variables (rule of law, corruption)
i- country
t - year
α_i- fixed effects
λ_t - common time effects
$\varepsilon_{i,t}$ -error term

The hypothesis is that the *effects of financial intermediation by banks on economic growth depend on incentives for consumption and rent seeking*. In other words, finance cannot have a positive effect on economic growth in countries in which the institutional structure stimulates consumption and rent seeking instead of saving and production.

4.2 Results and sensitivity analysis

EU15 economies

Table 5 shows estimation results for EU15 economies. Net interest margin, as an indicator of financial intermediation efficiency, is not statistically significant with neither of the two government size proxies (columns 2 and 3). However, private credit/GDP (indicator of financial depth) is significant in all specifications and it decreases the GDP p.c. growth rate. This result is robust with different government size proxies (columns 4 and 5) as well as with substituting secondary with tertiary education and adding a bank crisis dummy (column 6). Columns 2-5 include secondary-school enrolment and columns 6-9 tertiary education attainment.

Table 5. Growth determinants in EU15 economies

	Financial intermediation					*Institutions*		
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Growth rate t-1	0.532***	0.589***	0.458***	0.561***	0.494***	0.506***	0.458***	0.525***
	(0.071)	(0.070)	(0.071)	(0.069)	(0.074)	(0.073)	(0.071)	(0.075)
Log GDP p.c. t-1	-0.420	-0.440	-0.243	-0.163	-0.419	-1.104**	-1.599***	-0.566

	Financial intermediation					*Institutions*		
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
	(0.428)	(0.438)	(0.391)	(0.412)	(0.455)	(0.563)	(0.599)	(0.610)
Education	-0.0004	0.001	-0.003	-0.004	0.005	0.0003	0.002	0.011
	(0.007)	(0.008)	(0.007)	(0.008)	(0.009)	(0.009)	(0.008)	(0.010)
Investment/GDP	-0.453	-0.055	-0.10	0.003	-0.001	-0.261	-0.018	-0.078
	(0.045)	(0.453)	(0.043)	(0.044)	(0.049)	(0.048)	(0.047)	(0.050)
Inflation	-0.203*	-0.148	-0.247**	-0.151	-0.306***	-0.295**	-0.249**	-0.207*
	(0.119)	(0.115)	(0.110)	(0.111)	(0.118)	(0.117)	(0.112)	(0.120)
Trade/GDP	0.002	0.001	-0.008*	-0.005	-0.003	0.001	0.002	0.007*
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Government	-0.058*	...	-0.090***	...	-0.087***	-0.102***	-0.103***	-0.067**
expenditure/GDP	(0.029)		(0.028)		(0.030)	(0.030)	(0.029)	(0.029)
Government	...	-0.072	...	-0.067	...	...	...	...
final		(0.056)		(0.051)				
consumption								
expenditure/GDP								
Net interest	0.144	-0.021	...	...	...	...	...	0.071
margin	(0.148)	(0.153)						(0.417)
Private	...	...	-0.016***	-0.011***	-0.014***	-0.016***	-0.018***	...
credit/GDP			(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	
Bank crisis	...	...	...	...	0.722	0.919	0.939	0.071
					(0.747)	(0.742)	(0.681)	(0.639)
Control of	...	...	....	...	...	0.757***	...	0.560
corruption						(0.343)		(0.627)
Rule of law	...	...	...	...	...	...	1.721***	...
							(0.480)	
Interaction term	...	...	...	...	...	...	...	-0.030
between NIM								(0.233)
and control of								
corruption								
Observations	158	158	156	144	144	144	144	145
Countries	15	15	15	15	15	15	15	15
Sargan test [p-value]	0.69	0.64	0.64	0.51	0.73	0.86	0.83	0.57

Notes. First step System GMM results. All regressions include common time effects. All variables except of log GDP p.c. t-1 are treated as endogenous and instrumented with two lags. Standard errors in parentheses. Significance at the 1/5/10% level is indicated by ***/**/*. Constant not reported. Sargan test of overidentifying restrictions tests the validity of the instrument set.

Statistical significance of private credit/GDP remains with all institutional variables too; the results including corruption and the rule of law are in Table 5 (columns 7 and 8) while government effectiveness and voice and accountability have been left out to save space. Other significant variables are government expenditure/GDP (-), inflation (-), initial GDP p.c. (-) and growth rate in previous period (+). Institutions and initial GDP p.c. have the strongest effect. Unlike in the previous chapter where we examined determinants of NIM, institutions

are undoubtedly important in EU15 economies and they increase growth rate. Obviously, the effect on growth is through other channels rather than the financial intermediation cost. The interaction term between the net interest margin and control of corruption is not significant (column 9), as well as the interaction term between private credit/GDP and control of corruption (results not shown).

EU13 economies

Since EU13 economies have undergone many economic and political changes in the observed period, influenced by the EU accession process, their economic growth pattern was different than in old EU member states. Hence, in the case of EU13 economies, we will add variables to the model gradually and not all at once as in the case of EU15 economies (except for institutions). In the first specification (column 2 in Table 6), we include initial GDP p.c., bank crisis, net interest margin, government expenditure/GDP, inflation and investment/GDP. The rationale was to start with financial intermediation proxy, policy variables and two additional control variables, i.e. investment and bank crisis.

All variables except NIM are statistically significant and all of them have a negative sign except the lagged value of growth rate and investment. Unlike in EU15 economies, where the GDP p.c. growth rate in the previous period is significant at 1% in all specifications, in EU13 economies it is significant at 10%. Also, a bank crisis has a strong negative economic effect, just like the lagged value of GDP p.c., both of which were not statistically significant in EU15 economies. Since NIM is not statistically significant, but has the expected negative sign, in the next specification (column 3 in Table 6) we replace it with its lagged value. After that change, NIM is significant, just like all other variables. The GDP p.c. growth rate becomes significant at 5%. Sargan test p-value falls but stays above the 0.05 threshold. Changing the government size proxy with the share of government deficit/surplus in GDP (column 4) does not alter the results.

Lagged value of NIM stays significant after adding trade/GDP as openness proxy and tertiary education enrolment as human capital proxy, but Sargan test fails to confirm the validity of the instrument set. Growth rate t-1 even changes the sign to negative. Since the rejection of the null hypothesis of the Sargan test may indicate the presence of heteroscedasticity, in the next specification (column 6) standard errors are chosen to be robust. After that change, lagged NIM, openness, and inflation are no longer significant. Sargan test cannot be performed with robust standard errors.

Chances are higher that, instead in standard errors, the problem lies in instrumental variables. When adding control of corruption to the model (column 7), we treat all variables (except government expenditure/GDP and investment/GDP) as exogenous. These two have been chosen because they yield the highest p-value in the Sargan test and have the smallest

probability of being exogenous. Lagged NIM is again significant at a 1% level, as well as bank crisis, government expenditure/GDP, investment/GDP, tertiary education and control of corruption. Inflation is significant at a 5% level. All variables have the expected signs except control of corruption: better control of corruption is correlated with lower growth. The same is with the rule of law in the next specification (column 8). Since control over corruption and the rule of law were gradually improving in the observed period and growth rates were even negative, it was unlikely to expect a positive coefficient. We cannot claim that a lower level of the rule of law and widespread corruption caused higher growth rates, we can only establish correlation with certainty. The interaction term between lagged NIM and lagged control of corruption is statistically significant, but the difference between the effect of NIM on economic growth at low and at high control of corruption is economically insignificant.[53]

According to Park (2012), corruption distorts the allocation of bank funds from normal projects to bad projects, which decreases the quality of private investment and hence it reduces economic growth. The effect of corruption on bank's performance can stem from firms bribing politicians (e.g. to secure loans through bypassing the loan review processes) or banks bribing politicians (e.g. to gain regulatory forbearance). A possible result is an increase in non-performing loans, which can lead not only to the lower quality of private investment, but also to a bank crisis. In the case of EU13 economies, the negative effect of corruption on economic growth may be hidden behind the bank crisis variable. Column 9 in Table 6 shows that the interaction term between control of corruption and bank crisis is statistically significant at a 5% level. The negative effect of a bank crisis on economic growth is six times larger at low (first quartile) than at high (third quartile) control of corruption.

Another possible interpretation of the positive effect of corruption on economic growth is that there is a negative relationship between institutional quality and public investment. Grigoli (2011) found that corruption contributes to the increase in the levels of public investment as a share of GDP. His dataset consists of 144 countries over the period 1984-2008. Grigoli believes that governments use public investment as a vehicle for rent-seeking. Politicians push projects on the base of how much they can extract from them instead of looking at the economic return and feasibility indicators. An alternative explanation is that governments increase public investment in order to compensate for the fall in private investment to create an attractive business environment. Unfortunately, we do not have data on the share of public investment in total investment.

Table 6. Growth determinants in EU13 economies (with financial efficiency)

	Financial intermediation					*Institutions*		
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Growth rate	0.125*	0.157**	0.178***	-0.146**	-0.146**	-0.106	-0.084	-0.113

[53]Results are available upon request.

	Financial intermediation					*Institutions*		
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
t-1	(0.066)	(0.067)	(0.066)	(0.066)	(0.067)	(0.075)	(0.077)	(0.075)
Log GDP	-2.600***	-2.969***	-2.949***	-2.471***	-2.471***	-0.027	0.799	0.198
p.c. t-1	(0.486)	(0.545)	(0.508)	(0.397)	(0.819)	(0.091)	(1.100)	(0.907)
Bank crisis	-2.890***	-2.700***	-2.689***	-2.123***	-2.122**	-2.471***	-2.298***	-4.032***
	(0.529)	(0.549)	(0.557)	(0.490)	(1.012)	(0.618)	(0.600)	(0.927)
Net interest	-0.026	...	...	...	...	...	...	…
margin	(0.125)							
Net interest	...	-0.403***	-0.414***	-0.358***	-0.358	-0.353***	-0.378***	-0.333***
margin t-1		(0.111)	(0.110)	(0.094)	(0.264)	(0.113)	(0.115)	(0.112)
Government	-0.175***	-0.172***	...	-0.292***	-0.291***	-0.357***	-0.355***	-0.345***
expenditure/	(0.039)	(0.042)		(0.036)	(0.051)	(0.045)	(0.046)	(0.045)
GDP								
Government	...	...	0.260***	...	...	...	...	…
deficit/			(0.070)					
surplus in								
GDP								
Inflation	-0.132***	-0.079***	-0.063**	-0.053**	-0.053	-0.067**	-0.036	-0.071**
	(0.031)	(0.030)	(0.029)	(0.027)	(0.050)	(0.033)	(0.034)	(0.032)
Investment/	0.214***	0.145***	0.128**	0.290***	0.289***	0.290***	0.269***	0.317***
GDP	(0.052)	(0.053)	0.053)	(0.044)	(0.084)	(0.052)	(0.052)	(0.053)
Trade/GDP	...	...	...	-0.005*	-0.005	-0.004	-0.003	-0.005
				(0.003)	(0.004)	(0.006)	(0.006)	(0.006)
Education	...	...	...	0.038**	0.038*	0.075***	0.084***	0.074***
(tertiary)				(0.015)	(0.020)	(0.024)	(0.025)	(0.023)
Control of	...	...	...	...	...	-2.903***	...	-3.727***
corruption						(1.070)		
Rule of law	...	...	...	...	...	...	-3.293***	…
							(1.132)	
Interaction	…	…	…	…	…	…	…	4.362**
term								(1.947)
between								
bank crisis								
and control								
of corruption								
Observations	157	160	158	138	138	138	138	138
Countries	13	13	13	13	13	13	13	13
Sargan test	0.19	0.09	0.052	0.002	...	0.21	0.34	0.40
[p-value]								

Notes. First step System GMM results. All regressions include common time effects. All variables except of log GDP p.c. t-1 are treated as endogenous and instrumented with two lags. Exceptions are columns 7, 8 and 9 where only government expenditure/GDP and investment/GDP are endogenous. Standard errors in parentheses and non-robust (expect in column 6). Significance at the 1/5/10% level is indicated by ***/**/*. Constant not reported. Sargan test of overidentifying restrictions tests the validity of the instrument set.

In Table 7 we repeat our analysis for EU13 economies with a financial depth proxy: private credit/GDP. The main conclusion is that higher private credit/GDP is connected with lower economic growth rates. The only variable that strips private credit of its statistical significance is tertiary education (columns 5 and 6) but it also decreases the number of observations due to lack of data. Just like with NIM, the increase in control of corruption and the rule of law is correlated with lower economic growth rates. The control of corruption is statistically significant both with and without tertiary education and the rule of law only with tertiary education (latter not shown). Other statistically significant variables in the model with control of corruption and without tertiary education are: lagged growth rate (+), bank crisis (-), government expenditure (-) and inflation (-). Replacing government expenditures with government deficit/surplus in GDP does not diminish statistical significance of financial depth. The interaction term between private credit/GDP and control of corruption is not statistically significant (column 9).

Table 7. Growth determinants in EU13 economies (with financial depth)

	Financial intermediation				*Institutions*			
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Growth rate	0.229***	0.240***	0.230***	-0.052	-0.070	0.232***	0.238***	0.221***
t-1	(0.067)	(0.067)	(0.071)	(0.073)	(0.073)	(0.067)	(0.069)	(0.068)
Log GDP p.c.	-0.368	-0.518	-0.361	-0.581	0.728	0.203	0.461	0.593
t-1	(0.796)	(0.826)	(0.954)	(0.715)	(0.903)	(0.925)	(1.079)	(0.967)
Bank crisis	-2.285***	-2.061***	-2.380***	-1.821***	-2.453***	-2.378***	-2.201***	-2.379***
	(0.585)	(0.594)	(0.677)	(0.559)	(0.621)	(0.617)	(0.607)	(0.617)
Private	-0.031***	-0.028***	-0.035***	-0.004	0.003	-0.025**	-0.029***	-0.044**
credit/GDP	(0.010)	(0.011)	(0.013)	(0.010)	(0.009)	(0.011)	(0.011)	(0.018)
Government	-0.227***	-0.213***	...	-0.313***	-0.337***	-0.215***	-0.209***	-0.216***
expenditure/	(0.048)	(0.048)		(0.044)	(0.045)	(0.048)	(0.048)	(0.048)
GDP								
Government	...	...	0.324***	...	...	...	...	...
deficit/			(0.087)					
surplus in								
GDP								
Inflation	-0.100***	-0.099***	-0.081***	-0.090***	-0.096***	-0.110***	-0.097	-0.117***
	(0.029)	(0.029)	(0.029)	(0.028)	(0.028)	(0.029)	(0.030)	(0.030)
Investment/	0.183***	0.172***	0.186***	0.275***	0.300***	0.185	0.178***	0.231***
GDP	(0.053)	(0.054)	(0.062)	(0.047)	(0.049)	(0.055)	(0.055)	(0.065)
Trade/GDP	...	0.004	0.014**	0.002	-0.002	0.002	0.003	0.002
		(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Education	...	...	...	0.066***	0.083***	...	...	...
(tertiary)				(0.020)	(0.021)			
Control of	...	...	...	...	-2.551**	-1.675*	...	-2.907**
corruption					(1.066)	(0.947)		(1.332)
Rule of law	...	...	...	...	...	...	-1.429	...
							(1.005)	

	Financial intermediation				*Institutions*			
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Interaction term between private credit/GDP and control of corruption	...	...	...	...	...	...	...	0.022 (0.016)
Observations	160	159	157	137	138	159	159	159
Countries	13	13	13	13	13	13	13	13
Sargan test [p-value]	0.24	0.30	0.12	0.12	0.12	0.35	0.41	0.38

Notes. First step System GMM results. All regressions include common time effects. All variables except of private credit/GDP, government expenditure/GDP and investment/GDP are treated as exogenous; endogenous variables are instrumented with two lags. Non-robust standard errors in parentheses. Significance at the 1/5/10% level is indicated by ***/**/*. Constant not reported. Sargan test of overidentifying restrictions tests the validity of the instrument set.

In the next section, we will check the robustness of our results with several groups of countries: First, other transition economies like in the previous chapter, then a group of ten Latin American economies, since they, like EU15 economies, have a positive correlation coefficient between GDP p.c. growth rates and institutions (Table 8). Finally, we split all these countries into two subsamples: those with high and with low control of corruption/rule of law. Since the interaction terms between corruption and indicators of financial efficiency/depth have not been statistically significant, we want to check if the results differ when grouping countries with similar institutions rather than associations like EU.

Table 8. Correlation coefficients between GDP p.c. growth rate and institutions

	EU15 economies	*EU13 economies*	*Other transition economies*	*Latin American economies*
Control of corruption	0.020	-0.078	-0.149	0.147
Rule of law	0.029	-0.154	-0.177	0.074
Government effectiveness	0.105	-0.043	-0.134	0.095
Voice and accountability	0.000	-0.021	-0.014	0.131

Control groups

The results in Table 9 suggest that the group of other transition economies has quite different economic growth determinants than the previously analysed countries. Specifically, in specifications with net interest margin as financial intermediation proxy, only lagged growth

and inflation are significant. We have excluded education due to lack of data. Unlike in EU13 economies, institutions and net interest margin have positive signs, but none of them is significant. On the other hand, private credit/GDP is, and it also has a positive sign (columns 4 and 5 in Table 9). Improvement in institutions is correlated with higher growth rates, but not statistically significant. Apart from private credit/GDP, other significant growth determinants are: bank crisis (-), inflation (-) and investment (+). The inclusion of tertiary education reduces the number of observations and also changes the sign of private credit/GDP to negative, but then it is no longer significant.

The interaction term between NIM and control of corruption is not significant, while the one between private credit/GDP and control of corruption is, but only without education (column 6). The coefficient on the interaction term is positive, and since the coefficient of private credit/GDP is also positive, at higher levels of control of corruption, the positive effect of private credit/GDP on economic growth is stronger.

Table 9. Growth determinants in other transition economies

	Financial intermediation and institutions				
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Growth rate	0.275***	0.276***	-0.035	-0.034	-0.008
t-1	(0.103)	(0.103)	(0.094)	(0.093)	(0.091)
Log GDP p.c.	-0.784	-0.797	-1.052	-1.028	-1.223
t-1	(0.915)	(0.872)	(0.906)	(0.908)	(0.873)
Bank crisis	-1.726	-1.827	-2.550*	-2.528*	-0.518
	(1.503)	(1.457)	(1.415)	(1.432)	(1.587)
Private	...	...	0.152***	0.151***	0.443***
credit/GDP			(0.052)	(0.052)	(0.128)
Net interest	0.091	0.092	...	...	...
margin	(0.147)	(0.147)			
Government	-0.062	-0.103	0.010	0.009	0.052
expenditure/	(0.098)	(0.087)	(0.100)	(0.100)	(0.097)
GDP					
Inflation	-0.065*	-0.066*	-0.078**	-0.078**	-0.065**
	(0.036)	(0.037)	(0.034)	(0.034)	(0.033)
Investment/	0.163	0.168	0.239**	0.234**	0.342***
GDP	(0.112)	(0.112)	(0.107)	(0.110)	(0.111)
Trade/GDP	0.031	0.031	-0.024	-0.025	-0.027
	(0.029)	(0.027)	(0.026)	(0.025)	(0.025)
Control of	0.748	...	-0.013	...	-6.395**
corruption	(1.873)		(1.722)		(3.059)
Rule of law	...	0.744	...	-0.104	...
		(1.499)		(1.460)	
Education					...

	Financial intermediation and institutions				
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Interaction term between private credit/GDP and control of corruption	...	...	...	...	0.347** (0.140)
Observations	84	84	89	89	89
Countries	7	7	7	7	7
Sargan test [p-value]	0.54	0.53	0.26	0.26	0.17

Notes. First step System GMM results. All regressions include common time effects. All variables except of private credit/GDP, NIM, government expenditure/GDP and investment/GDP are treated as exogenous; endogenous variables are instrumented with two lags. Non-robust standard errors in parentheses. Significance at the 1/5/10% level is indicated by ***/**/*. Constant not reported. Sargan test of overidentifying restrictions tests the validity of the instrument set.

Latin American economies are not in the focus of this thesis; they serve only as a comparison group. The results in Table 10 suggest that in Latin America, both financial efficiency and financial depth matter for economic growth and have a negative effect. Moreover, financial depth becomes important only after including control of corruption in the model. The latter variable has a strong positive effect on growth. The interaction term between NIM and control of corruption is also significant at a 1% level: the negative effect of NIM on economic growth is stronger in countries that have weaker control of corruption. At first quartile of control of corruption (-0.81), the effect of NIM is 2.5 times stronger than at the third quartile value of control of corruption (-0.07). Interestingly, human and physical capitals are more important than policy variables; tertiary education and investment have a positive effect on economic growth. Bank crises are not statistically significant for growth, even though they have the expected negative sign. Unlike in all previous groups of countries (except other transition economies in specifications with financial depth), the coefficient of government expenditure/GDP is positive.

Table 10. Growth determinants in Latin American economies

	Financial intermediation		*Institutions*			
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
Growth rate t-1	-0.355***	-0.251**	-0.381***	-0.304***	-0.406***	-0.311***
	(0.109)	(0.115)	(0.110)	(0.110)	(0.112)	(0.111)
Log GDP p.c. t-1	-1.241	-1.316	-1.846*	-4.798***	-1.474	-4.503***
	(0.833)	(0.946)	(0.986)	(1.237)	(1.005)	(1.275)
Education	0.118***	0.129***	0.114**	0.161***	0.097**	0.143***
(tertiary)	(0.045)	(0.047)	(0.045)	(0.045)	(0.045)	(0.048)

	Financial intermediation		*Institutions*			
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
Investment/GDP	0.662***	0.596***	0.727***	0.671***	0.797***	0.700***
	(0.171)	(0.181)	(0.171)	(0.173)	(0.174)	(0.176)
Inflation	-0.065	-0.172***	-0.028	-0.125**	0.015	-0.109*
	(0.063)	(0.064)	(0.065)	(0.062)	(0.067)	(0.064)
Trade/GDP	0.060***	0.028	0.052***	0.030	0.033*	0.024
	(0.017)	(0.017)	(0.016)	(0.015)	(0.018)	(0.016)
Government	0.229***	0.410	0.218***	0.094	0.148*	0.110
expenditure/GDP	(0.075)	(0.070)	(0.075)	(0.066)	(0.081)	(0.069)
Net interest	-0.727***	...	-0.652***	...	-0.267	...
margin	(0.151)		(0.160)		(0.217)	
Private	...	-0.012	...	-0.128**	...	-0.163**
credit/GDP		(0.049)		(0.054)		(0.064)
Bank crisis	-1.618	-1.011	-1.327	-0.561	-1.818	-0.574
	(1.322)	(1.386)	(1.336)	(1.321)	(1.362)	(1.328)
Control of	...	...	1.802*	4.480***	-3.481	6.520***
corruption			(0.998)	(1.123)	(2.236)	(2.254)
Interaction term	...	...	...		0.651***	-0.080
between NIM or					(0.246)	(0.076)
private						
credit/GDP and						
control of						
corruption						
Observations	73	73	73	73	73	73
Countries	10	10	10	10	10	10
Sargan test [p-value]	0.64	0.28	0.69	0.39	0.86	0.42

Notes. First step System GMM results. All regressions include common time effects. All variables except of log GDP p.c. t-1 are treated as endogenous and instrumented with two lags. Standard errors in parentheses. Significance at the 1/5/10% level is indicated by ***/**/*. Constant not reported. Sargan test of overidentifying restrictions tests the validity of the instrument set.

Finally, we observe all countries with threshold levels of control of corruption to see whether the effect of NIM on economic growth differs at different levels of control of corruption. The coefficient on NIM is negative below the first quartile and positive above the third quartile of control of corruption (Table 11). However, in the latter case, it is economically and statistically insignificant. We can conclude that the widespread corruption gives an additional "kick" to the effects of finance on economic growth. As we have seen earlier, in EU15 economies, financial depth matters more than financial efficiency and it is exactly these countries that have better institutions on average. The results in Table 11 also show that the negative effect of financial depth on economic growth is larger in countries with worse control of corruption, and in both cases, it is significant at a 1% level. In addition, private credit is the only variable that is statistically significant in both groups of countries.

Table 11. Determinants of growth with corruption thresholds

	Control of corruption below first quartile (-0.34)		*Control of corruption above third quartile (1.35)*	
(1)	*(2)*	*(3)*	*(4)*	*(5)*
Growth rate t-1	0.061	-0.025	0.563***	0.574***
	(0.091)	(0.087)	(0.098)	(0.094)
Log GDP p.c. t-1	-0.523	-0.083	-1.531	-1.366
	(0.689)	(0.714)	(1.019)	(0.950)
Education	0.055	0.029	-0.007	-0.003
(tertiary)	(0.038)	(0.036)	(0.012)	(0.011)
Investment/GDP	0.289**	0.375***	-0.027	-0.052
	(0.113)	(0.109)	(0.063)	(0.061)
Inflation	-0.116***	0.013	-0.164	-0.158
	(0.039)	(0.047)	(0.142)	(0.139)
Trade/GDP	0.021	0.009	0.004	0.005
	(0.017)	(0.018)	(0.006)	(0.006)
Government	-0.123	-0.154	-0.081**	-0.073**
expenditure/GDP	(0.108)	(0.107)	(0.032)	(0.032)
Net interest	...	-0.835***	...	0.004
margin		(0.166)		(0.173)
Private	-0.129***	...	-0.012***	...
credit/GDP	(0.035)		(0.004)	
Bank crisis	-0.826	-4.001***	0.557	0.059
	(1.197)	(1.236)	(0.721)	(0.694)
Control of	3.211*	-0.513	0.952	0.729
corruption	(1.681)	(1.809)	(0.695)	(0.643)
Observations	94	92	98	102
Countries	17	17	13	13
Sargan test [p-value]	0.72	0.75	0.99	0.97

Notes. First step System GMM results. All regressions include common time effects. All variables except of log GDP p.c. t-1 are treated as endogenous and instrumented with two lags. Standard errors in parentheses. Significance at the 1/5/10% level is indicated by ***/**/*. Constant not reported. Sargan test of overidentifying restrictions tests the validity of the instrument set.

Table 12 shows that the results do not change when replacing control of corruption with the rule of law. Again, NIM matters only in countries with low levels of the rule of law, and it has a negative effect on growth. The effect of private credit/GDP on growth is negative in both groups, but stronger in countries with low levels of the rule of law. Rule of law by itself is not statistically significant but comes with a positive sign, except in a specification with NIM and below the first quartile of the rule of law. The same was true for control of corruption, except in a specification with private credit and below the first quartile, where control of corruption was statistically significant at a 10% level.

Table 12. Determinants of growth with rule of law thresholds

	Rule of law below first quartile (-0.42)		*Rule of law above third quartile (1.31)*	
(1)	*(2)*	*(3)*	*(4)*	*(5)*
Growth rate t-1	0.159*	0.088	0.319***	0.340***
	(0.096)	(0.099)	(0.096)	(0.091)
Log GDP p.c. t-1	-0.812	-0.737	-0.004	0.164
	(0.607)	(0.598)	(0.548)	(0.528)
Education	0.080**	0.091***	0.014	0.011
(tertiary)	(0.034)	(0.035)	(0.008)	(0.008)
Investment/GDP	0.305***	0.291**	-0.087	-0.102
	(0.117)	(0.117)	(0.065)	(0.063)
Inflation	-0.089	-0.032	-0.207	-0.234*
	(0.061)	(0.078)	(0.139)	(0.137)
Trade/GDP	0.007	-0.003	0.009	0.011*
	(0.015)	(0.015)	(0.006)	(0.006)
Government	-0.025	-0.117	-0.138***	-0.115***
expenditure/GDP	(0.091)	(0.092)	(0.032)	(0.031)
Net interest	...	-0.490***	...	0.124
margin		(0.142)		(0.131)
Private	-0.106**	...	-0.015***	...
credit/GDP	(0.042)		(0.004)	
Bank crisis	-0.887	-3.058**	0.426	-0.147
	(1.337)	(1.347)	(0.735)	(0.709)
Rule of law	0.336	-2.745	1.333	1.490
	(1.638)	(1.804)	(1.090)	(1.009)
Observations	90	88	109	112
Countries	15	15	13	13
Sargan test [p-value]	0.47	0.66	0.92	0.77

Notes. First step System GMM results. All regressions include common time effects. All variables except of log GDP p.c. t-1 are treated as endogenous and instrumented with two lags. Standard errors in parentheses. Significance at the 1/5/10% level is indicated by ***/**/*. Constant not reported. Sargan test of overidentifying restrictions tests the validity of the instrument set.

4.3 Discussion

The main finding is that in the period from 1996 to 2009, economic growth in the European Union (plus Croatia) was negatively influenced by financial depth (lending boom) and, in the case of EU13 economies, by financial efficiency as well. In addition, bank crises had an economically and statistically significant effect on the real GDP p.c. growth rates in EU13 economies. These results confirm the negative effect of financial intermediation on economic growth in the short run as in Loayza and Ranciere (2005). They also show the importance of including banking crises in the observation of the link between finance and growth. In addition, the results suggest that indeed you can have too much of a good thing, namely, more

finance is not always better (see, for example, Cecchetti and Kharroubi, 2012, in Chapter 2). Since a positive effect of financial depth on economic growth was present only in a group of other transition economies, which do not have deep financial markets, nonlinearities in the finance and growth relationship certainly exist, which has already been shown by many authors. EU13 economies might benefit from an increase in financial efficiency, namely from a lower cost of financial intermediation, i.e. its convergence to the EU15 values.

Government size also negatively influenced economic growth, but the economic effect was not strong. The size of government was partly influenced by bank crises themselves because they imposed fiscal costs. The important influence of government in these results shows that economic historians are right when they stress the role of government finance in explaining economic growth and the financial sector development. The government needs to fix its finance and there is always a conflict of interest when it comes to its relationship with the financial sector – the government needs credit lines from banks and somebody to purchase its bonds.

As concerns government's influence on growth through institutions, some results are unexpected. Primarily, better control of corruption and stronger rule of law are associated with lower economic growth rates in new EU member states. As it was previously mentioned, this is probably due to the fact that institutions improved in the observed period, and economic growth rates were even negative. Institutional improvements were largely motivated by the EU association process. In countries with less institutional volatility, such as old EU member countries (on average), there is a strong positive relationship between institutions and growth. In the previous chapter we have seen that government influences financial efficiency through public finance and institutions. This chapter confirms a double negative effect of government on economic growth: the direct effect and effect through financial efficiency.

The results also show that the effect of financial intermediation by banks on economic growth differs depending on corruption and the rule of law level as indicators of incentives for saving and production. Interaction terms between financial depth/efficiency and institutions were significant only in other transition economies and Latin American economies, but splitting all the countries in the sample (EU+ Croatia, seven other transition economies and ten Latin American economies) into two groups based on low/high control of corruption and the rule of law, gives stronger evidence that the effect of financial intermediation by banks on economic growth in countries with high incentives for consumption and rent-seeking is not positive. In fact, it is negative. This holds for both financial efficiency and financial depth.

However, in the observed period, the effect of financial depth on economic growth was negative even in countries with low corruption and high rule of law. This result can be linked to the research by Beck et al. (2008) who showed that bank lending to enterprises, and not

households, lies behind a positive impact of finance on growth. We can conclude that loans have been mostly directed towards consumption, and not production, which is why the effect of private credit/GDP was negative. The effect of financial efficiency was positive but not statistically significant.

Unfortunately, the data for secondary and tertiary school enrolment are not available for all countries, but it is interesting to observe that financial depth loses statistical significance after including human capital. This finding should be further investigated, but it is possible that Cecchetti and Kharroubi (2012) were on the right track when stressing that the financial industry competes for resources with the rest of the economy, which also includes high-skilled workers. Finance takes away workers from other industries, where they might contribute more to growth.

We also show that different groups of countries have different growth patterns, which indicates that it is more fruitful to observe similar countries or even individual countries across time. Similarity is not guaranteed by looking at associations such as the EU. It is clearly necessary to separately observe groups of countries within the EU. In our analysis, we have split the sample into old and new EU member states. However, more credible results are probably obtained when grouping countries with similar institutional quality.

In our research, we do not focus on the causality issue. However, the problem of reverse causality is tackled by using lagged realizations of the explanatory variables as instruments in a GMM framework.

Economic growth in the observed period was interrupted by bank and economic crises. It was negatively influenced both by market and government failure. In the next chapter we will try to look at variables that count but cannot be counted. Hopefully, a case study of Croatia will show further complexities in the government-banks relationship.

5 POLITICAL ECONOMY OF THE RELATIONSHIP BETWEEN GOVERNMENT AND BANKS IN CROATIA

Predatory behaviour has a lot of incentives in transition and particularly in banking industry.
(Škreb and Šonje, 2001:69)

The purpose of this chapter is to single out Croatia from econometric models and observe the link between government and banks at a case-study level. The assumption is that we will confirm the results from previous chapters: banks' influence on economic growth should not be observed without taking into account the institutional environment and without analyzing the relationship between banks and government. The chapter starts with a) a description of regulatory environment, and then continues with b) the analysis of government ownership and bank privatization, followed by c) bank crises and d) banks' allocation of resources. These elements have been chosen because they can give us a lot of insight into the nature of the banks-government relationship.

5.1 Regulatory environment

The goal of the first part of the chapter is not to describe in detail the regulatory environment in which Croatian banks operate, but to mention several points which indicate the key issues in the relationship between government and banks. Some of them will be then further elaborated. Let us first have a short look at the pace of the banking sector reform in Croatia compared to that in the new EU member states.

Table 13 shows that, according to EBRD (2010) data, Croatia scores very high on the index of banking reform and interest rate liberalisation scale. Hungary was the first country to reach the maximum score of 4 as early as 1997, while Croatia and Estonia achieved it in 2004.[54] Only the latter managed to keep that result up to present, while other countries, except Latvia (in 2007 and 2008) have still not reached it. Croatia's high score means that the banking laws and regulations have significantly approached the BIS standards. Also, Croatia has well-functioning banking competition, effective prudential supervision, significant lending to private enterprises and substantial financial deepening (EBRD, 2010). The next step should be a full convergence with the BIS standards.

[54] *1* - Little progress beyond establishment of a two-tier system; *2* - Significant liberalisation of interest rates and credit allocation; limited use of directed credit or interest rate ceilings; *3* - Substantial progress in establishing bank solvency and a framework for prudential supervision and regulation; full interest-rate liberalisation with little preferential access to cheap refinancing; significant lending to private enterprises and significant presence of private banks; *4* - Strong convergence of banking laws and regulations with BIS standards; well-functioning banking competition and effective prudential supervision; significant term lending to private enterprises; substantial financial deepening; *4+* - Standards and performance norms of advanced industrial economies: full convergence of banking laws and regulations with BIS standards; provision of a full set of competitive banking services (EBRD, 2010).

The path to Croatia's score 4, when it comes to most important laws on banking, is shown in Table 14. Before the introduction of the Act on Banks and Savings Banks (the first law on banking since Croatia's independence) in 1993, the Act on Banks and Other Financial Organizations was in effect (SFRY Official Gazette, 10/89, 40/89, 87/89, 18/90 and 72/90). The 1993 law had been amended on three occasions before the Banking Act was introduced in 1998. It was followed by a new Banking Act in 2002 (amended once), and finally a Credit Institutions Act was adopted in 2008 and twice amended in 2009. Before the current Act on the Croatian National Bank, two more acts were effective; one adopted in 1992 and the other in 2001. Table 14 also contains the Act on the Restructuring and Rehabilitation of Banks, Act on State Agency for Deposit Insurance and Bank Rehabilitation, and Deposit Insurance Act.

Table 13. Banking reform and interest rate liberalisation

	Bulgaria	***Croatia***	***Estonia***	***Hungary***	***Latvia***	***Lithuania***	***Poland***	***Romania***	***Slovak Republic***	***Slovenia***
1989	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1990	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00
1991	1.00	1.00	1.00	2.00	1.00	1.00	2.00	1.00	2.00	1.00
1992	1.67	1.00	2.00	2.00	2.00	1.00	2.00	1.00	2.67	2.00
1993	2.00	2.00	3.00	3.00	2.00	2.00	3.00	1.00	2.67	3.00
1994	2.00	2.67	3.00	3.00	3.00	2.00	3.00	2.00	2.67	3.00
1995	2.00	2.67	3.00	3.00	3.00	3.00	3.00	3.00	2.67	3.00
1996	2.00	2.67	3.00	3.00	3.00	3.00	3.00	3.00	2.67	3.00
1997	2.67	2.67	3.33	4.00	3.00	3.00	3.00	2.67	2.67	3.00
1998	2.67	2.67	3.33	4.00	2.67	3.00	3.33	2.33	2.67	3.00
1999	2.67	3.00	3.67	4.00	3.00	3.00	3.33	2.67	2.67	3.33
2000	3.00	3.33	3.67	4.00	3.00	3.00	3.33	2.67	3.00	3.33
2001	3.00	3.33	3.67	4.00	3.33	3.00	3.33	2.67	3.33	3.33
2002	3.33	3.67	3.67	4.00	3.67	3.00	3.33	2.67	3.33	3.33
2003	3.33	3.67	3.67	4.00	3.67	3.33	3.33	2.67	3.33	3.33
2004	3.67	4.00	4.00	4.00	3.67	3.33	3.33	3.00	3.67	3.33
2005	3.67	4.00	4.00	4.00	3.67	3.67	3.67	3.00	3.67	3.33
2006	3.67	4.00	4.00	4.00	3.67	3.67	3.67	3.00	3.67	3.33
2007	3.67	4.00	4.00	4.00	4.00	3.67	3.67	3.33	3.67	3.33
2008	3.67	4.00	4.00	4.00	4.00	3.67	3.67	3.33	3.67	3.33
2009	3.67	4.00	4.00	4.00	3.67	3.67	3.67	3.33	3.67	3.33
2010	3.67	4.00	4.00	3.67	3.67	3.67	3.67	3.33	3.67	3.33

Source: *Transition indicators 2010*, EBRD.

While it may seem that the regulatory framework for banking has been changed too often, the situation is similar with all Croatian laws. For example, the Act on Obligations and Rights of State Officials was introduced in 1998 (OG 101/98) and changed eight times (OG 135/98, 105/99, 25/00, 73/00, 30/01, 59/01, 114/01 and 153/02). Additionally, the Act on the Prevention of Conflict of Interest in the Exercise of Public Office, adopted in 2003 (OG

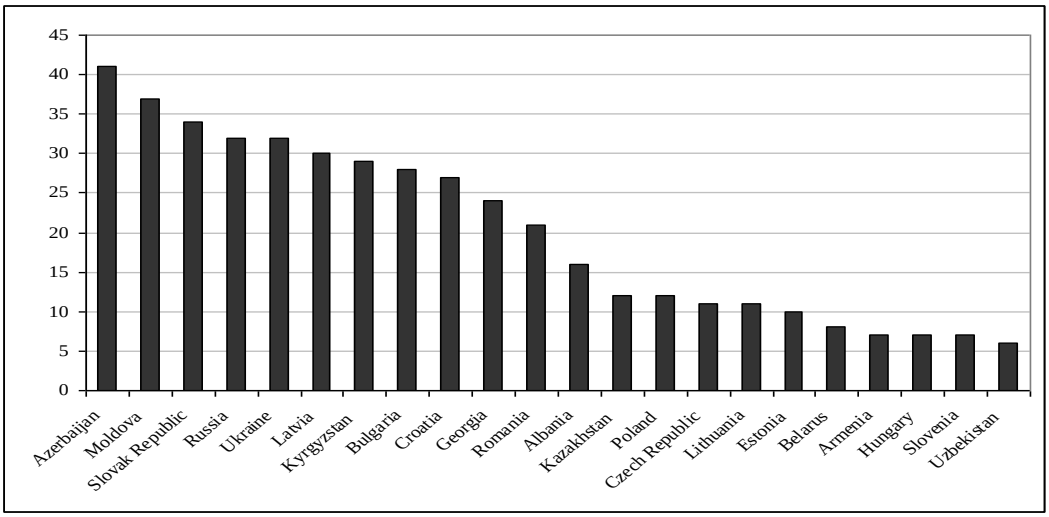
163/03), was changed nine times (OG 6/04, 30/04, 187/04, 121/05, 151/05, 141/06, 17/07, 107/07 and 60/08). Apart from frequent legal changes, which bring uncertainty into the business environment, an important problem in Croatia, especially pronounced in the 1990s, was a low level of the rule of law. Chapter 23 on judiciary has been the most difficult one to handle in Croatia's accession to the EU. The banking sector has naturally not been excluded from the changes occurring in the Croatian economy, politics and society. However, its path seems to be different because banking 1) has been subject to direct control of monetary authorities, which enjoy independence, 2) has had safety net introduced by the government and 3) because of the bank privatization method. One could say that banking in Croatia has enjoyed some kind of protection, but not an inexpensive one – for either banks or taxpayers.

Table 14. Selected laws on banking

	Official Gazette (OG) of the Republic of Croatia
Act on Banks and Savings Banks (I)	94/93, 90/96, 46/97 and 89/98
Banking Act (II)	161/98
Banking Act (III)	84/02 and 141/06
Credit Institutions Act (IV)	117/08, 74/09 and 153/09
Act on the Restructuring and Rehabilitation of Banks (I)	27/91
Act on the Restructuring and Rehabilitation of Banks (II)	44/94 and 52/00 (Decision on suspension of law)
Act on State Agency for Deposit Insurance and Bank Rehabilitation	44/94, 79/98, 19/99, 35/00 and 60/04
Croatian Central Bank Act (I)	74/92, 79/93, 7/95 and 35/95 (consolidated version)
Act on the Croatian National Bank (II)	36/01 and 135/06
Act on the Croatian National Bank (III)	75/08
Deposit Insurance Act	177/04, 119/08 and 153/09

While in the 1990s, the Croatian Central Bank's independence was lower than in other CEECs (Cukierman et al., 2000), it has significantly grown over time, as has its credibility. There were departures from legal independence when the Croatian Central Bank Act was adopted in 1992 (Škreb and Šonje, 2001). The central bank was permitted to lend directly to government. However, lending to government was limited by the obligation to repay the loans by the end of the year. In addition, lending to government within a fiscal year could not exceed 5% of the annual budget plan. According to Škreb and Šonje (2001), the mere fact that government could apply for a short-term loan, and that the loan could be payable at an interest rate below the money-market rates, undermined the central bank's independence. Figure 2 shows capture economy indices in 1999 for transition economies. The capture economy index consists of six components: parliamentary legislation, presidential decrees, central bank, criminal courts, commercial courts and party finance. Countries in which the capture of central banks dominates over other components are: Armenia, Belarus, Croatia, Georgia, Kazakhstan, Kyrgyzstan, Russia, and Slovak Republic, while it is the most pronounced in Kyrgyzstan and Russia.

Figure 2. Capture economy index (% of firms affected by capture in 1999)



Source: Hellman et al. (2003), *Seize the state, seize the day: state capture and influence in transition economies*.

Apart from being "protected" by the central bank' independence, the banking sector was also exempt from the Act on the Transformation of Socially Owned Enterprises, adopted in 1991 (OG 19/91, 83/92, 84/92, 94/93, 2/94, 9/95 and 21/96).[55] By that time, banks were already established and were doing business as joint-stock companies. The founding of banks as joint-stock companies or limited liability companies was introduced for the first time by virtue of the Act on Banks and Other Financial Organizations (OG SFRY 10/1989, 40/1989, 87/1989, 18/1990 and 72/1990).[56] The bank transformation process was finished in 1989. Since the process of obtaining licenses was under the control of the National Bank of Yugoslavia, the Croatian National Bank cannot provide all details on the setting up i.e. transformation of each individual bank (CNB, 2005). Bank privatization will be described in more detail later in the text.

Now we come to the third form of protection: government's safety net, which refers to the Deposit Insurance Act (Table 14). Before that Act, the Ordinance on Insurance of Savings Deposits (OG 65/97, 105/98 and 86/00) and the Decision on the Size of Insured Savings Deposits (OG 88/98) were in effect. Starting from 2010, the State Agency for Deposit Insurance and Bank Rehabilitation insures citizens' deposits up to HRK 400,000. Before that, the insured amount was HRK 100,000. The safety net was especially important in the early 1990s, when, pursuant to a government Regulation from 1991 (OG 7/91, 3/92, 12/92, 58/93 and 103/93), citizens' foreign currency bank deposits were converged into government debt

[55] It should be noted that 'independence' refers to monetary policy freedom, which does not necessarily coincide with the freedom of bank supervision.

[56] The cited Act was replaced by the Act on Banks and Savings Banks in 1993 (Table 14). Before that Act banking was regulated by the Law on the Fundamentals of the Banking and Credit Systems (OG SFRY 70/1985, 9/1986, 72/1986 and 65/1987).

due to a bank crisis. The safety net was also used during the second banking crisis, but deposits were not turned into government debt. Instead, the Agency issued bonds which were then paid out from banks' deposit insurance premiums, and not from the budget. In addition, the government rehabilitated several banks at a huge cost, which led to an increase in government debt. More information on this will be given later.

As it was mentioned in Chapter 2, banking is usually one of the most regulated economic sectors. In 2005, the Croatian Banking Association initiated research on bank regulation costs in Croatia and six EU countries: Austria, Italy, Hungary, Czech Republic, Poland and Slovenia. The research (Arhivanalitika, 2005) showed that Croatia had, at that time, the highest bank net regulation cost (total cost of regulations minus possible benefits for the society stemming from regulation) and that it was the only country in which the regulation costs have been growing.[57] The main determinants of the regulation costs are the following: marginal reserve requirement, reserve requirement and deposit insurance premium. An important regulatory measure in Croatia is also the foreign exchange liquidity ratio, but it was shown that it does not influence the net regulation costs because of its large benefits in terms of providing foreign exchange liquidity (Arhivanalitika, 2005). Specifically, Croatia has a huge external debt and large portion of banks' liabilities are denominated in foreign currency.

The Croatian National Bank has been using these regulations to limit the expansion of bank credit, decrease banks' share in foreign debt, manage currency risk, compensate for the risks of expansionary fiscal policy etc.[58] The marginal reserve requirement was lifted at the end of 2008, which then reduced the regulation costs (HUB, 2008). With that measure, the Croatian Central Bank tried to compensate for the increased banks' costs of obtaining funds. Also, the reserve requirement decreased from 23.5% in 2000 to 13% in 2010. The regulation costs generally decreased, but it still represents one quarter of the total average cost of obtaining funds by banks (HUB, 2010:11). The CNB has, in the last three years, decreased the minimum required amount of foreign currency claims because of the sudden stop of capital inflows, but also to enable banks to finance the government. Otherwise, the government would have faced a serious liquidity problem because of its debt obligations in bonds. Financial issues between banks and government will be elaborated separately.

As far as the regulation of bank entry is concerned, the reform legislation of 1989 allowed practically free entry into banking (Kraft and Tirtiroğlu, 1998). Under the old system, banks could be founded only with the approval of the local or federal government. This effectively prevented entry once the initial configuration of the banking system had been established in the 1950s. After 1990, when the reforms took effect, anyone able to meet relatively modest

[57] Šonje et al. (1999) showed, by using monthly data, that the rate of reserve requirements raised the bank interest rate spread in Croatia in the period from April 1994 to August 1996.

[58] The share of banks in foreign debt was 25% in December 2011 (CNB, 2012). The government's share was 15% and that of other domestic sectors 44%. However, the share of banks was strongly rising with bank credit liberalization starting from end-2002 and eventually reached 37% in 2007. Since then the share has been falling.

minimum initial capital standards could start a bank. Although later legislation raised minimum capital standards and required bank managers to show that they were qualified to run a bank, entry has not been significantly restricted until after the second banking crisis. European Commission (2005) objected that the Croatian National Bank adopted in May 2004 a Decision concerning the terms and conditions for establishment and operation of foreign bank branches in Croatia. "This decision lays down a series of restrictive conditions on establishment which are not in line with the acquis." This objection has not been accepted in the Credit Institutions Act. Article 39 states that the CNB can refuse an application to acquire a qualifying holding if "the acquisition would or could adversely affect the implementation of monetary and foreign exchange policies in the Republic of Croatia".

One more issue that should be mentioned here is money laundering. The European Commission did point out the weaknesses in Chapter 4 (Free movement of capital) regarding money laundering. According to the 2005 Progress Report on Croatia (EC, 2005), the fight against money laundering was seriously hampered by corruption and the enforcement record was limited. Also, there was a need to raise awareness among members of the banking community and other reporting entities as to what constitutes a money laundering offence. In addition, further amendments in legislation were needed. With time, legislation has been improved and Chapter 4 closed, but one of the main unresolved issues has been ineffective implementation despite of Government's Action Plan on anti-money laundering. Implementation continues to be affected by poor functioning of the judiciary. The fact that the Croatian ex-prime minister is facing charges for money laundering and corruption (concerning Hypo-Alpe-Adria Bank case as well), probably explains why anti-corruption and anti-money laundering initiatives have had poor results so far.

Even though this introductory part of Chapter 5 does indicate the complexity of the government-banks relationship in Croatia, with the central bank being more than an passive observer, the true nature of that relationship can be visible from the privatization process, bank crises and banks' allocation of resources. We will proceed with describing them.

5.2 Government ownership and privatization

Clarke et al. (2005) wrote that politics plays a decisive role in the nature, timing, and eventual success or failure of bank privatization. According to the authors, this is natural because of the close link between government finance and the banking sector. There are many factors that matter: electoral laws that affect politicians' time horizons, the strength of political parties, the size of the fiscal burden on maintaining public ownership, the strength of opposition to privatization, constraints on government's authority etc. State-owned enterprises are more subject to intervention and have weaker corporate governance, state managers are less motivated and less exposed to competition etc. However, this does not mean that privatization is a remedy for these problems, because the same government officials are

responsible for designing and executing the privatization schemes. Political objectives, poor information, and principal agent problems compromise a privatized firm and might keep it from performing as well as a de novo private enterprise would (Clarke et al., 2005). Privatized firms may not be as efficient as private firms, although evidence shows that they are usually more efficient than state-owned firms. There is extensive literature on government ownership of banks and bank privatization. Here we will outline several papers (with Croatia in the sample) just to set the stage for a short description of key issues in the Croatian bank privatization process, which will be further explained in the following text on bank crises.

Bonin et al. (2005) find empirical support for the appropriateness of the strategy of privatizing large state-owned banks by selling them to strategic foreign investors after recapitalization and cleaning the balance sheets. They investigate the largest banks in six transition countries, including Croatia. Banks that are sold to a strategic foreign owner early in their sample period (1994-2002) are more cost and profit efficient than state-owned banks. In addition, these banks are more efficient than banks that are privatized later in their sample period, which suggests that the beneficial impact of privatization may not be realized immediately. Without a controlling foreign owner (the opposite would be selling shares to many small investors in a share-issue privatization), privatized banks do not show any efficiency improvements over their pre-privatization histories.[59]

Evidence also shows that bank privatization produces modest benefits when government retains majority control or even sizeable minority stakes in privatized banks (Clarke et al., 2005). Foreign ownership of banks in fifteen East European countries (including Croatia) is praised in terms of cost efficiency by Fries and Taci (2005) as well (the sample period from 1994 to 2001). Banking systems in which foreign-owned banks have a larger share of total assets have lower costs. However, the authors show that in early stages of reform, costs are reduced, but then rise again at more advanced stages. Private banks are more efficient than state-owned banks, while privatized banks with majority foreign ownership are the most efficient and those with domestic ownership the least.

Kraft et al. (2002) analyse the relative efficiency of state-owned, private and foreign banks in the case of Croatia for the period from 1994 to 2000. They find that the cost efficiency levels of both new private banks and privatized banks initially tended to lag behind those of state banks.[60] In addition, efficiency gains from privatization were not to be found at all in the first 2-3 years after privatization. However, foreign banks are constantly more efficient, and the whole population seems to converge at much higher levels of efficiency. It could be that the deterioration in efficiency actually reflects improved service quality and costs of introducing

[59] Concentrated strategic owners are more capable of controlling managers. Share-issuing bank privatization can be successful when the stock market and the associated market monitoring by informed investors are well developed (Bonin et al., 2005).

[60] Cost efficiency provides a measure of how close a bank's cost is to what a best practice bank's costs would be for producing the same output under the same conditions.

new products. Another possible explanation is that the privatized banks in particular hired more skilled workers in that period, which added to labour costs. A final explanation is the arrival of the foreign banks in 1996 and 1997. These banks pushed out the efficiency frontier. In sum, their results do not show clear positive short-run effects of privatization on cost efficiency; this finding was confirmed by Bonin et al. (2005). Kraft et al. (2002) conclude that, given the weaknesses of the Croatian bank privatization method, the possibilities for free-riding and the lack of competition during the 1994-1998 period, this is not surprising.

The process of bank privatization in Croatia was already described by Kraft and Tirtiroğlu (1998), Šonje et al. (1999), Šonje and Vujčić (1999), Družić (2002) and Kraft et al. (2002). The last on this authors' list have politely characterized bank privatization in Croatia as "unusual". From the 1950s, commercial banks in Croatia were not state-owned but were owned collectively under the Yugoslav system of self-management. Banks were founded by real sector enterprises (national and local oligopolies), which were also banks' most important clients, i.e. borrowers. The basic function of banks was to approve the cheapest possible credit to their founders. They were also under strong political pressure, which resulted in many bad loans. Before 1989, Croatia had two nationwide banks and eighteen regional banks.

Then in 1989, banks were transformed into joint-stock companies, as previously mentioned. After the collapse of the socialist system from 1989 to 1990, equity was mostly allocated to the same enterprises, even though they were the banks' debtors. The debts were not offset. After that, the state-owned banks were not the subjects of any direct privatization procedures. Instead, the banks' owners (real sector firms) were privatized. In this way, the banks were privatized 'in passing' (Kraft et al., 2002). A few of the better-performing banks issued new equity, thereby gaining shareholders that actually paid for the shares. However, for the most part, the privatization was passive and indirect. As a result, banks have passed into the hands of the state, as in the first phase of enterprise transformation from 1991 to 1992, most enterprises owning banks became the property of the state.

Even though Croatia had no specific bank privatization program, banks have been privatized later on. For the most part, this occurred after the privatisation of enterprises owning banks. By 1996, most of the old state banks had been privatized, with the exception of three banks taken over by government for rehabilitation (Privredna Banka, Splitska Banka and Riječka Banka). These three banks were sold to foreign strategic investors in the period 1999-2000. At the start of its transition from socialism to capitalism in 1990, Croatia had 26 state-owned banks (see Table 15). In order to promote competition, bank licensing was liberalized. By 1997, the total number of banks reached 60. However, during the banking crisis of 1998-1999, some 14 banks failed. By end-2000, the number of banks dropped to 43. One foreign bank started up in late 1994, and foreign ownership of banking assets was below 0.5%. However, foreign entry picked up after the war: three foreign banks were established in 1996 and another three in 1997. The market share of foreign banks remained small until 1999-2000,

when foreign banks purchased four large banks that had been rehabilitated by government. Then foreign ownership rose to over 80% of total banking assets. By 2002, all of the ten largest banks in the country were majority foreign-owned. In June 2011, 90.3% of banking assets were in foreign ownership (CNB, 2011).

Table 15. Number of banks by ownership (1990-2010)

	Domestic			Foreign	Total
	State	Private	Total		
1990	22	4	26	0	26
1991	22	8	30	0	30
1992	29	13	42	0	42
1993	25	18	43	0	43
1994	26	23	49	1	50
1995	14	39	53	1	54
1996	10	43	53	5	58
1997	7	46	53	7	60
1998	8	42	50	10	60
1999	10	30	40	13	53
2000	3	16	19	24	43
2001	2	21	23	23	46
2002	2	20	22	19	41
2003	2	20	22	19	41
2004	2	20	22	15	37
2005	2	18	20	14	34
2006	2	16	18	15	33
2007	2	15	17	16	33
2008	2	16	18	16	34
2009	2	17	19	15	34
2010	2	16	18	15	33

Source: *Banks Bulletin*, various issues, Croatian National Bank.

Today there are only two commercial government-owned banks in Croatia: Hrvatska Poštanska Banka (HPB) and Croatia Banka, and one state-owned development bank (Croatian Bank for Reconstruction and Development). At the end of 2009, HPB had a HRK 449 million loss and its former CEO has been accused by the State Prosecution Office of approving loans without the appropriate insurance and hence causing damage to the state. Croatia Banka is owned by the State Agency for Deposit Insurance and Bank Rehabilitation, and it had a HRK 54 million loss at the end of 2009.[61] Its minority shareholders have even sent an open letter to the ex-prime-minister about illegal activities going on in the bank, which included strong interference of certain interest groups and political circles. Ironically, the address to which they have sent their letter proved to be completely wrong. The minority shareholders have instituted several private lawsuits because their shares had been expropriated. The case of

[61] Just to compare, the largest bank in the country (Zagrebačka Banka) had a profit of HRK 1.2 billion.

Croatia Banka is not alone: the shareholders of Dubrovačka Banka have had similar problems (Jelinić, 2006).[62]

The general public's perception of the bank privatization is that it was unfair and that it enabled certain people, including politicians, to become very rich. Also, foreign ownership of banks is not appreciated. Very often, the word 'robbery' is used hand in hand with the word privatization. There are websites in Croatia dedicated to exposing extensive criminal activities during the bank transformation and privatization process, most of them concerning Dubrovačka, Croatia and Zagrebačka Banka (e.g. www.necenzurirano.com, www.zabaraba.com). Benefits to domestic proprietors of mergers with foreign banks are also mentioned, as well as the abuse of authority by several CNB employees and government members. However, no charges have been pressed and nobody was convicted. According to Bendeković (2000), the privatization process in Croatia was guided by the idea to preserve the economic and political power of the ruling political party. Another important factor which influenced the privatization characteristics was the state budget deficit and a constant need of the government to find additional revenues for financing lavish government spending caused by the war, refugee problems and the reconstruction of the country.

His opinion, currently shared by the general public, was that the legal and institutional framework, as a necessary precondition for successful privatization, was not complete, consistent or operational. This means that there was a great freedom of judgment and decision. In addition, the existing legal acts and procedures were not complied with, and privatization often included criminal activity. Absurdly, the final outcome of privatization was a stronger role of the state. According to EBRD (2010), the share of the private sector in GDP in Croatia is 70%. However, this number does not show the real influence of the state on the economy. Many private companies operate successfully only because of business deals with government, which often involve corruption.

Croatia's overall score on the 2011 Index of Economic Freedom is 61, on a scale from 0 to 100 (Heritage Foundation, 2011). Its financial freedom score is slightly lower, 60. This result shows that there is a significant government influence: "the central bank is not fully independent, its supervision and regulation of financial institutions are somewhat burdensome, and its ability to enforce contracts and prevent fraud is insufficient. The government exercises active ownership and control of financial institutions with a significant share of overall sector assets. The ability of financial institutions to offer financial services is subject to some restrictions." The score has not changed in the last five years. It used to be 50 in the late 1990s and until 2003, but then rose to 70 from 2004 to 2006. Obviously, the Heritage Foundation uses different criteria from those used by the EBRD.

[62] The shareholders have won the case in the Constitutional Court, but the problem is that their shares cannot be returned since they do not exist anymore.

The bank ownership transformation was paralleled with banking crises. The way in which the government resolved the crises, as well as their costs, had an additional negative effect on the public perception of bank privatization.

5.3 Banking crises

Kraft (1999), Šonje and Vujčić (1999), Jankov (2000), Škreb and Šonje (2001), Družić (2002) and Kraft et al. (2002) did an excellent job in describing the banking crises in Croatia. Here we will summarize their findings and expand the issue of fiscal expenditures.

5.3.1 The first banking crisis (1991-1996)

After the transformation of bank ownership in 1989, banks continued with financing loss-making companies and giving risky loans, as well as with the insider lending practice because they were in a way forced to do so, due to the fact that such companies owned their equity or due to political reasons (Družić, 2002).[63] Taking into account that profitability and risk analysis were not the main parameters for banks' credit policies, bad bank loans were more the rule than the exception (Jankov, 2000). High inflation largely solved the problem of bad loans; it reduced the real value of the bad loans and the real value of liabilities on the basis of deposits in domestic currency. However, liabilities that stemmed from household foreign currency deposits could not be devalued by inflation and resulted in heavy losses to the banks, so that even the former Yugoslavia recognised them as public debt. At that time, bad assets were twice the size of the banks' capital. In 1991, the insolvency problem was present in about half of the banks.

The problem of foreign currency savings had to be solved quickly in order to ensure the more or less normal operation of banks. In late 1991, a decision was made to issue bonds on the basis of "old" foreign currency savings and to block household foreign currency accounts. In order to solve the bank insolvency problem presented in the auditing reports, in 1991 and 1992, the government issued the so-called "big bonds". The bonds were mainly received by the final users of the central bank's selective loans, i.e. agricultural conglomerates, shipbuilding enterprises and enterprises oriented to the former Soviet Union and Eastern Europe market, which thereby repaid their liabilities to banks (Jankov, 2000). This involved large government-owned enterprises, i.e. the clients of large banks.

Unexpectedly, this operation solved the bulk of the 'bad banks' problem. On the basis of these bonds, contaminated assets were removed, thereby reducing potential losses. "Solid" financial results by the banks were achieved due to high inflation and the failure to report all costs. Thanks to the bonds, standard rehabilitation measures were not implemented, such as changes

[63] Even in 1997, the government owned 91.3% of Privredna Banka (Družić, 2002).

in the management and bank ownership, preventing the extension of loans to bad debtors, cutting the operating expenses, forming special units for bad loan repayment etc. Given the absence of such measures, there were no significant changes in banks' operation. The banks that had previously been bad continued to operate badly. The "big bonds" issue, together with the issue of bonds on the basis of old foreign currency savings are most often referred to as the "linear bank rehabilitation" (Jankov, 2000). The linear bank rehabilitation measures also had a great positive impact. The recognition of old foreign currency savings as government debt restored confidence in the banks.

Although it was very soon clear that the banks were insolvent, and some of them even highly illiquid, the government failed to strongly deal with the problems until Slavonska Banka was put under rehabilitation proceedings at the end of 1995, and three more banks (Riječka Banka, Splitska Banka, Privredna Banka) in March 1996.[64] Šonje et al. (1999) point out that the Croatian government had neither the funds nor the organizational resources to undertake credible bank rehabilitation processes during hard times (war and high inflation). Bank rehabilitation legislation came in spring 1994, and the Agency for Deposit Insurance and Bank Rehabilitation began operations in late 1995.

Prior to their rehabilitation, the banks recorded losses that were several times higher than their capital, and that were the consequence of new irrecoverable loans to large government enterprises. From the standpoint of the banking system as a whole, the rehabilitation of Privredna Banka was more significant than the rehabilitation of Splitska Banka and Riječka Banka (Jankov, 2000).[65] Immediately before the rehabilitation of Privredna Banka, the share of its bad loans in total loans of all the banks to domestic enterprises was 25.1%.[66] In all three banks, there was an exceptionally high concentration of bad loans. Over 90 percent of the bad loans were granted to several large enterprises in government ownership. Later on, the government started special rehabilitation proceedings against some of the enterprises. In the period from early 1994 to summer 1996, interbank interest rates rose strongly, above 25% (Kraft et al, 2002). Given the expectation that the big "problematic" banks would not be allowed to fail, interbank lending became a very easy and profitable activity. This opportunity to "free-ride" on high interest rates allowed relatively inefficient but highly liquid new banks to be profitable during this time. However, once the four banks were given liquidity injections

[64] The information on the legal basis for bank rehabilitation can be found in the following Official Gazette issues: Slavonska Banka - OG, 84/95; Riječka Banka - OG 31/96, 20/98; Splitska Banka - OG 31/96, 22/98; Privredna Banka - OG 106/96, 8/97, 101/98.

[65] There is not much publicly available data on the rehabilitation of Slavonska Banka. The bank was merged with Hypo-Alpe-Adria Bank in 2008.

[66] For Privredna Banka a slightly unusual procedure for reconstructing the balance sheet was employed (Jankov, 2000). "First, from the original balance sheet were removed the liabilities arising from the foreign borrowings that the bank took in its own name and for the accounts of its clients, as well as the counterpart bank claims against clients. Then some other credits to customers were also removed and the balance sheet value of the claims on the central government was increased by the amount "agreed with the bank". The standard analysis of quality of the banks' assets started only after such reorganization."

and had their balance sheets "cleaned" of bad assets, interbank rates came down below rates on retail or wholesale lending.

Rehabilitation of the three largest banks had the following characteristics (Jankov, 2000): 1) transfer of bad loans to the State Agency for Deposit Insurance and Bank Rehabilitation; 2) recapitalization; 3) changes in bank shareholders; 4) changes in bank management. A portion of the bad loans was transferred to the Agency (55 percent of the total bad loans of these three banks) and the others were written off by debiting the bank capital and reserves (45 percent of the total bad loans of these three banks). The transfer of only a portion of the bad loans to the Agency was an unusual solution. Criteria for the distribution of the loans between the Agency and banks were not published (Jankov, 2000). Decisions on the rehabilitation of banks do not include the forgiveness or rescheduling of the liabilities of bad debtors. Their liabilities should fall due as originally negotiated. However, the debts of some debtors were restructured (practically forgiven) within the direct rehabilitation of the enterprises.

After the write-off of bad loans, the government recapitalized each bank to the level of the minimum capital adequacy. In all the three banks, this procedure downsized the total assets. For example, Privredna Banka was the largest bank in Croatia prior to rehabilitation but after rehabilitation, it became the second largest bank. The old shares, whose owners were government-owned enterprises, were invalidated. The Agency became a new bank shareholder. The government immediately announced that it would privatize the rehabilitated banks. However, preparations for the privatization began in early 1999 through the engagement of foreign privatization advisers. The most obvious consequence of the rehabilitation of the three large banks was a decline in lending rates.

5.3.2 The second banking crisis (1998-1999)

After rehabilitation, banks had to switch attention to taking out loans in order to make profits. Total bank lending grew by some 48% in 1997, with lending to households growing by 93% (Kraft et al., 2002). In this period of credit expansion, risk management was often weak, and in some cases banks did not even have written lending policies. In addition, insider lending was rife, as some of the new private banks lent to the corporate groups that had founded them. The result was that bank failures began as soon as economic growth slowed down.

Starting in spring 1998, with the downfall of Dubrovačka Banka (privatized regional bank), the second banking crisis started. Only several months later, the decision was made to rehabilitate this bank, based on the same model as the previous three individual rehabilitations (OG 56/98, 11/99). The crisis and rehabilitation of this bank were accompanied by a major political affair, which certainly contributed to the speed of the problem solving (Jankov, 2000): "the bank made large equity investments in Dubrovnik hotels, and certain people made a partnership contract that, probably, was in essence a plan for taking over the bank with the

goal of taking over the hotels owned by the bank. Until now, not all the signers of the contract have been identified, because the original document was stolen."

The fact that Croatia experienced another banking crisis during the transition indicates weaknesses in the banking transition process. The failed banks fell into two groups: the fast-growing risk takers, and stagnating banks with narrow circles of customers (Kraft, 1999). Inadequate risk-assessment, inaccurate reporting of loan quality, underprovisioning, weak liquidity management, politically motivated and insider loans of bad quality, artificial inflation of capital and the occasional absence of internal controls, even fraud, were seen among the failed banks (Kraft, 1999). Unusually high deposit interest rates helped gather the funds for these risky banks in many cases, creating a negative externality for more conservative banks. Also, foreign borrowing was another major funding source, a source that dried up after the central bank imposed capital controls to contain the current account deficit.

After Dubrovačka Banka, failures continued throughout that year, reaching a peak in March 1999 (one year before the parliamentary elections). These banks practically stopped working. In contrast to Dubrovačka Banka and Croatia Banka (OG 98/99, 53/00), there was no prompt rehabilitation of these banks. A proposal regarding banks to be rehabilitated was made by the CNB and it was subject to government approval. The resolution of failed banks has quite often been highly politicized. The depositors of failed banks, at least for a while, were left without their property, which had a negative impact on aggregate demand. The majority of the banks that defaulted on their liabilities were new banks, established after 1991. These were also fast-growing banks with aggressive interest rate policies. The crisis was resolved through a number of bankruptcies and the granting of lender-of-last-resort liquidity loans to six banks. In April 1999, the court instituted bankruptcy proceedings, and the government began to prepare a budget revision that included the paying out of insured savings deposits.

It turned out that a number of failing banks were financing equally non-viable, rapidly growing and badly managed private business groups that emerged as "winners" from the privatization process, most likely with strong support from politically influential groups (Šonje and Vujčić, 1999). Thus, in a sense, the second banking crisis was a cumulative expression of wrong decisions (by both the public and private sectors) about the allocation of resources made during the first few years of transition.

The new banking crisis made it necessary for the central bank to provide prompt additional credit to the banks. Another outcome of the crisis was the decision to sell the rehabilitated banks to foreign strategic investors. This decision was taken mainly to prevent further banking instability and to facilitate knowledge transfer. Very likely, the country's growing foreign debt and deteriorating fiscal position also stimulated the government's agreement to sell. Although the crisis was a result of aggressive and excessively risky credit policies of certain banks, it is also clear that the central bank did not take serious measures in time to

prevent the bank crisis but instead began to intervene rapidly only after the crisis occurred (Jankov, 2000; Škreb and Šonje, 2001). The bank crisis was intensified by external shocks: lower foreign borrowing, a growth in fiscal expenditures and unsettled central government obligations, and temporary or complete loss of deposits with problem banks and the disintegration of the interbank market.[67]

Šonje and Vujčić (1999), both highly positioned CNB employees at the time, describe the situation from the central bank's point of view: "For the central bank, which is responsible for banking supervision, the experience was frustrating in two respects. First, everybody was accusing the central bank of failing to control banks, while the root causes of the failures were to be found in the chosen model of privatization with political interference, which had nothing to do with the central bank. Public allegations, coming from all sides (government, politicians, media, depositors who lost money, owners who lost their stakes), eroded the central bank's credibility, which could, as a by-product of poor supervision, have a negative impact on currency stability. In a sense, all of the achievements from the earlier period of transition (an independent central bank which is only accountable to the parliament, low inflation) were forgotten, at least for a few months."

Also: "The Croatian National Bank prepared in 1997 a report entitled "Banks at the Crossroads", where it clearly identified the association between moral hazards, high interest rates and foreign exchange inflows in aggressively growing banks. Hence, the Croatian National Bank (CNB) "knew" what was happening almost a year before the fifth largest bank failed, which raised frustrations even higher. People outside the bank thought that knowing about early signals was enough to be able to act. It was concluded that the central bank was too politically weak to act. This implies direct political responsibility and the erosion of credibility. Insiders and experts knew that knowing about problems may be a necessity but is not sufficient for successful supervision. Educating people, developing procedures and building a firm legal basis for supervision are very demanding jobs, which can be frustrating when one sees banks running into trouble before the whole institutional set-up for preventing this is in place. The problem was that the banks were not running into trouble because of ignorance. Preaching optimal banking practices by the supervisors was not needed because the owners and managers in the failed banks were intentionally running into trouble. They paid twice as much for money than the rest of the market and also lent it at twice the price (or at a net zero price when the loan was extended to a related party). The central bank can be held responsible for the excessively liberal licensing of banks and, especially, bank managers" (Šonje and Vujčić, 1999).

The problem of postponing the resolution of a banking crisis lies in the lack of coordination between monetary and fiscal authorities (Škreb and Šonje, 2001). The resolution of a banking crisis takes time and can be delayed due to perceptions and the necessary actions, persuasion

[67] The Russian financial crisis (1998) also influenced the banking crisis in Croatia.

and legal procedures. Škreb and Šonje (2001) describe it in detail, and point out that an important problem may be "strong lobbying in an attempt to convince the monetary authority not to resolve the problem. Predatory behaviour of overpaid managers or bank owners can affect inexperienced and sometimes unmotivated (and badly paid) staff at the monetary authorities. Even when the problems of coordination between the monetary and fiscal authorities are resolved, other agents (interest groups) will place political pressure on the fiscal authorities to alter the outcome in their favour. First, the management of the banks will try to influence the decision to their advantage. They have clear vested interests (high wages, influence, a motive to hide the incorrect decisions made in the past). Second, bank owners will try to put political pressure on government to bail them out. Third, bank personnel know that either all or part of them will be unemployed. Fourth, politicians (other than the fiscal authorities) will try to minimize the problem in the hope that this will not hurt their image or make them less popular.

In short, there will be resistance to admitting the problems in the banking industry, not only from the fiscal authorities but also from other agents in the political game. Every decision on bank resolution is a redistribution problem; there are always welfare losses for some interest groups, so everyone should be aware of very strong lobbying, corruption, ruthless behaviour, or vested interests seeking to alter the decision. Intersectoral distribution means deciding whether the costs should be borne by 1) society as a whole (inflation), 2) taxpayers (the socialization of costs through the budget), 3) the owners of a bank, meaning shareholders (loss of capital), 4) the private sector (deposits) and household (savings), 5) or by any combination of these. Bonds can be issued by which costs are redistributed to future generations. Also, if elections are approaching, cost will be transferred to next government. Active public relations are crucial in times of crisis, when media can be problematic, especially if some are controlled by interest groups linked to the banking industry (which is often the case, not only in transition countries)."[68]

How did the story end? In mid 2000, the Act on Expiration of the Act on Bank Restructuring and Rehabilitation (OG 52/00) was passed, with the explanation that the rehabilitation and restructuring process failed to produce the expected effects. In addition, the government decided that the future problems in banking will not be solved at taxpayers' cost, but rather that the responsibility for bad business results will have to be borne by the banks' management and supervisory boards, the owners and auditors.

5.3.3 Fiscal expenditures

Croatia is among the countries with the highest fiscal expenditures for the rehabilitation of banks (Jankov, 2000). However, researchers have different estimates of the costs. According

[68] We think that such a large part of Škreb's and Šonje's paper is worth quoting, because Škreb was the CNB governor from 1996 to 2000, and Šonje was executive director of the CNB's Research and Statistics Area.

to Jankov (2000), the total fiscal expenditures for the rehabilitation of banks in Croatia during the period from 1991 to 1998 can be estimated at approximately 31 percent of annual GDP. These expenditures related to the following periods: 1) in late 1991, the government issued bonds for the linear rehabilitation of banks in the amount of 22.6 percent of GDP (of which 5.6 percent concerned "big bonds"); 2) from 1993 to 1996, various bonds were issued for the payment of interest and refinancing of bonds for old foreign currency savings in the amount of 1.2 percent of GDP; 3) in 1996, various bonds were issued for the rehabilitation of Riječka Banka, Splitska Banka and Privredna Banka in the amount of 6.1 percent of GDP (bonds in the amount of 2.5 percent of GDP were issued for the recapitalization of these banks, and within the framework of the rehabilitation of Privredna Banka, the government took over part of that bank's foreign debt in the amount of 3.6 percent of GDP; 4) in 1998, bonds were issued for the rehabilitation of Dubrovačka Banka in the amount of 0.8 percent of GDP.

Škreb and Šonje (2001) presented the costs in USD: 1) the issue of the so-called big bonds in 1991 - USD 990 million; 2) the 1992 conversion of foreign currency savings into public debt, - USD 3.1 billion; 3) the rehabilitation of the four major banks during the period from 1995 to 1996 - USD 473 million. At that time, these banks represented about 40 percent of total banking assets. The total costs of these crises may be seriously underestimated because the resolution with the Paris and the London club creditors (and their effects on banks) was neglected. All told, the cost of the first banking crisis is estimated at USD 4.6 billion.

Škreb and Šonje (2001) estimated the cost of the second banking crisis as well. In 1998 the government decided to rescue two banks that represented about 7% of total banking assets. The costs were estimated at USD 347 million. Another feature of the crisis was the cost of paying the insured savings deposits with banks put under bankruptcy proceedings (on request from the central bank). This cost was charged to the account of the budget, because of insufficient premiums collected by the State Agency for Deposit Insurance and Bank Rehabilitation. During the period from 1997 to 2000, the Croatian National Bank initiated bankruptcies or revoked licences for 22 deposit-taking institutions. The costs of paying out the insured savings in the case of banks already undergoing bankruptcy proceedings amounted to USD 450 million. Accordingly, the total costs of the second banking crisis can be estimated at about USD 800 million. Taken together, the gross costs of the two crises were about USD 5.45 billion (85% for first crisis and 15% the second one). This amount represents about 27% of the 1999 GDP. Jankov's (2000) estimation was 31% of GDP, but there are differences in the methodology applied. He used another denominator - GDP in a year of bond issue, and he added up the shares.

According to Družić (2002), the total costs of healing the banking system in Croatia, including interest, will be ca. USD 12.9 billion. The amount includes: 1) bonds issued for the old foreign savings in 1992 (USD 3.2. billion), 2) the so-called big bonds worth USD 1 billion in 1991, 3) bonds for bank rehabilitation (USD 1.3 billion), 4) foreign banks' claims taken

over by government (USD 0.9 billion), and 5) estimated interest on the principals of both internal and external debt (USD 6.5 billion). Družić also describes in detail how much money the government got for selling each bank. The amount comes up to HRK, 3.9 billion, which is only 9% of the cost of the bank healing costs in the period from 1991 to 1999. The most disturbing example is Dubrovačka Banka: its rehabilitation costs were HRK 2.6 billion and the income from a 100% privatization of the bank amounted to HRK 180.5 million. Also, the costs of rehabilitating Privredna Banka were HRK 6.8 billion and the privatization receipts HRK 2.3 billion. Družić sarcastically concludes that it would have been cheaper for government to give away the banks as presents to the new owners and add an extra USD 100 million as pocket money.[69] The advisors' fees in the privatization were also large. In addition, bank bankruptcies in 1999 and 2000 cost the government an extra HRK 3.5 billion due to the payment of insured deposits.

State Agency for Deposit Insurance and Bank Rehabilitation (DAB, 2005) reported that government earned HRK 4.9 billion from bank privatization. In addition, the Agency earned an extra HRK 1.6 billion from dividends paid out by rehabilitated banks, from selling the rehabilitated banks' shares and from debt recovery. The total amount adds up to HRK 6.5 billion. According to a DAB report, the rehabilitation costs of six banks were HRK 11.5 billion, but the total amount of costs for fixing the banking system was not known. This (practically incomplete) report was adopted by the Croatian Parliament. The most recent estimate of the banking system "healing" costs from 1991 to the end of 2009, provided by the former president of the Croatian Parliament's Budget and Finance Committee, is HRK 87.4 billion (Barilar, 2009). He also points out that government officials who were in charge of the bank rehabilitation have taken up the leading positions in those banks or have been taking money from those banks for themselves.

Usually, the central bank is the supervisory authority and has the data on banks, but the bulk of the costs of resolving a banking crisis are fiscal costs. Not all fiscal expenditures for the rehabilitation of banks are shown as budgetary expenditures (e.g. the cost of paying interest through the issue of bonds), because the Ministry of Finance draws up the central government budget on a cash basis. The fiscal expenditures for bank rehabilitation are only included in the central government debt statistics. The Ministry of Finance has sometimes repurchased part of the rehabilitation bonds prior to their maturity in the same fiscal year, which is shown in the budget as debt repayment.

In addition to fiscal expenditures, there are also other expenditures in the bank rehabilitation process. Significant expenses are usually borne by the private sector, either through the loss of the shares of problematic banks or due to devaluation of deposits caused by inflation. In addition, efforts to control the lending boom and several bank failures in 1998, as well as the

[69] But then, who would want banks whose obligations are larger than their assets?

Russian financial crisis, led to a slowdown and, finally, a recession that lasted from the fourth quarter of 1998 to the fourth quarter of 1999.

Fiscal expenditures for bank rehabilitation used to be the main component of the central government debt. In late 1991, government debt due to the linear rehabilitation of banks was 96.5 percent of the total government debt (Jankov, 2000). This share was continuously reduced during the period from 1991 to 1998, and reached 50.3 percent of GDP in 1998. Total government debt remained at a relatively low level. The share of the total debt in GDP grew from 23.4 percent in 1991 to 26.4 percent in 1998. The repayment of debts for bank rehabilitation was a heavy burden on the national budget, particularly in the period up to 1997. Before the regulation of the foreign debt repayment (the Paris Club Agreement in 1996 and the London Club Agreement in 1997) and before Croatia received an investment grade, opportunities for any larger foreign borrowing were limited. Also, possibilities debt in the country were reduced, due to the economic consequences of the war, dissolution of the former Yugoslavia and the loss of the former USSR market.

In November 2011, the remaining costs of the banking system healing accounted for 0.1% of total domestic debt of central government, i.e. HRK 121.9 million (Ministry of Finance, 2011). "Big bonds" and bonds for bank rehabilitation, falling due in 2012. The share of (the general government) debt in GDP in October 2011 was 44.8%. However, this amount does not include government guarantees. There is one more interesting detail to observe in the structure of domestic (central government) public debt: the share of syndicated bank loans (three of them) to government in the total domestic debt is 16.4% (HRK 15.1 billion). These loans were taken out by government in the last couple of years and also reprogrammed. Let us now observe in more detail how banks in Croatia allocate resources, with the focus being put on the government.

5.4 Banks and allocation of resources

In developing economies banks are highly exposed to government debt since the banks face much higher risks in the private sector due to weak legal and institutional infrastructures. Keeping government debt a safe investment for banks is critical to support the already low financial intermediation that exists. Since the late 1970s, there has been dramatic growth in the use of publicly-traded debt as a financing tool for both emerging as well as developed countries (Kroszner, 1998). Before this time, most countries typically placed a large share of their debt with domestic banks, either directly or through a bank syndicate arrangement. While the banks were to some extent captive financers of the government, they typically received compensation through protective regulation, below-market discount loans from the central bank, and implicit lender-of-last-resort or deposit insurance subsidies. Kroszner (1998) claims that there is a long and rich history linking a government's financing desires and financial regulation.

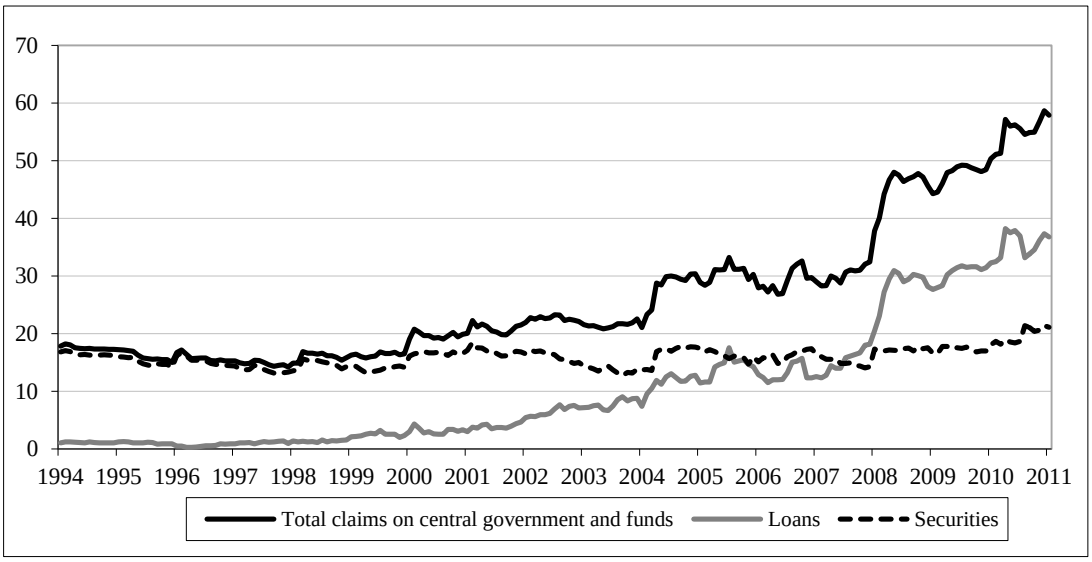
Recently, Hauner (2009) did interesting research to examine the role of public debt in financial development in 73 middle-income countries and two opposite views: the "safe asset" view vs. the "lazy banks" view.[70] The first one refers to the fact that public debt held by banks can have a positive role in developing financial sectors by providing safe assets. On the other hand, if banks hold large public debt they may progress more slowly, because banks that mainly lend to the public sector can become too complacent to be motivated to develop the banking market in a difficult business environment in developing countries. "Lazy" is not a value judgment, it just reflects rational behaviour on the part of the banks. Hauner's results based on the bank-level and country level data for the period 1994-2003 and 1980-2004 respectively are more favourable for the "lazy banks" view: greater public debt held by domestic banks raises their profitability but reduces their efficiency if public debt exceeds a certain threshold, or if it interacts with financial repression. It also diminishes financial deepening over time. There is evidence that limited share of public debt held by banks supports financial development (measured by share of private credit by banks in GDP). Hauner's findings have important policy implications, because they highlight additional costs of large fiscal deficits in developing countries, working through the impact of public sector borrowing from the banking sector on financial development.

Hauner also shows that countries with higher public sector credit tend to have more government intervention in the economy, more trade restrictions, a larger public sector, and more government ownership in the banking sector. Public sector credit is prevalent in middle-income countries, irrespective of income level, but is typically higher in slower-growing countries with more interventionist policies and a difficult business environment for banks which tends to increase risk involved in lending to the private sector. Croatia was one of the countries in his sample. Banking sector credit to the public sector (2001-2003 average) in percent of total bank credit was 23.2% for Croatia, which is slightly above the mean value. Albania scored the worst with 80.2%, while Bosnia and Herzegovina had the smallest share, only 0.5%.

Let us now focus on Croatia by using Croatian National Bank data. Figure 3 shows that banks' claims on central government and funds have been gradually growing, especially since 2000. The largest increase was during 2009. In December 2011, total claims on central government and funds were 57.9 billion HRK, out of which HRK 16.6 billion were claims on funds and 41.2 billion HRK claims on central government. Claims on local government were HRK 2.7 billion, total bank claims were HRK 318.9 billion and total claims on general government HRK 60.6 billion.

[70] Public debt refers to the whole public sector: general government and non-financial public enterprises. The data source was IMF's International Financial Statistics.

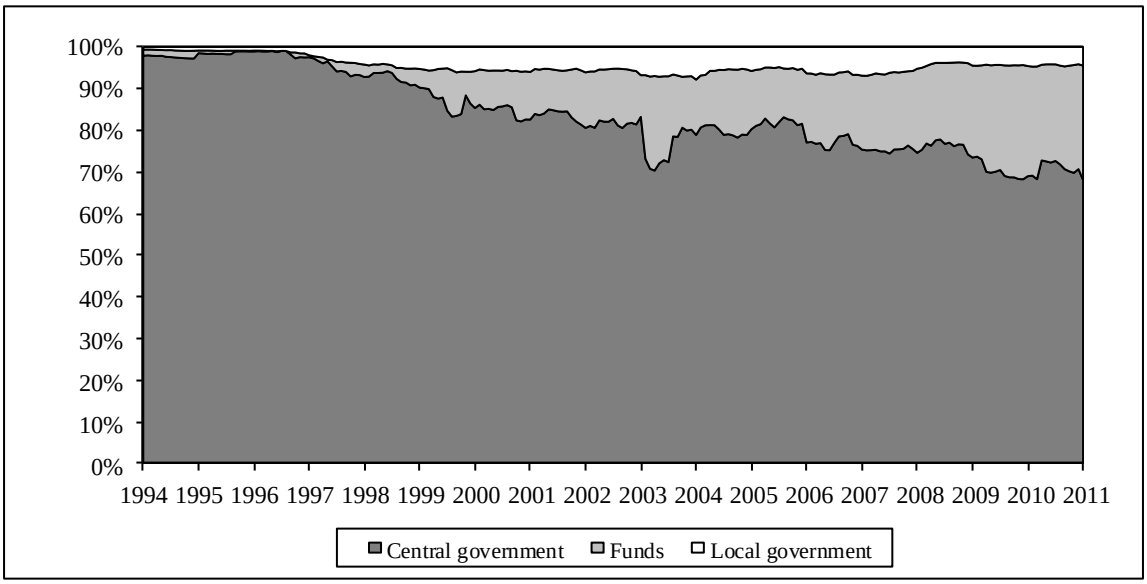
Figure 3. Banks' claims on central government and funds (billion kuna, end of period)



Source: *Statistical Survey 2012*, Croatian National Bank.

It is interesting to observe the structure of claims on general government since it has changed over time. Figure 4 shows that the share of claims on central government has been gradually decreasing, while the share of claims on funds has been increasing. The increase was especially strong during 2004 and 2010. The share of claims on local government has been rather stable and very small, so that claims on central government and funds represent around 95% of total claims on government.

Figure 4. Structure of banks' claims on government (%)

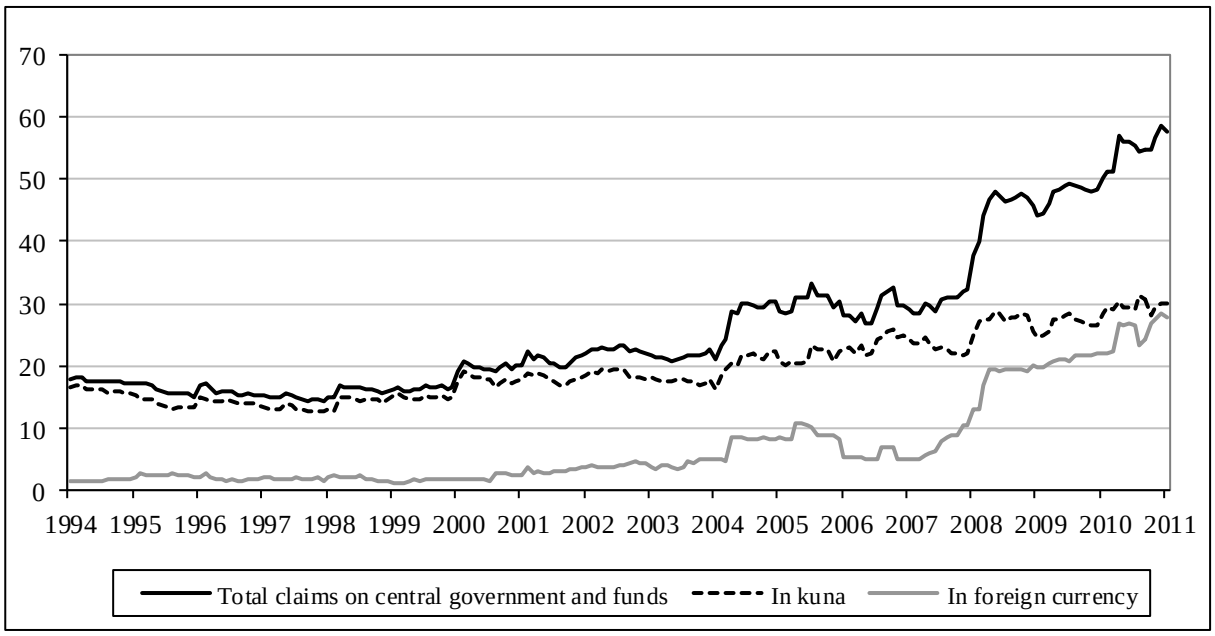


Source: *Statistical Survey 2012*, Croatian National Bank.

Figure 3 also shows that the majority of banks' claims on central government and funds refers to loans. The share of securities started to fall below 90% at the end of 1999, and came to 36%, in December 2011, while the share of loans grew from 6% in 1994 to 64% in December 2011. Tatomir (2009) has pointed out that a large portion of Croatia's public debt is non-marketable debt due to reliance on bank credit and the issuance of guarantees. The non-marketable public debt in Croatia is the highest among OECD members as a percentage of GDP: in 2007, it was around 20% in Croatia and 5% in OECD countries. This raises the issue of transparency, since non-marketable debt is more obscure and information is less accessible. This especially holds for interest rates on bank credit and credit conditions.

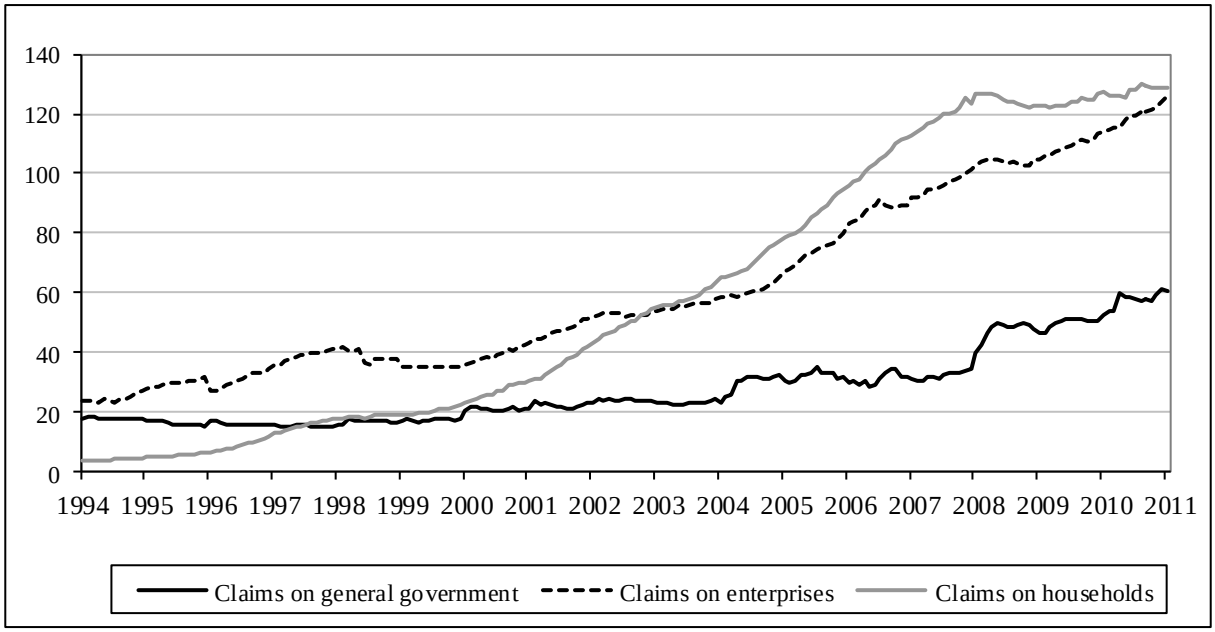
Figure 5 shows that at the end of 2004, 94% of banks' claims on central government were in kuna, but they dropped to 52% in December 2011. The sharpest fall was during 2008. Naturally, it was not only banks' claims on the government that grew. The same happened with claims on enterprises and households, where the latter grew the most (Figure 6). In 2004, claims on households surpassed claims on enterprises. However, claims on both households and enterprises fell in 2009 and then resumed growth in 2010. The former stagnated in 2011 and the latter continued growing. The gap between claims on companies and claims on enterprises has been decreasing. Claims on enterprises amounted to HRK 126.2 billion in December 2011, and claims on households were HRK 128.7 billion. Unfortunately, the Croatian National Bank's database available on the web, does not provide separate data on claims against private and public enterprises. Only aggregate data exist.

Figure 5. Banks' claims on central government and funds by currency (billion kuna, end of period)



Source: *Statistical Survey 2012*, Croatian National Bank.

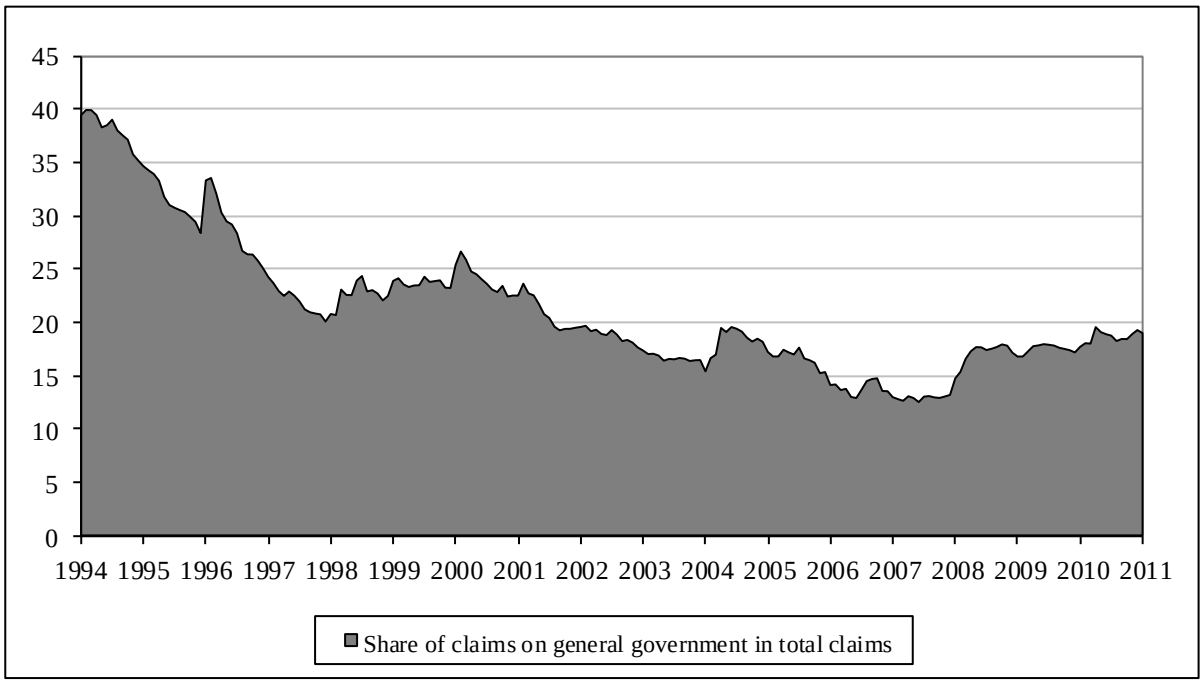
Figure 6. Banks' claims on general government, enterprises and households (billion kuna)



Source: *Statistical Survey 2012*, Croatian National Bank.

Although the claims on general government went up, their share in total banks' claims fell from about 40% in 1994 to 12% in 2008 and then rose again to 18% in December 2011 (Figure 7) due to economic crisis.

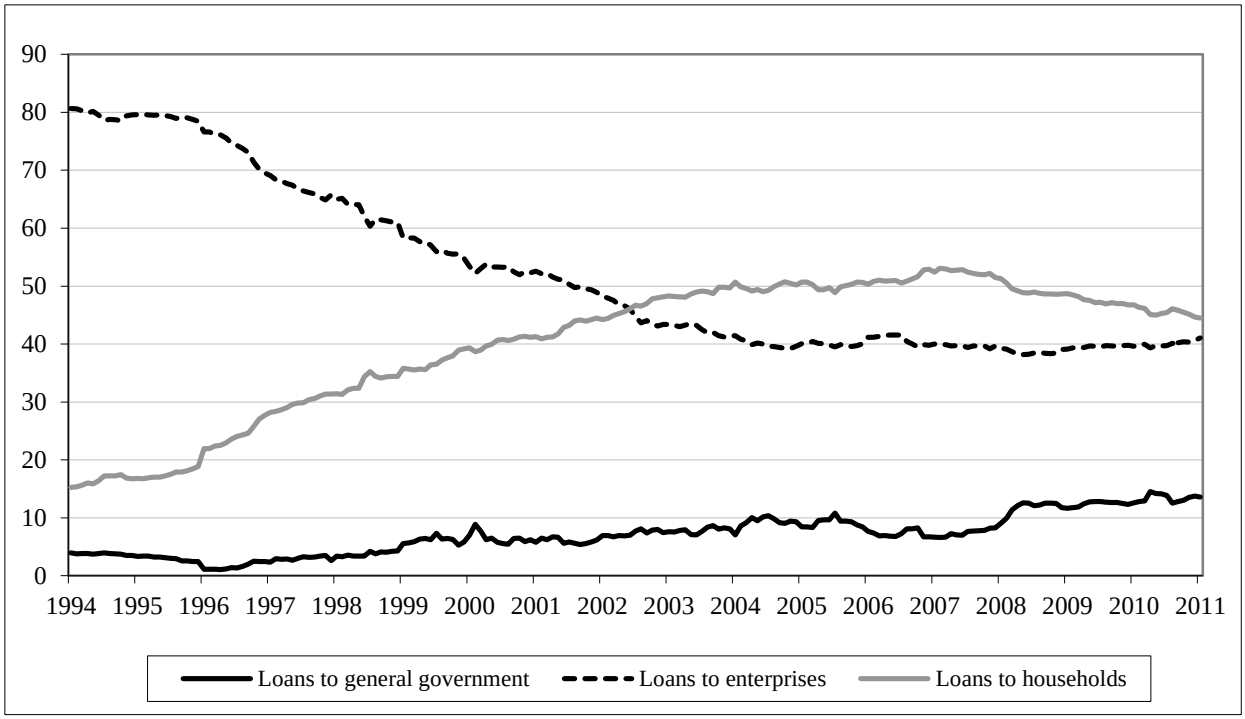
Figure 7. Share of claims on general government in total banks' claims (%)



Source: *Statistical Survey 2012*, Croatian National Bank.

When we look at the banks' loan structure at the end of 2011, households again dominate with 45% (Figure 8). Enterprises take 41% and general government 14%. From end-1994 to December 2011, the share of loans to general government and funds grew by 10 percentage points, while the share of loans to enterprises fell by 40 percentage points and that of loans to households went up by 29 percentage points. Here it is useful to remind ourselves of the results obtained by Beck et al. (2008). According to their findings, bank lending to enterprises, not to households, drives the positive impact of financial development on economic growth. A more thorough analysis should be performed for Croatia. However, Figure 7 still indicates that the government has recently, in some measure, crowded out the private sector.

Figure 8. Banks' loan structure (%)



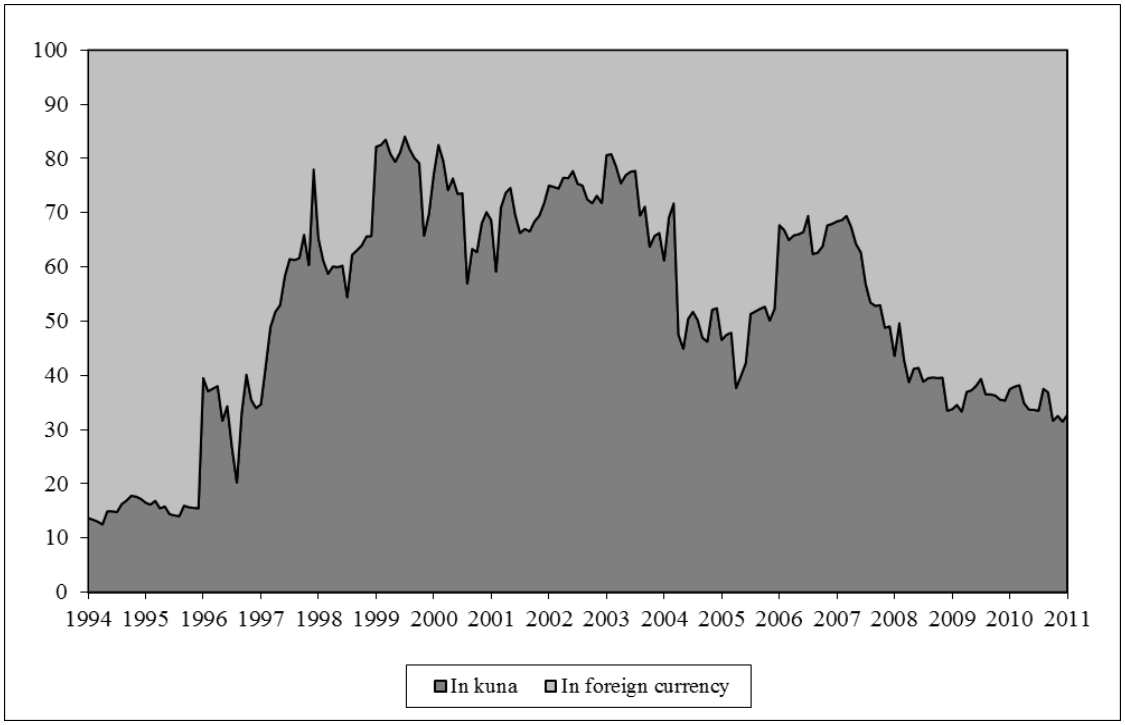
Source: *Statistical Survey 2012*, Croatian National Bank.

Brown et al. (2011) compared access to bank credit for firms in Eastern Europe (including Croatia) to that in selected Western European countries. One of their results is that a higher fraction of non-applicants in Eastern Europe seem to be discouraged by lending conditions, that is, high interest rates and tough collateral requirements, while in Western Europe more firms simply do not need loans. However, credit constraints in Eastern Europe softened in recent years. Firms which were discouraged from applying for credit or denied credit in 2005 were more likely to have a loan in 2008 than to still be credit constrained, especially in countries with better credit information sharing. Finally, credit constraints do affect firm performance in Eastern Europe. In particular, firms which are denied credit or discouraged

from applying are less likely to invest in R&D and introduce new products, which can affect economic growth.

Figure 9 shows banks' loans to general government by currency, but data on interest rates are not available, which is the sharpest criticism against the Croatian Central Bank and especially Ministry of Finance. From 1994 to 1997, loans in foreign currency strongly dominated, but later on the situation changed in favour of the kuna. However, since the beginning of 2008, the share of loans in HRK has rapidly decreased, so that in December 2011, they represented roughly one third of banks' loans to general government.

Figure 9. Banks' loans to general government by currency (%)

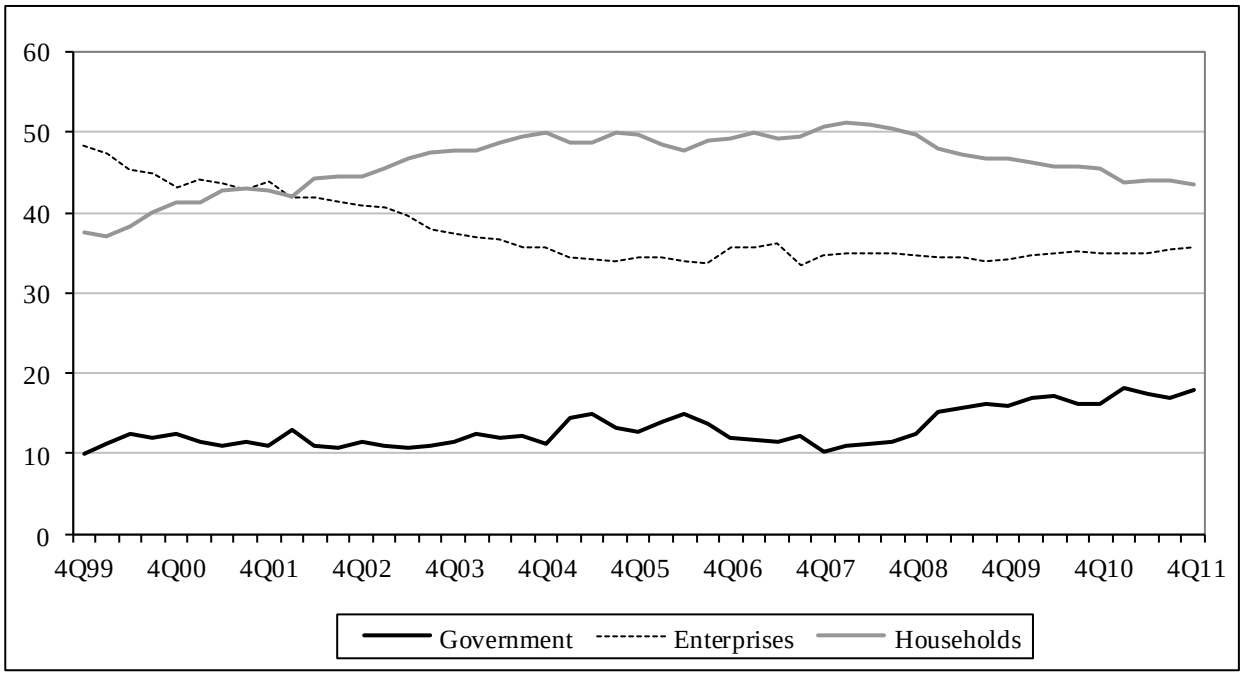


Source: *Statistical Survey 2012*, Croatian National Bank.

The aforementioned figures in terms of government only relate to general government. The "loans to enterprises" category does not differentiate between loans to state enterprises and to other enterprises. When we extend the "government" to include state enterprises and HBOR, the banks' loan structure changes. Figure 10 shows that the government's share rose to 18% in the last quarter of 2011 compared to 14% at the end of 2011 (Figure 8) In addition, the share of enterprises is now 36% compared to 41% in Figure 8. Also, loans to state enterprises grew six times from the fourth quarter of 1999 to the fourth quarter of 2011, while loans to other enterprises grew four times. The most dramatic increase was in loans to central government and funds – 19 times. Loans to households grew 9 times. When observing the period from 4q1999 to 4q2007 (before the financial crisis), the numbers change: a 5-times increase for

state enterprises, 3 times for other enterprises, 6 times for central government and funds as well as for households. The share of government (including HBOR and state enterprises) grew by 5.5 percentage points since the last quarter of 2008, while the share of households fell by 7 percentage points and share of other companies stagnated.

Figure 10. Banks' loan structure including broadly defined government (%)



Source: *Statistical Survey 2012*, Croatian National Bank.

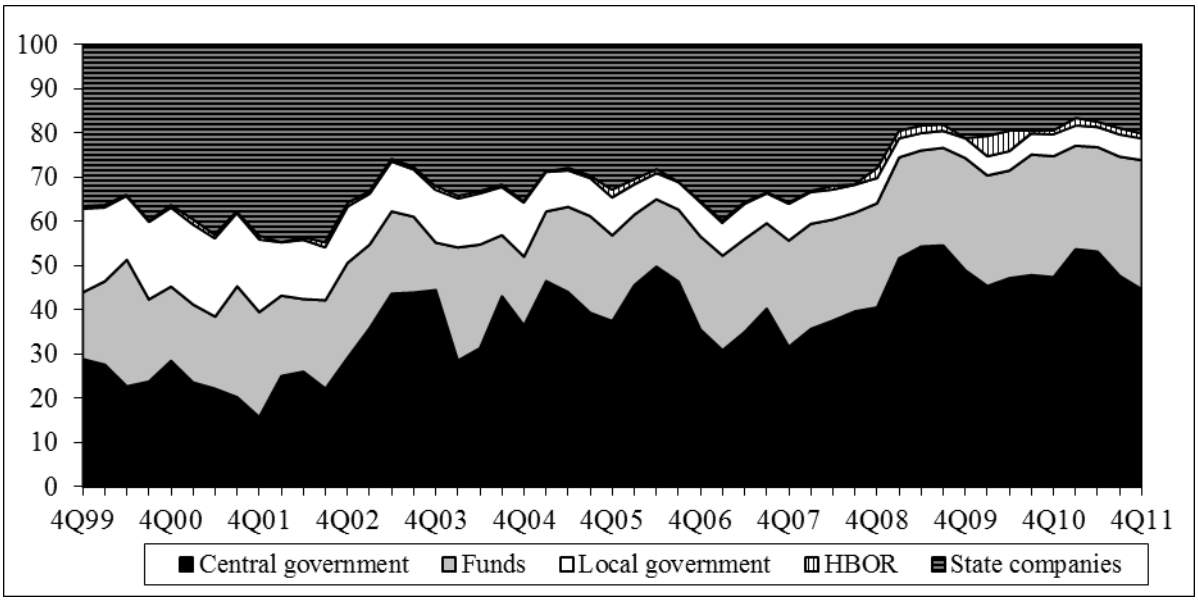
Figure 11 shows the structure of banks' loans to government. The most visible characteristic of the period from the fourth quarter of 1999 onwards is that the share of loans to central government increased, while that of loans to state enterprises and local government decreased.

As it was stated earlier, systematic data on interest rates on banks' loans to government have not been published.[71] Figure 12 shows a general trend in lending interest rates in Croatia. It is interesting to observe that interest rates on loans have grown since 2007 (kuna loans indexed to foreign currency), while at the same time regulation costs have decreased and banks' loans to government increased. In 2009, five leading economists of the largest Croatian banks were asked about the main determinants of bank interest rates. It turned out that the most important factors were country risk, followed by market risk, regulation costs, world interest rate, bank operating costs, profit, and bank risk (HUB, 2009). Country risk stems from fiscal imbalances and unwillingness to undertake structural reforms. Another negative aspect is that this fact

[71] The Ministry of Finance publishes a monthly Statistical Review but usually with a 6-month delay. In the November 2011 issue three syndicated foreign exchange loans are stated – one is due in 2013 and two in 2014. The interest rate ranges from 5.10% to 5.45%.

influences a country's rating, which additionally increases interest expenses.[72] Instead of trying to undertake reforms, the previous two Croatia's Prime Ministers have sent a public message to banks that they should lower interest rates. There was even some "threatening" with introducing a special bank tax because the leading government officials thought the banks were "too profitable" during the crisis.

Figure 11. Structure of banks' loans to government (%)



Source: *Statistical Survey 2012*, Croatian National Bank.

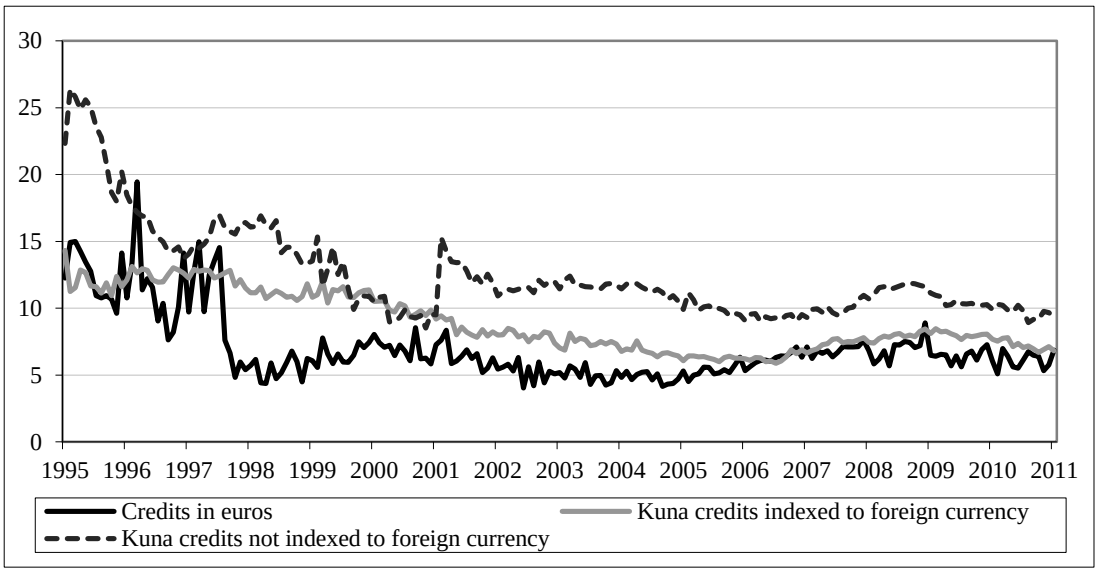
In terms of economic growth, especially important is the interest rate on loans to companies. While in the euro-zone interest rates on long-term loans fell from about 6% to 4% in the period from end-2008 to the first quarter of 2010, in Croatia they oscillated between 7% and 8% (CNB, 2010b). The difference is even more dramatic when looking at short-term loans. In the euro zone, interest rates fell from 6% to 2% and in Croatia they rose from 8% to 9% (end-2009), and then fluctuated between 7% and 8% during 2011. High interest rates on loans contribute to the negative perception of banks operating in Croatia.

CNB (2011b) researchers tried to find out to what extent the country risk premium affected the formation of interest rates on corporate loans by banks in CEE immediately before and after the outbreak of the global financial crisis. The escalation of financial crisis led to a decrease in EURIBOR, but to a significant increase in the country risk premium, which raised the cost of foreign funding. However, banks passed only a part of this increase to interest rates on corporate loans, which led to a decline in interest rate spread (difference between the

[72] At the end of 2010, Standard and Poor's downgraded Croatia's rating to BBB- from BBB, but also the long-term credit rating for Zagrebačka Banka because of its loans to government and government bonds in the bank's assets. Another downgrading for the same reason happened at the end of 2012: from BBB- to BB+.

interest rate on foreign currency corporate loans and the cost of foreign capital[73]). After financial markets had stabilized, the country risk premium decreased and interest spread on corporate loans returned to the pre-crisis level, with the exception of Bulgaria and Croatia where spread widened. Croatia's case needs further investigation but researchers point out that, on average, the factors determining the country risk premium also influence the cost of corporate borrowing. A country's risk premium depends on that country's specific fundamental indicators, especially indicators of fiscal imbalance and external vulnerability.

Figure 12. Interest rates on credits



Source: *Statistical Survey 2012*, Croatian National Bank.

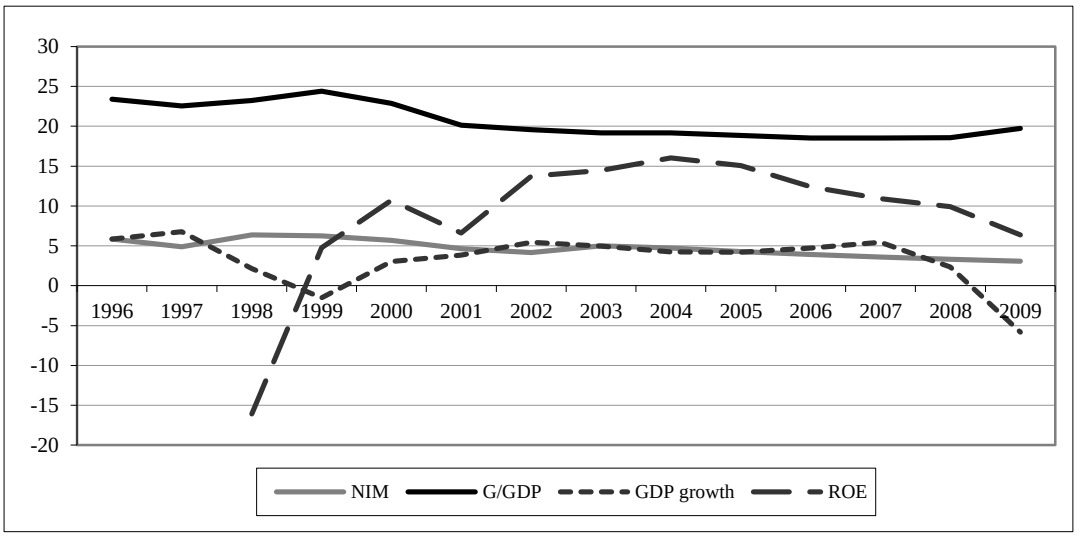
Finally, let us look at the link between the share of general government expenditure in GDP, net interest margin, economic growth and return on equity. The year that stands out the most on Figure 13 is 1999. The second banking crisis is clearly visible: large negative ROE (-16.1%) in 1998, a negative economic growth rate (-1.5%) in 1999 and an increase in government expenditure from 23.3 (1998) to 24.4 (1999) percent of GDP. Net interest margin was the largest during 1998-1999: 6.4% and 6.2% respectively. Since then, it has been gradually decreasing except in 2003. The share of general government expenditure in GDP has also been decreasing until 2008 when it started to grow. After successful 2007, economic growth slowed down in 2008 and turned negative in 2009 (-5.8%). Return on equity reached its peak in 2003 and since then it has been falling.

CNB's (2010b) data on net interest margin are different from the data provided by Beck et al. (2000). According to CNB, net interest margin fell from about 2.9% at the beginning of 2006 to 2.8% at the end of 2007 and then started to grow. At the end of 2008, it reached 3% and

[73] The sum of the country risk premium measured by the yield spread between government bonds and benchmark German bonds and the six months EURIBOR.

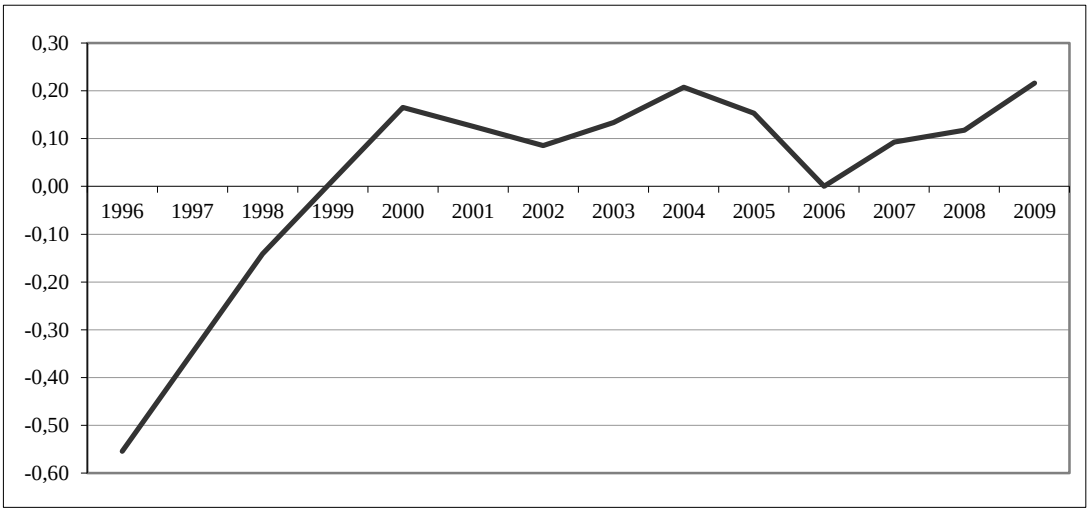
then fell to 2.8% in the first quarter of 2010, but increased again to 3% in the last quarter of 2011. The methodologies used are different; the CNB researchers take into account all assets, while the World Bank researchers only use interest-bearing assets.

Figure 13. Selected indicators



Source: *Financial Stability*, Croatian National Bank, No. 5, 2010; *World Development Indicators 2010*, World Bank; Beck et al. (2000), *A New Database on Financial Development and Structure (updated November 2010.)*

Figure 14. Rule of law



Source: *Worldwide Governance Indicators*, World Bank.

The rule of law also influences banks' allocation of resources. Figure 14 shows a slow improvement in the rule of law in Croatia with its ups and downs. In 2009, it reached its highest level so far.

5.5 Future research possibilities

Every chapter of this thesis ends with a short summary which leads to the next chapter. Since this is the last one before the conclusion, the remaining ideas will have to be explored in the future. Here we will just mention them, but let us first see what we have found out:

- Lack of constraints on the government authority (political rights and civil liberties were severely challenged in the 1990s), a low level of the rule of law, and low transparency have created many opportunities for rent-seeking and rent-sharing in Croatia, including in the banking sector. Luckily, the situation is changing for the better in terms of institutions, although slowly.
- When the institutional framework is incomplete and inoperative, and political corruption widespread, interest groups (including bankers) can easier get policies that suit them better.
- Croatian government is an extremely bad owner, but equally bad at running privatizations.
- Baum et al. (2008) pointed out that a strong political relationship could be considered among the most important intangible assets of any Ukrainian firm. A very similar thing could be said for Croatia.
- At the beginning of transition in Croatia, banks served as government's instrument in financing (mostly) politically motivated ends. This resulted in banking crises which increased public debt. Although there is a strong indication that there were many irregularities during this process, nobody was accused by legal authorities.[74]
- Only one third of banks' loans goes to private enterprises and they are of the utmost importance for economic growth.
- The second banking crisis in Croatia contributed to the negative economic growth rate in 1999.
- Banks in Croatia have had a strong safety net.
- Stolen documents, the "cleaning" of banks' balance sheets before rehabilitation, forgiven companies' debts, politically motivated loans, money laundering, expropriated shares etc. indicate a strong link between politics, selected companies and banks (especially) throughout the 1990s.

This last point actually raises issues for further research. As it was mentioned in Chapter 2, Baum et al. (2008) investigated whether banks with political affiliations to members of the Ukrainian parliament behave differently from those lacking such associations. What is exactly the link between the political and financial "elites" in Croatia? A quick look at the boards of directors and supervisory boards of banks in Croatia shows that several former CNB employees are in them, but this is not unusual.

[74] The only person who has been convicted of criminal activities in the ownership transformation of companies is currently in Bosnia and Herzegovina in order to avoid imprisonment.

What does strike as odd is that the chairman of the board of directors of Privredna Banka, the second largest bank in the country and also one of the rehabilitated banks, was the deputy minister of finance from 1993 to 1994, minister of finance from 1994 to 1997 and, at the same time, a member of the board of directors of the State Agency for Deposit Insurance and Bank Rehabilitation. Conveniently, since 1998 he has been the chairman of the board of directors of Privredna Banka. In addition, he has been a member of supervisory boards of several large Croatian companies. In 2008, one of the unions in Croatia has brought criminal charges against him for money laundering connected with the state budget in the period from 2000 to 2002. The second example is the president of the supervisory board of a smaller bank (Partner Banka), but also director of a large company dealing with capital risk management. He was a member of the CNB advisory board from 1992 to 1997, then minister of finance from 1997 to 2000, and also the leading negotiator in the largest privatization cases in Croatia. Obviously, the banker-politician phenomenon (see Chapter 2) exists in Croatia, too.

What should be done in the future is to have a close look at the CVs of Croatian politicians and to pinpoint all possible ties with banks operating in Croatia. The available CVs are often incomplete but a bigger problem is that many of them are difficult to obtain. Since there are no data for Croatia on lobbying expenditure, and the financing of political campaigns is highly non-transparent, standard political economy tools for empirically investigating interest groups are not yet applicable to Croatia. Unfortunately, the influence of interest groups usually becomes visible to the public only after police investigations or through newspapers articles. Research possibilities will also expand once the Ministry of Finance starts systematically publishing more extensive data on government debt.

In this chapter we have concentrated only on banks, but banks also own companies that manage pension funds and housing savings banks. Banks can obtain benefits from the government even through these channels. For example, the Croatian government subsidizes housing saving and voluntary pension saving, and the banks manage these funds, thereby earning fees and interest. Obligatory pension funds also charge fees for managing pension savings. In addition, the majority of assets of the pension funds consists of Croatian government bonds. The efficiency of housing savings banks and pension funds has not been researched so far.

Hopefully, we have managed to show, albeit with "soft" evidence, that banks are an important interest group in Croatia, and that there is a strong link between banks and government, especially government finance.[75] The banking sector in Croatia is today one of the rare well-functioning sectors in terms of profitability, share in gross added value, salaries and

[75] Bankers in Croatia have their own professional, independent association called the Croatian Banking Association. It was founded in 1999 and today gathers members of eighteen banks operating in Croatia. Their goal is to protect and promote the interests of the banking industry in Croatia. The president of CBA used to be a member of the parliament's Budget and Finance Committee, representing the Croatian Employers Association.

productivity (HUB, 2007). We could consider it as one of the transition winners. However, the cost of that victory is enormous.

This chapter confirms that the role of government is crucial whenever the financial system changes. In addition, the motivation is always similar: government seeking a source of public finance for political ambition i.e. preserving power. Banks in Croatia are today important government sponsors, just like they were in the early transition. However, the crucial difference is that profitability is now the main parameter of bank credit policy.
It seems that the link between government and banks will always be strong because history shows that crises are inherent to the financial sector, which means that bankers will always seek out for government's rescue and a safety net. In addition, bankers have vested interest in promoting deficits, since they finance the government and earn interest on that. In both cases, the taxpayers or future generations of taxpayers "pay the bill" in the end.

CONCLUSION

The goal of this doctoral thesis was to analyse the interaction between government and banks in financial intermediation and observe the effects of that relationship on economic growth. The interaction was examined through several channels:

- a literature review on the link between financial intermediation by banks and economic growth;
- a literature review on the relationship between government and banks from the political economy point of view, with the emphasis on government and market failures;
- an empirical analysis of the determinants of financial intermediation costs by banks, since the financial intermediation cost is an indicator of banks' functional efficiency in terms of economic growth;
- an empirical analysis of the link between government, banks and economic growth; and
- an analysis of the relationship between government and banks in Croatia from the political economy perspective.

In the final part of this thesis, the Conclusion, we will describe the research process and summarize the obtained findings.

The literature review on the link between financial intermediation by banks and economic growth in Chapter one leads to a conclusion that the opinions of economists about the role of financial intermediation in economic growth are polarized. On one side are economists who believe the role of financial factors in economic growth to be overemphasized, and on the other side there is a large number of economists who are convinced not only that finance is very important for economic growth, but also that finance causes growth.

In theory, financial systems can contribute to economic growth in three principal ways: by 1) creating incentives for physical and human capital accumulation; 2) allocating capital to most productive activities; and 3) reducing the amount of resources which are used in the intermediation process between borrowers and lenders. By allocating capital to entrepreneurs with the highest probability of successful innovation, financial systems influence the rate of technological progress. While transforming savings into investments, financial systems absorb resources, so that one financial unit of savings results with less than one financial unit of investments. The difference represents the earnings of financial intermediaries, or, in the case of banks, their interest spread. If the cost of financial intermediation decreases due to financial development then the equilibrium growth rates increase.

A review of theoretical papers shows certain shortcomings. In most papers, the financial system is static: the relationship between agents and intermediaries does not change over time, which need not be the case in practice. The static relationship requires that the level of

financial depth remain constant as the economy grows and that is at odds with the empirics. Furthermore, in most models financial intermediation refers to banking systems with perfect competition, while in reality banking systems are characterized by monopolistic competition. Some authors consider securities markets, but usually, agents in the models have to choose between banks and securities which exclude each other. Another problem with theoretical models is also that they are significantly at odds with the "real world".

For example, investment is determined not only by the availability of finance, as assumed in the models, but also by macroeconomic stability, public investment, exchange rate, uncertainty, etc. In addition, a widespread opinion is that bankers mostly lend to already well-established and successful companies; this is true - if bankers behaved differently, they would soon be out of business. In the models, it is assumed that bankers lend to entrepreneurs who are just starting their business. Also, socially most productive activities need not be profitable for banks, i.e. projects with the highest returns do not necessarily have large social returns. Furthermore, theoretical models neglect the principal agent problem when stressing the importance of banks for improving corporate governance. The models also ignore the fact that internal finance is the main source of financing in industry. Finally, it is always difficult to establish whether the real problem is in banks that do not provide enough funds for investment, or in a lack of demand for those funds.

A general conclusion that follows from the review of empirical papers is that empirical research does not give clear answers to the issue of the importance of bank financial intermediation for economic growth. The findings differ across the countries in the sample, the control variables and financial proxies used, the time period covered, the econometric techniques employed, the level of economic development, etc. Progress in research has been achieved in terms of the econometric methodology, in the way that more attention is paid to nonlinearities as well as heterogeneities, and that transition economies are included in the scope of this research. However, it seems that breakthrough papers still have not appeared. Rather, the progress is slow and researchers seem to go round in circles, especially regarding the issue of causality between finance and growth. The key question still remains unanswered: If finance matters for growth, why do some countries have financial systems that spur economic growth, and others do not? It is important to find out when and under what circumstances the financial sector has a positive influence on economic growth and what determines its efficiency in this context.

Government's role in finance and growth regressions is deemphasized. This is a finding not observed by other researchers in their literature reviews on finance and growth. The government usually enters the regressions as part of the conditioning set in terms of the share of government consumption in GDP, i.e. government size. Other than that, a possible way of government influencing the results in the reviewed studies is through political stability and institutional variables, such as property rights, corruption, administrative barriers, efficiency

of the bureaucracy, etc. However, studies on finance and growth largely ignore the role and the character of government intervention in the financial markets.

Government intervention is larger in the banking sector than in other sectors, because banking is generally considered vital for the economy and is an important source of fiscal revenues. However, the government has a conflict of interest since it both regulates banks and uses them as a source of finance. In the second chapter, we tried to discover possible "hidden" factors which are left out from the finance-growth theory and empirics. We have organized the literature review in five sections: 1) financial market failures; 2) financial repression; 3) financial liberalization and bank crises; 4) quality of public governance; and 5) interest groups. This approach is novel and makes it easy to notice that there are good grounds to believe that the effects of financial intermediation by banks on economic growth need not be positive.

Firstly, financial markets are characterized by the problems of moral hazard, adverse selection and limited competition. However, the fact that some government interventions are justified in order to correct market failures does not imply that every intervention is justified. The best example of this is financial repression. Policies such as controls of capital inflows and outflows, restrictions on entry, high reserve and liquidity requirements, interest rate and bank credit ceilings can cause distortions in financial intermediation, and therefore reduce efficiency of resource allocation and negatively influence growth. Financial repression is usually not motivated by correcting market failures and therefore it is doubtful to what extent it can improve the functioning of financial intermediation. When it comes to government ownership of banks, most of the evidence shows that it cannot be connected with positive results. However, the relationship between public ownership of banks and lower GDP growth does not hold for all countries. Rather, it depends on a country's financial development and political institutions.

Financial liberalization represents removal of the earlier mentioned restrictions on financial intermediation. After liberalization, competition and market efficiency should ensure adequate functioning of the deregulated financial system. The key problem is that deregulated markets cannot be assumed to be efficient; in a totally liberalized system there is a threat of a systemic misallocation of resources and sensitivity to crashes. These crashes include bank crises (solvency problems) and bank panics (liquidity problems). Banking crises are numerous, and also expensive, which is especially damaging in developing countries. Apart from influencing growth, they produce large fiscal costs. After each crisis, there is a call for more official prudential regulation and supervision in order to prevent a new crisis. The government reacts in the case of a bank crisis because it does not want the public to think that it will come to a financial system collapse or because it does not want citizens to suffer losses. *Unfortunately, researchers usually ignore the dark side of finance when analysing the finance growth nexus.*

Numerous systemic banking crises are one more argument to believe that the link between financial intermediation and growth need not be positive.

The government engages in correcting market imperfections under the assumption that it has the ability or will to do it, but a market failure does not necessarily imply government success. Most policy measures directed at the financial system implicitly assume that the government will strive for common good, but such attitude neglects the incentives with which policy makers are faced and political structure within which they operate. The main problem is the following: how can policy makers remove market inefficiencies if they are working in their own interest? Furthermore: what is the probability that a good financial policy will be adopted if it is opposite to the interests of policy makers currently in power? Too often personal interests of policy makers created and sustained distorted incentives in financial sectors, which led to a crisis or the allocation of bank resources in government ownership for political or personal causes.

Even when the government's role is initially justified, it can lead to rent seeking. In theory, the notion of rent seeking usually refers to rents from regulation, monopoly or tariffs. The economic theory of regulation, or private interest theory, is based on the assumption that the regulatory process is characterized by competitions among interest groups which use the government's power to obtain rents at the expense of other groups. These interest groups can be so strong that they can capture regulators. The continuous existence of a dysfunctional regulatory framework can be partially explained with politicians and regulators being captured by those they should be regulating. In such cases, regulatory policy works in the private interest and not in the interest of the general public. Even if the regulation seems strict, there can be loopholes in the law.

Empirical evidence is in favour of the capture view when it comes to banking. Bankers have always enjoyed close relationships with the political power, most often as advisors to politicians because they had good technical knowledge about finance. That relationship was enhanced by the fact that government officials often had leading manager positions in banks. Through their influence on politics, banks were interested in defending their own interests as well as in keeping independence from government's interference. Bankers can exert a powerful influence over governments and regulators, so that regulations serve to promote the interests of incumbent bankers rather than promote social welfare. Powerful banks may "capture" politicians and induce official regulators to act in the best interests of banks rather than in the best interest of the society. The ability of interest groups to achieve their goals depends on the interests of politicians and structure of state institutions. Apart from lobbying and financing political campaigns, influence can be exercised through bribes.

To summarize, there seem to be two confronting streams when it comes to the banks-government relationship. On one hand, government officials are not benevolent social

planners and they will try, if not prevented by law, to maximize their own wealth, not the social welfare. They are open to any collaboration with different interest groups if it will benefit them. On the other hand, there are the bankers, a fundamentally pragmatic interest group (also ready for cooperation with whomever it takes), who will use their power to maximize profits regardless of the impact on aggregate economic activity. Government has the power to regulate the banking system (and indeed, banking industry is the most heavily regulated one), but the banks have the power to capture the regulators. In addition, bankers and politicians can share rents which are mutually agreed upon. There are a few reasons for optimism regarding strong government involvement in financial intermediation, but the consequences of a total government withdrawal can be detrimental.

It is very clear that the relationship between government and banks is much more complex than it is assumed in the standard empirical finance and growth research. *In the third and fourth chapters attempts have been made to incorporate the findings of Chapter two into a more careful examination of the link between financial intermediation by banks and economic growth. This has been done by analysing the determinants of bank financial intermediation costs and of economic growth.* The goal was to combine government and market failures and include them into empirical models relevant for explaining the finance growth nexus.

As a proxy of the financial intermediation cost, we have used the bank net interest margin (NIM). NIM is also an indicator of banks' functional efficiency. Banks mobilize funds and channel (allocate) them from lenders to borrowers; from the social welfare perspective, it is important that the work of intermediation is carried out at the lowest possible cost. The lower the bank interest margin, the more functionally efficient their financial intermediation, because the wedge between net return on lending and the gross cost of borrowing is smaller. That increases not only lending and borrowing, but also saving and investment. When the bank margin is high, it also implies that the cost of using the financial system may become prohibitive to certain borrowers. Furthermore, potentially highly productive projects would not be undertaken, since, due to high costs of obtaining external funds, entrepreneurs do not undertake all, but only the most remunerative projects, thus reducing aggregate investment and hence economic growth.

An empirical analysis of the NIM determinants based on System GMM on a sample of old and new EU member countries (plus Croatia), as well as seven other transition economies, in the period from 1996 to 2009, confirmed our hypotheses albeit with slight moderations. Firstly, higher government involvement in the economy does, on average, have a negative effect on the financial intermediation cost by banks, i.e. it increases it. The second hypothesis was that the effects of government involvement in the economy on the financial intermediation cost are more pronounced in countries with widespread corruption. The results show that these two effects add up individually; the government negatively influences NIM with its size (i.e. public finance) and abuse of authority for private gain, i.e. corruption. In other words, the negative

effects of the government are stronger if the government is not only big, but big and corrupt. The interaction term between size and corruption was not statistically significant. Even though a few researchers have already included institutions and government size in regressions explaining the NIM determinants, they have not used several proxies for government size, nor observed the aggregate effect of government in terms of its size and quality of institutions. The comparison between old and new EU member states in this context is also new, as well as using several other transition economies as a control group. The fact that government can influence economic growth through NIM, as an indicator of financial efficiency, has also not been analysed before. In addition, previous research on NIM in the majority of cases did not include the dynamic panel analysis.

The negative influence of government size can stem from several sources, which were not separately analysed in this thesis. Firstly, in financing its consumption the government depends on direct and indirect taxation of banks, which try to shift their tax burden onto their clients to the largest extent possible. They do so by raising lending interest rates or different fees, which in turn increases the financial intermediation cost. Secondly, it is possible that government forces banks to buy its bonds. In order to compensate for lower interest rates on government loans, the banks charge higher interest rates to private sector clients, which increases the financial intermediation cost for the economy. In general, large government expenditure programs are often supported by intrusive regulations that curb private sector activities and may also require heavier taxation. Moreover, as the government's spending programs grow larger, they may become counterproductive if they are poorly designed. In some cases, larger government programs create new opportunities for rent seeking. Also, increasing government expenditure raises country risk.

The negative influence of corruption can stem from two principal sources. Firstly, banks increase their interest margin to protect themselves from risks coming from widespread corruption (e.g. various regulatory distortions, inconsistency in policies aimed at the financial system, questionable independence of monetary authorities etc.). Secondly, it can be assumed at the same time that corruption eases the influence of interest groups, especially the large ones like banks. If policy makers are prone to abuse of authority for private gain, then interest groups will be in a position to readily achieve their influence. It is possible that banks influence policy makers through regulation and/or monopoly position in order to create rents which they will mutually share. In both cases, the final result is the same: the financial intermediation cost increases.

Based on our results, one of the key determinants of NIM among bank-specific variables is operational efficiency, i.e. overhead costs. This holds for all the three observed groups of countries. Lagged NIM is also highly significant, which points to the right choice of dynamic specification. Among macroeconomic variables, the GDP p.c. growth rate and money market interest rate are significant in old EU member countries and other transition economies. The

former lowers NIM, while the latter increases it. This shows the importance of business cycles in the NIM determination, as well as monetary policy. Inflation matters only in new EU member countries plus Croatia - it decreases NIM. A bank crisis lowers NIM in all the three groups of countries, and the effect is the strongest in other transition economies.

When it comes to government involvement in the economy, government size is the most relevant. In old EU countries, the general government's final consumption expenditure/GDP (a World Bank variable) raises NIM, as does government spending (Heritage Foundation variable) and general government deficit/GDP. Not surprisingly, institutional variables are not significant in EU15 economies, since they have on average a sound institutional setting. Control of corruption comes with an expected sign: better control of corruption is correlated with lower NIMs. Higher government effectiveness also lowers NIMs, but the rule of law and voice and accountability increase NIMs. Government variables stay significant with all institutional variables. *Since in more developed economies corruption is substituted with interest group activities, we tried to see whether in countries with a larger share of bank credit to the private sector government size has a larger effect on NIMs. The assumption was that banking sectors have a stronger influence over governments in countries where there is a bigger exposure of private sector to banks. This is a step forward in the literature.*

We checked this hypothesis by adding an interaction term between private sector credit/GDP and government final consumption expenditure/GDP to the model. These two variables were not significant by themselves anymore, but the interaction term was. At the first quartile level of private credit/GDP, an additional increase in government final consumption expenditure/GDP increases NIM by 0.02 percentage points, which is economically insignificant, while at the third quartile of private credit/GDP, an additional increase in government final consumption expenditure/GDP increases NIM by one percentage point. This result is probably in line with voice and accountability and the rule of law variables increasing NIM in old EU member states. Previous research confirms that democracy facilitates the action of interest groups. The power of interest groups substitutes corruption in highly developed democratic countries, which usually also have a high level of the rule of law.

Unexpectedly, when it comes to proxies for government's role in new EU economies, none of them is significant. We expected institutions to have a greater importance in new than in old member states and the results confirmed this. After adding the control over corruption variable to the model, general government expenditure/GDP becomes significant. Unlike in EU15 economies, all institutional variables decrease NIMs and all of them are statistically significant. The rule of law has the strongest effect. As concerns interest groups, the interaction term between general government expenditure/GDP and private sector credit/GDP is not significant. It is interesting that in specifications with institutions, bank concentration gains importance and it increases NIM.

Regarding government's role in other transition economies, two variables are significant: general government revenue/GDP and general government expenditure/GDP. The former increases NIM and the latter decreases it. At first it seems surprising that expenditures come with a negative sign. However, the mean value of that variable is fifteen percentage points lower than in EU13 economies, and twenty percentage points lower than in EU15 economies. At the same time, NIM is higher. In a way, other transition economies are not an appropriate control group for our hypotheses, since they have small governments. After adding corruption to the model, government revenues do not lose significance, as is the case with voice and accountability, but the rule of law and government effectiveness make government revenues no longer significant. Corruption and the rule of law are significant with government revenues, while voice and accountability and government effectiveness are not. What is striking in the model with government revenues is the economic effect of corruption and the rule of law. An increase in control of corruption by one unit (to the level of EU15 economies) would decrease NIM by 2.3 percentage points. In the case of the rule of law, the decrease would be 2.9 percentage points. Institutional variables and bank crisis are by far the strongest determinants of NIMs in this group of transition economies.

The fourth chapter was based on a hypothesis that the influence of financial intermediation by banks on economic growth depends on incentives for consumption and rent seeking. Incentives for rent seeking represent the concept that an individual in a society believes the influence over political allocation to be an important source of personal gain, and that policy makers allocate benefits in exchange for their private benefit. In order to become wealthy and improve their positions, individuals aim their activities at obtaining favorable government decisions. Incentives for consumption represent the concept that the institutional setting in which agents make private decisions is such that investment projects have small private returns, because of a low level of the rule of law, widespread corruption, government expropriation etc., which additionally increases preferences towards consumption. In this thesis, rent seeking and corruption are categories which are opposite to investment and production, i.e. productive activities.

As in Chapter three, the sample in Chapter four covered EU countries and Croatia, and the observed period was from 1996 to 2009. Control groups were seven other transition economies and ten Latin American economies. A dynamic panel analysis (System GMM) was applied. Proxy variables for incentives for consumption and rent seeking were control of corruption and the rule of law (Worldwide Governance Indicators). Determinants of economic growth were organized in four groups: "classics", government, financial intermediation by banks and institutions. All regressions included a bank crisis dummy variable. Financial intermediation was proxied by both financial depth and financial efficiency.

In old EU member states, NIM as an indicator of financial intermediation efficiency is not statistically significant. However, private credit/GDP (a financial depth indicator) is significant in all specifications, and it reduces the real GDP p.c. growth rate. This result is robust with different government size proxies as well as with substituting secondary with tertiary education and adding a bank crisis dummy. Statistical significance of private credit/GDP also remains with all institutional variables. Other significant variables are government expenditure/GDP (negative sign), inflation (negative sign), initial GDP p.c. (negative sign) and growth rate in previous period (positive sign). Institutions and initial GDP p.c. have the strongest effects. Unlike in the previous chapter, where we examined the determinants of NIM, institutions are undoubtedly important in EU15 economies and increase the growth rate. Obviously, the effect on growth is through other channels rather than through the financial intermediation cost. The interaction term between net interest margin and control of corruption is not significant, as well as the interaction term between private credit/GDP and control of corruption.

Since EU13 economies have undergone many economic and political changes in the observed period, influenced by the EU accession process, their economic growth pattern was different from that in old EU member states. Hence, in the case of EU13 economies, we added variables to the model gradually and not all at once like in the case of EU15 economies (except for institutions). In the first specification, we included initial GDP p.c., bank crisis, net interest margin, government expenditure/GDP, inflation and investment/GDP. The rationale was to start with a financial intermediation proxy, policy variables and two additional control variables, namely investment and bank crisis.

All variables except NIM are statistically significant and all of them have a negative sign except the lagged value of growth rate and investment. Bank crisis has a strong negative economic effect, just like the lagged value of GDP p.c., both of which are not statistically significant in EU15 economies. Since NIM is not statistically significant, but has an expected negative sign, we replaced it with its lagged value. After that change, NIM becomes significant.

When adding control of corruption to the model, we treated all variables, except government expenditure/GDP and investment/GDP, as exogenous. Lagged NIM is again significant at a 1% level, as well as bank crisis, government expenditure/GDP, investment/GDP, tertiary education and control of corruption. Inflation is significant at a 5% level. *All variables have expected signs except control of corruption: better control of corruption is correlated with lower growth. The same is with the rule of law.* We cannot claim that a lower level of the rule of law and widespread corruption caused higher growth rates; we can only establish correlation with certainty. *However, it is possible that in EU13 economies the negative effect of corruption on economic growth is hidden behind the bank crisis variable. We showed that the interaction term between control of corruption and bank crisis is statistically significant;*

the negative effect of bank crisis on economic growth is six times larger at low (first quartile) than at high (third quartile) control of corruption. To our knowledge, bank crisis has not yet been interacted with corruption in explaining economic growth.

Higher private credit/GDP is connected with lower economic growth rates. The only variable that strips private credit of its statistical significance is tertiary education but it also reduces the number of observations due to lack of data. Just as with NIM, an increase in control of corruption and the rule of law is correlated with lower economic growth rates. The interaction term between private credit/GDP and control of corruption is not statistically significant.

Results for other transition economies suggest that their growth pattern is quite different from that in previously analysed countries. Specifically, in specifications with net interest margin as a financial intermediation proxy, only lagged growth and inflation are significant. We have excluded education due to lack of data. Unlike in EU13 economies, institutions and net interest margin have a positive sign, but none of them is significant. On the other hand, private credit/GDP is, and it also has a positive sign. Apart from private credit/GDP, other significant growth determinants are bank crisis, inflation, and investment. Inclusion of tertiary education reduces the number of observations and also changes the sign of private credit/GDP to negative, but then it is no longer significant. The interaction term between NIM and control of corruption is not significant, and that between private credit/GDP and control of corruption is, but only without education. The coefficient of the interaction term is positive and, since the coefficient of private credit/GDP is also positive, at higher levels of control of corruption the positive effect of private credit/GDP on economic growth is stronger.

Latin American economies are not in the focus of this thesis; they only serve as a comparison group. The results suggest that in Latin America, both financial efficiency and financial depth matter for economic growth and have negative effects. Moreover, financial depth becomes important only after including control of corruption in the model. The latter variable has a strong positive effect on growth. The interaction term between NIM and control of corruption is also significant: the negative effect of NIM on economic growth is stronger in countries that have weaker control of corruption. Interestingly, human and physical capital are more important than policy variables; tertiary education and investment have a positive effect on economic growth. Bank crises do not matter for growth, even though they have an expected negative sign. Unlike in all previous groups of countries (except other transition economies in specifications with financial depth), the coefficient of government expenditure/GDP is positive.

Finally, we observed all countries with threshold levels of control of corruption to see whether the effect of NIM on economic growth differs at different levels of control of corruption. We have split all countries into two subsamples: those with high (above the third quartile) and with low (below the first quartile) control of corruption/rule of law. The

coefficient on NIM is negative below the first quartile and positive above the third quartile of control of corruption. However, in the latter case, it is economically and statistically insignificant. We can conclude that the widespread corruption gives an additional "kick" to the effects of finance on economic growth. The results also show that the negative effect of financial depth on economic growth is stronger in countries with worse control of corruption. In addition, private credit is the only variable that is statistically significant in both groups of countries. The results do not change when replacing control of corruption with the rule of law. Again, NIM matters only in countries with a low level of the rule of law, and it has a negative effect on growth. The effect of private credit/GDP on growth is negative in both groups but larger in countries with a low level of the rule of law. *In sum, the results confirm that the effect of financial intermediation by banks on economic growth differs depending on corruption and the level of the rule of law as indicators of incentives for saving and production. The effect of financial intermediation by banks on economic growth in countries with high incentives for consumption and rent-seeking is not positive. In fact, it is negative. This holds for both financial efficiency and financial depth.*

The main finding is that in the period from 1996 to 2009, economic growth in the European Union (plus Croatia) was negatively influenced by financial depth (lending boom) and in the case of EU13 economies, by financial efficiency, too. In addition, bank crises had an economically and statistically significant effect on the real GDP p.c. growth rates in EU13 economies. These results confirm the negative effect of financial intermediation on economic growth in the short run. They also show the importance of including banking crises when observing the link between finance and growth, which was missing in previous research. In addition, the results suggest that you can indeed say that too much of a good thing, namely, more finance, is not always better. Since a positive effect of financial depth on economic growth was present only in a group of other transition economies, which do not have deep financial markets, nonlinearities in the finance-and-growth relationship certainly exist, which has already been shown by many authors. Our results are consistent with the "vanishing effect" of finance, found by various authors using recent data. EU13 economies might benefit from an increase in financial efficiency (lower cost of financial intermediation) i.e. convergence to the EU15 values.

Government size also negatively influenced economic growth, but the economic effect was not strong. This chapter confirms a double negative effect of government on economic growth: a direct effect and effect through financial efficiency – a point not made by other researchers. However, in the observed period, the effect of financial depth on economic growth was negative even in countries with low corruption and high rule of law. This result can be linked to research by Beck et al. (2008) who showed that bank lending to enterprises, rather than to households, lies behind the positive impact of finance on growth. We can conclude that loans have been mostly directed towards consumption, and not production, which is why the effect of private credit/GDP was negative. The effect of financial efficiency was positive but not

statistically significant. To paraphrase Cameron (1972): banks might have frittered away investment possibilities with unproductive loans.

We also show that different groups of countries have different growth patterns, which indicates that it is more fruitful to observe similar countries or even individual countries across time. Similarity is not guaranteed by looking at associations such as the EU. It is clearly necessary to separately observe groups of countries within the EU. In our analysis, we have split the sample into the groups of old and new EU member states. However, more credible results are probably obtained when grouping countries with similar institutional quality.

The purpose of the final chapter was to single out Croatia from econometric models and observe the link between government and banks on a case-study level. The chapter was divided into four sections: 1) description of regulatory environment; 2) analysis of government ownership and bank privatization; 3) bank crises and 4) banks' allocation of resources. These elements have been chosen because they can give us a lot of insight into the nature of the banks-government relationship in Croatia, which has not been studied before in such a manner.

Several conclusions can be made from Chapter five. Firstly, lack of constraints on the government authority (political rights and civil liberties were severely challenged in the 1990s), low level of the rule of law, and low transparency have created many opportunities for rent-seeking and rent-sharing in Croatia, including in the banking sector. This was especially evident during privatization. Even though there is evidence that many irregularities occurred during the bank privatization, nobody was accused by legal authorities.

Secondly, when the institutional framework is incomplete and not operational, and political corruption widespread, interest groups (including bankers) can more easily get policies that suit them better. Financial and political elite are intertwined in Croatia, i.e. there is a strong link between banks and government, especially government finance. This chapter confirms that the role of government is crucial whenever the financial system changes. In addition, the motivation is always the same: the government seeking a source of public finance for political ambition i.e. preserving power. Banks in Croatia are today an important government sponsor, just like they were in the early transition. However, the crucial difference is that profitability is now the main parameter of the bank credit policy. Only one third of banks' loans go to private enterprises and they matter the most for economic growth.

It seems that the link between government and banks will always be strong because history shows that crises are inherent to the financial sector, which means that bankers will always seek out for government's rescue and safety net. In addition, bankers have vested interest in

promoting deficits since they finance the government and earn interest on that. In both cases, the taxpayers or future generations of taxpayers "pay the bill" in the end.

In short, the expected contribution of this thesis was to identify terms which need to be fulfilled in order for financial intermediation by banks to have a positive influence on economic growth. We have shown that what is needed is less government and market failures, i.e. governments with better control of corruption, stronger rule of law, freedom from interest group activity, fiscal discipline and more successful prevention of banking crises. In other words, stronger governments are needed. However, even with these policy changes, too much finance will not lead to higher growth rates. Policymakers should not prioritize financial sector policies in order to promote economic growth because recent empirical research, including this one, casts doubt on finance as an "engine of growth".

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APPENDIXES

TABLE OF APPENDIXES

APPENDIX A: Empirical evidence on financial intermediation by banks and economic growth (chronologically)

Author (year)	***Sample***	***Research method***	***Financial indicators***	***Government and institutions***	***Key findings***
King and Levine (1993a; 1993b)	1960-1989; 80 countries	cross-section analysis	a) ratio of liquid liabilities to GDP b) ratio of deposit money bank domestic assets to deposit money banks domestic assets plus central bank domestic assets c) credit issued to private enterprise divided by credit issued to central and local government plus credit issued to public and private enterprises d) credit issued to private enterprises divided by GDP	a) ratio of government spending to GDP b) political stability	Financial services are importantly linked to economic growth and productivity improvements. The level of financial development predicts future economic growth and future productivity advances.
De Gregorio and Guidotti (1995)	a) 1960-1985; 98 countries b) 1950-1985; 12 Latin American countries	a) cross-section analysis b) panel analysis	a) ratio of bank credit to the private sector to GDP	a) ratio of government spending to GDP b) political stability	Although the impact of financial development on growth is broadly positive, it changes according to regions, time periods, and levels of income. For Latin American economies it is negative.
Demetriades and Hussein (1996)	1960-1990; 16 countries	time-series analysis	a) ratio of bank deposit liabilities to GDP b) ratio of bank claims on the private sector to GDP	-	The direction of causality between financial development and long run growth runs in different ways for different countries. The results seem to suggest that financial development and economic growth are jointly determined.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Berthelemy and Varoudakis (1996)	1960-1985; 95 countries	cross-section analysis	ratio of money plus quasi-money to GDP	a) ratio of government spending to GDP b) political stability	Financial underdevelopment may become a particularly severe obstacle to growth in countries with relatively high starting levels of human capital.
Odedokun (1996)	1960s-1980s; 71 developing economies	time-series analysis	credit issued to private enterprises divided by GDP	-	Financial intermediation promotes economic growth in roughly eighty five percent of the countries and the growth-promoting patterns of financial intermediation are practically invariant across various countries and regions.
Neusser and Kugler (1998)	1970-1991; 13 OECD countries	time-series analysis	GDP of financial institutions, insurance companies, and pension funds	-	There is a positive correlation between financial development and growth, but the causal structure underlying this relationship varies widely across countries and points at the importance of historical and institutional factors.
Levine (1998)	1976-1993; 43 countries	cross-section IV analysis	credit allocated by commercial and other deposit-taking banks to the private sector divided by GDP	a) ratio of government consumption to GDP b) creditor rights c) efficiency of the legal system in enforcing contracts d) legal origin	There is a statistically significant and economically large relationship between banking development and long-run rates of economic growth. Furthermore, differences in creditor rights and efficiency of the judiciary explain more than half of the variation in the level of banking development.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Rousseau and Wachtel (1998)	1870-1929; 5 countries	time series	a) commercial bank deposits b) assets of commercial banks, savings banks, and insurance companies	-	In the observed period and in observed countries financial intermediation caused economic growth.
Luintel and Khan (1999)	beginning of the 1970s + 36 to 41 years; 10 countries	multivariate time series	ratio of total deposit liabilities of deposit banks to one period lagged GDP	-	There is bidirectional causality between financial development and economic growth.
Ram (1999)	1960-1989; 95 countries	correlation and time-series	liquid liabilities to GDP	-	It cannot be claimed with certainty that financial development has a positive effect on economic growth.
Benhabib and Spiegel (2000)	1965-1985; not specified	dynamic panel analysis	a) M2/GDP b) deposit money bank domestic assets/ deposit money bank domestic assets + central bank domestic assets c) credit issued to private enterprises/GDP	-	Indicators of financial development are correlated with both total factor productivity and investment. However, indicators that are correlated with total factor productivity growth differ from those that encourage investment. There are indications that the financial development indicators are proxying for broader country characteristics.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Levine et al. (2000)	1960-1995; 71 countries	a) cross-section IV analysis b) dynamic panel analysis	a) ratio of liquid liabilities to GDP b) ratio of deposit money bank domestic assets to deposit money banks domestic assets plus central bank domestic assets c) credit issued to private enterprises divided by GDP	a) ratio of government consumption to GDP b) political stability c) efficiency of the bureaucracy d) level of corruption e) role of the state-owned enterprises in the economy f) index of the strength of property rights g) index of the costs of business regulation h) risk of expropriation i) rule of law j) accounting standards k) creditor rights l) efficiency of the legal system in enforcing contracts m) legal origin	Financial system is positively correlated with economic growth and that relationship is not a result of simultaneity, omitted variables or reverse causation.
Beck et al. (2000)	1960-1995; 63 countries	a) cross-section IV analysis b) dynamic panel analysis	a) ratio of liquid liabilities to GDP b) ratio of deposit money bank domestic assets to deposit money banks domestic assets plus central bank domestic assets c) credit issued to private enterprises divided by GDP	a) share of government expenditure in GDP b) legal origin	Finance-growth nexus runs primarily through total factor productivity growth and not through savings and physical capital accumulation.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Deidda and Fattouh (2002)	1960-1989; 119 countries	cross-section analysis	ratio of liquid liabilities to GDP	a) general government consumption as a percentage of GDP b) political stability	In low income countries there is no significant relationship between financial development and growth whereas in high income countries they find that this relationship is positive and strongly significant.
Koivu (2002)	1993-2000; 25 transition countries	panel analysis	a) interest rate margin b) credit to private sector/GDP	government expenditure as a percentage of GDP	There is no robust link between the amount of credit to the private sector and economic growth. Also, causality seems to run mostly from economic growth to credit growth. Interest rate margin is negatively and significantly associated with economic growth.
Calderon and Liu (2003)	1960-1994; 109 countries	panel analysis	a) M2/GDP b) ratio of credit provided by financial intermediaries to the private sector to GDP	general government consumption as a percentage of GDP	Financial development generally leads to economic growth. Financial deepening contributes more to the causal relationship in the developing countries than in the industrial countries. The longer the sampling interval, the larger the effect of financial development on economic growth. Financial deepening propels economic growth through both a more rapid capital accumulation and productivity growth, with the latter channel being the strongest.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Dawson (2003)	1994-1999; 13 transition economies	panel analysis	M3/GDP	-	Economic growth in CEECs is not constrained by underdeveloped financial sectors.
Favara (2003)	1960-1998; 85 countries	dynamic panel analysis	a) liquid liabilities/GDP b) private sector credit/GDP	a) government consumption/GDP b) legal origin	The relationship between financial development and economic growth is weak and non-linear.
Christopoulos and Tsionas (2004)	1970-2000; 10 developing countries	dynamic panel analysis	ratio of bank total deposits liabilities to nominal GDP	-	Long-run causality runs from financial development to economic growth but there is no evidence of bi-directional causality. However, there is no short-run causality between financial deepening and output.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Rioja and Valev (2004)	1960-1995; 74 countries	dynamic panel analysis	a) private sector credit/GDP b) liquid liabilities/GDP c) commercial bank/central bank loans	government size	In countries with low financial development additional improvements in the financial markets do not have a clear effect on growth - depending on used financial indicators it is either positive (ratio of commercial bank assets to commercial bank and central bank assets) or nonexistent (share of credit to private sector to GDP). In countries where financial development has passed a certain threshold (the "middle" region), it exerts a strong positive effect on economic growth. In the "high" region, the growth effect of financial development declines once it reaches very high levels.
Aghion et al. (2005)	1960-1995; 71 countries	cross-section IV analysis	value of credits by financial intermediaries to the private sector/GDP	a) government size b) political stability c) WGI d) efficiency of the bureaucracy e) expropriation risk f) property rights g) index of state-owned enterprises h) rule of law i) business regulation j) legal origin	Countries above a certain threshold of financial development converge to the same long-term growth rate, while countries under the threshold have lower long-term growth rates.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Fink et al. (2005)	1990-2001; 33 countries (22 market economies and 11 transition countries)	dynamic panel analysis	total financial assets	government size	There is a strong finance-growth link in eleven transition countries and the main growth impact runs via the productivity channel.
Loayza and Ranciere (2005)	1960-2000; 82 countries	panel analysis	a) average ratio of private credit to GDP b) frequency of systemic banking crises c) standard deviation of the growth rate of private credit/GDP	government size	In the long run financial development supports and promotes economic growth. However, systemic banking crises, cycles of booms and busts, and overall financial volatility can harm economic growth.
Mehl et al. (2005)	1993-2003; 9 transition economies	panel analysis	a) ratio of broad money to GDP b) credit to private enterprises to GDP	a) government size b) index of creditor rights	There is no evidence that financial deepening impacted growth positively in Southeast Europe during 1993-2003.
Rousseau and Sylla (2005)	1790-1850; USA	time-series	a) number of listed securities b) money stock	-	Financial development helped USA to, at the beginning of the 19th century, cross on a higher path of economic growth compared to other countries.
Shan (2005)	1985-1998; 8 Western industrialized countries and 3 Asian economies	time-series	total credit	-	There is little evidence that financial development leads economic growth.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Bordo and Rousseau (2006)	1880-1997; 17 countries	cross-country analysis	broad money/GDP	a) proportional representation election system b) frequency of elections c) universal female suffrage d) revolutions and coups	Political variables seem linked to larger financial sectors and higher conditional rates of economic growth. However, a large part of the growth-enhancing role of financial development remains unexplained with institutional fundamentals.
Burhop (2006)	1860-1913; Germany	time-series analysis	banks assets	-	Role of credit banks was the greatest in the early phases of Germany's industrialization when its economy may have been relatively backward.
Demetriades and Law (2006)	1978-2000; 72 countries	cross-country; panel analysis	a) liquid liabilities/GDP b) private sector credit/GDP c) domestic credit provided by the banking sector/GDP	a) government repudiation of contracts b) risk of expropriation ICRG indicators: a) corruption b) rule of law c) bureaucratic quality	Improvements in institutions are likely to deliver much larger direct effects on economic development than finance on its own. Financial development is most potent in delivering real economic benefits in middle-income countries.
Fink et al. (2006)	1996-2000; 9 transition countries	panel analysis	a) total financial intermediation b) private credit c) volume of loans of deposit money banks and monetary authorities to all residents divided by GDP	-	There is some evidence that total financial intermediation contributed to economic growth in accession countries. Stock market capitalization turned out to be insignificant, as well as private credit, while bond markets and domestic credit played an important role in promoting growth.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Zang and Kim (2007)	1961-1995; 74 countries	panel analysis	a) ratio of liquid liabilities to GDP b) ratio of deposit money bank domestic assets to deposit money banks domestic assets plus central bank domestic assets c) credit issued to private enterprises divided by GDP	measures of government size	There is substantial indication that economic growth precedes subsequent financial development.
Ahlin and Pang (2008)	1960-2000; 48 countries	dynamic panel analysis	a) total credit issued to private enterprises by deposit money banks and other financial institutions/GDP b) liquid liabilities/GDP c) deposit money bank assets/GDP	a) government expenditure/GDP b) ICRG corruption indicator c) CPI	Financial development and low corruption are substitutes. In other words, the growth impact of reducing corruption is higher when the financial system is less developed. Conversely, the growth impact of improving the financial system is higher when corruption is high.
Beck et al. (2008)	1994-2005; 45 countries	IV cross-country regressions	a) bank credit to GDP b) enterprise credit to GDP c) household credit to GDP	a) government expenditure/GDP b) institutional development c) creditor rights d) cost of contract enforcement	Bank lending to enterprises, not to households, drives the positive impact of financial development on economic growth. The finance-growth relationship is non-linear.
Botrić and Slijepčević (2008)	1995-2005; 6 South-eastern European economies	panel analysis	a) interest rate spread b) share of non-performing loans in GDP	share of general government balance in GDP	Reduction of the interest rate spread could positively influence growth in South-eastern European economies. The share of bad loans has ceased to be a serious obstacle for economic growth.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Coricelli and Roland (2008)	1963-2003; 115 countries across 28 manufacturing industries	panel analysis	external dependence indicator interacted with private sector credit-to-GDP ratio	-	Industries which are relatively more dependant on external finance decline relatively faster in countries with lower financial sector development. Credit markets play a more important role in softening (or, depending on the quality of credit market institutions, magnifying) output declines than in fostering growth, which support the conjecture that the impact of financial development on growth is asymmetric.
Brezigar-Masten et al. (2008)	1996-2004; 31 European countries (EU27, Croatia, Ukraine, Russian Federation, Iceland, Norway)	dynamic panel analysis	a) share of market capitalization and domestic credit provided by the banking sector in GDP b) domestic credit and share of GDP	a) protection of property rights b) administrative barriers etc.	Transition economies benefit more from the development of domestic financial markets than EU-15 economies.
Fung (2009)	1967-2001; 57 countries	dynamic panel analysis	a) credits allocated to the private sector b) difference between broad money and narrow money (M2-M1)	economic freedom	Low-income countries with a relatively well-developed financial sector are more likely to catch up to their middle- and high-income counterparts. The relationship between financial development and economic growth diminishes as sustained economic growth gets under way.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Hasan et al. (2009)	1996-2004; 11 EU countries	dynamic panel analysis on bank level	a) bank profit efficiency b) bank credit volume/GDP	-	There is a positive relation between banking quality and economic growth in 11 EU countries and the quality channel (bank efficiency) has approximately 3 times the effect compared to the quantity channel (increase in credit).
Huang and Lin (2009)	1960-1995; 71 countries	IV cross-country threshold regressions	a) value of credits by financial intermediaries to the private sector/GDP b) ratio of commercial bank assets to the sum of commercial plus central bank assets c) all credit by banks/GDP d) liquid liabilities/GDP	a) government expenditure/GDP b) number of revolutions and coups c) number of political assassinations d) index of ethnic diversity	Finance leads to growth and the effect is stronger for low-income than for high-income countries.
Dufrenot et al. (2010)	1980-2006; 89 countries	dynamic panel analysis	a) credit by financial intermediaries to private sector as a ratio of GDP b) domestic credit by the banking sector in percentage of GDP c) ratio of deposit money bank domestic assets to the sum of domestic assets from deposit money banks and central bank d) ratio of liquid asset of the financial system to GDP	-	Financial intermediation positively influences economic growth in the OECD countries, while its effect is negative in the developing countries.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Capelle-Blanchard and Labonne (2011)	1970-2008; 24 OECD economies	dynamic panel analysis	a) number of employees in the financial sector divided by the total workforce b) ratio of private credit divided by the number of employees in the financial sector c) private credit/GDP d) liquid liabilities/GDP e) bank credit/total credit	government size (log government expenses)	There is no clear and positive relationship between finance and growth in OECD countries over the last forty years.
Hassan et al. (2011)	1980-2007; 168 countires	panel analysis	a) domestic credit provided by the banking sector as a percentage of GDP b) domestic credit to the private sector as a percentage of GDP c) M3/GDP d) ratio of gross domestic savings to GDP	ratio of general government final consumption expenditure to GDP	There is a positive relationship between financial development and economic growth in developing countries. Also, there is two-way causality between finance and growth for most regions and one-way causality from growth to finance for the two poorest regions.
Rousseau and Wachtel (2011)	1960-2004; 84 countries	cross-section and panel analysis	a) liquid liabilities/GDP b) liquid liabilities (M3) – narrow money (M1) c) credit allocated to the private sector	government consumption/GDP	The impact of financial deepening on growth is not as strong with more recent data as it appeared in studies with data for the period from 1960 to 1989. In fact, the effect of financial depth on growth disappears.

Author (year)	*Sample*	*Research method*	*Financial indicators*	*Government and institutions*	*Key findings*
Arcand, Berkes and Panizza (2012)	1960-2010; 133 countries	cross-section and dynamic panel analysis	credit to the private sector/GDP	a) government expenditures/GDP b) ICRG index of the quality of government	There is a positive and robust correlation between financial depth and economic growth in countries with small and intermediate financial sectors. There is a threshold (80-100% of GDP) above which finance starts having a negative effect on economic growth. When institutional quality is low, credit to the private sector is never statistically significant. When institutional quality is high, financial depth has a positive effect on GDP growth when private credit/GDP is below 20% of GDP. The effect becomes negative at 70% of GDP.
Cecchetti and Kharroubi (2012)	1980-2009; 50 advanced and emerging economies	panel analysis	a) private credit/GDP b) private credit by banks/GDP c) financial intermediation share in total employment	government consumption/GDP	More finance is not always better; financial sector has an inverted U-shaped effect on productivity growth. In addition, faster growth in finance is bad for aggregate real growth.

APPENDIX B: Countries included in the regressions

EU15	***EU13***	***Transition economies***	***Latin American countries***
Austria	Bulgaria	Albania	Argentina
Belgium	Croatia	Armenia	Bolivia
Denmark	Cyprus	Georgia	Brazil
Finland	Czech Republic	Kazakhstan	Chile
France	Estonia	Kyrgyz Republic	Colombia
Germany	Hungary	Russian Federation	Mexico
Greece	Latvia	Turkey	Paraguay
Ireland	Lithuania		Peru
Italy	Malta		Uruguay
Luxembourg	Poland		Venezuela
Netherlands	Romania		
Portugal	Slovak Republic		
Spain	Slovenia		
Sweden			
United Kingdom			

APPENDIX C: Variables included in the regressions

Variable	***Description***	***Source***	***Name in STATA***
Liquid liabilities/GDP	Ratio of liquid liabilities to GDP, calculated using the following deflation method: {(0.5)*[Ft/P_et + Ft-1/P_et-1]}/[GDPt/P_at] where F is liquid liabilities, P_e is end-of period CPI, and P_a is average annual CPI	Beck, Demirgüç-Kunt and Levine (2000)	llgdp
Private credit by deposit money banks/ GDP	Private credit by deposit money banks to GDP, calculated using the following deflation method: {(0.5)*[Ft/P_et + Ft-1/P_et-1]}/[GDPt/P_at] where F is credit to the private sector, P_e is end-of period CPI, and P_a is average annual CPI	Beck, Demirgüç-Kunt and Levine (2000)	pcrdbgdp
Bank deposits / GDP	Demand, time and saving deposits in deposit money banks as a share of GDP, calculated using the following deflation method: {(0.5)*[Ft/P_et + Ft-1/P_et-1]}/[GDPt/P_at] where F is demand and time and saving deposits, P_e is end-of period CPI, and P_a is average annual CPI	Beck, Demirgüç-Kunt and Levine (2000)	bdgdp
Bank overhead costs/ total assets	Accounting value of a bank's overhead costs as a share of its total assets.	Beck, Demirgüç-Kunt and Levine (2000)	overhead
Net interest margin	Accounting value of bank's net interest revenue as a share of its interest-bearing (total earning) assets.	Beck, Demirgüç-Kunt and Levine (2000)	nim
Bank concentration	Assets of three largest banks as a share of assets of all commercial banks.	Beck, Demirgüç-Kunt and Levine (2000)	concentration
Deposit money bank assets/GDP	Claims on domestic real nonfinancial sector by deposit money banks as a share of GDP, calculated using the following deflation method: {(0.5)*[Ft/P_et + Ft-1/P_et-1]}/[GDPt/P_at] where F is deposit money bank claims, P_e is end-of period CPI, and P_a is average annual CPI	Beck, Demirgüç-Kunt and Levine (2000)	dbagdp
Bank crisis	Banking crisis is defined as systemic if two conditions are met: a) significant signs of financial distress in the banking system (as indicated by significant bank runs, losses in the banking system, and/or bank liquidations); b) significant banking policy intervention measures in response to significant losses in the banking system.	Laeven and Valencia (2012)	crisis
General government final consumption expenditure (% of GDP)	General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and	World Bank (2010)	g

Variable	*Description*	*Source*	*Name in STATA*
	security, but excludes government military expenditures that are part of government capital formation.		
General government final consumption expenditure (annual % growth)	Annual percentage growth of general government final consumption expenditure based on constant local currency.	World Bank (2010)	g_growth
Government spending	The expenditure equation used is: $GE_i = 100 - \alpha(Expenditures_i)^2$ where GEi represents the government expenditure score in country *i*; Expendituresi represents the total amount of government spending at all levels as a portion of GDP (between 0 and 100); and α is a coefficient to control for variation among scores (set at 0.03). The minimum component score is zero. Higher score represents a better result.	Heritage Foundation (2011)	gspend
General government expenditure/GDP	...	IMF (2011)	gexpend
General government deficit/surplus in GDP	...	IMF (2011)	gdef
General government debt/GDP	...	IMF (2011)	gdebt
Government consumption share of PPP converted GDP per capita at current prices	…	Heston et al. (2011)	gshare
General government revenue/GDP	...	IMF (2011)	grevenue
Government effectiveness	Indicator capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such	Kaufman, Kraay and Mastruzzi (2009)	gef

Variable	*Description*	*Source*	*Name in STATA*
	policies.		
Voice and accountability	Indicator capturing perceptions of the extent to which country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.	Kaufman, Kraay and Mastruzzi (2009)	voice
Rule of law	Measuring perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	Kaufman, Kraay and Mastruzzi (2009)	law
Control of corruption	Measuring perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.	Kaufman, Kraay and Mastruzzi (2009)	ctrl
GDP p.c. growth rate	Annual percentage growth rate of GDP per capita based on constant local currency.	World Bank (2010)	gdp_growth
GDP p.c. (PPP)	GDP per capita based on purchasing power parity (PPP). Data are in constant 2005 international dollars.	World Bank (2010)	gdp
Money market interest rate	…	IMF (2011)	mmint
Inflation (consumer prices, annual %)	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.	World Bank (2010)	cpi
Investment	Gross fixed capital formation as a percentage of GDP.	World Bank (2010)	investment
Openness	Share of trade in GDP.	World Bank (2010)	trade
Human capital	Secondary school enrolment (% gross). Tertiary school enrolment (% gross).	World Bank (2010)	secondary tertiary

APPENDIX D: Determinants of net interest margin - government variables

Table D1. Old EU member states

	General government final consumption expenditure (% of GDP)	*General government final consumption expenditure (annual % growth)*	*Government spending*	*General government expenditure/GDP*	*General government deficit/surplus in GDP*	*General government debt/GDP*	*Government consumption share of PPP converted GDP per capita at current prices*	*General government revenue/GDP*
Government	0.045*	-0.019	-0.013***	0.022	-0.030*	0.003	0.019	0.009
variable	(0.023)	(0.023)	(0.005)	(0.014)	(0.018)	(0.004)	(0.017)	(0.006)
Net interest	0.551***	0.590***	0.481***	0.564***	0.569***	0.582***	0.578***	0.586***
margin (t-1)	(0.062)	(0.060)	(0.069)	(0.061)	(0.060)	(0.061)	(0.060)	(0.066)
Liquid	0.065**	0.049*	0.066**	0.073**	0.050*	0.055*	0.045	0.036
liabilities/GDP	(0.030)	(0.029)	(0.031)	(0.033)	(0.028)	(0.032)	(0.028)	(0.029)
Bank	-0.007	-0.006	-0.011*	-0.008	-0.002	-0.008	-0.007	-0.008
assets/GDP	(0.005)	(0.006)	(0.007)	(0.006)	(0.005)	(0.007)	(0.006)	(0.005)
Private	0.008	0.007	0.016**	0.010*	0.003	0.009	0.008	0.009*
credit/GDP	(0.005)	(0.005)	(0.006)	(0.006)	(0.005)	(0.008)	(0.006)	(0.005)
Bank	-0.068**	-0.053*	-0.069**	-0.075**	-0.055**	-0.059*	-0.050*	-0.039
deposits/GDP	(0.028)	(0.027)	(0.030)	(0.031)	(0.027)	(0.030)	(0.027)	(0.027)
Overhead costs	0.124***	0.122***	0.105***	0.116***	0.107***	0.114***	0.013***	0.137***
	(0.039)	(0.040)	(0.040)	(0.039)	(0.039)	(0.041)	(0.040)	(0.041)
Concentration	0.002	0.004	0.004	0.003	0.006**	0.004	0.005*	0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Crisis	-0.399*	-0.410*	-0.458**	-0.431*	-0.413*	-0.411*	-0.446**	-0.460**
	(0.218)	(0.224)	(0.220)	(0.221)	(0.225)	(0.227)	(0.226)	(0.223)
GDP p.c.	9.9e-06	2.70e-07	-0.00002*	-1.30e-06	5.21e-06	5.90e-06	1.11e-06	-7.04e-06
	(0.00001)	(0.00002)	(0.00002)	(0.00001)	(0.00001)	(0.00002)	(0.00001)	(0.00001)
GDP p.c.	-0.061**	-0.068**	-0.049	-0.056*	-0.068**	-0.071**	-0.078***	-0.052*
growth rate	(0.030)	(0.031)	(0.031)	(0.031)	(0.030)	(0.030)	(0.029)	(0.032)
Inflation	0.062	0.062	0.025	0.072*	0.064	0.047	0.048	0.002
	(0.040)	(0.045)	(0.041)	(0.043)	(0.040)	(0.040)	(0.040)	(0.040)
Money market	0.119**	0.101*	0.100*	0.118**	0.177***	0.118**	0.107**	0.034
interest rate	(0.052)	(0.054)	(0.054)	(0.052)	(0.060)	(0.053)	(0.053)	(0.051)
Countries	12	12	12	12	12	12	12	12
Observations	126	126	113	126	124	125	126	117

Notes. First step GMM results. All regressions include common time effects. Bank-specific variables are treated as endogenous and instrumented with two lags. Standard errors in parentheses. Significance at the 1/5/10% level is indicated by ***/**/*. Constant not reported.

Table D2. New EU member states

	General government final consumption expenditure (% of GDP)	*General government final consumption expenditure (annual % growth)*	*Government spending*	*General government expenditure/GDP*	*General government deficit/surplus in GDP*	*General government debt/GDP*	*Government consumption share of PPP converted GDP per capita at current prices*	*General government revenue/GDP*
Government variable	-0.020	0.001	0.002	0.030	0.017	0.0002	-0.085	-0.001
	(0.030)	(0.011)	(0.007)	(0.020)	(0.030)	(0.005)	(0.057)	(0.014)
Net interest margin (t-1)	0.499***	0.503***	0.503***	0.496***	0.487***	0.438***	0.494***	0.521***
	(0.057)	(0.057)	(0.057)	(0.056)	(0.058)	(0.059)	(0.056)	(0.054)
Liquid liabilities/GDP	0.202***	0.196***	0.198***	0.199***	0.187***	0.168***	0.173***	0.188***
	(0.039)	(0.038)	(0.038)	(0.038)	(0.040)	(0.038)	(0.041)	(0.037)
Bank assets/GDP	0.031	0.026	0.025	0.016	0.025	0.015	0.007	0.025
	(0.025)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.025)	(0.022)
Private credit/GDP	-0.004	0.001	0.002	0.010	-0.001	0.009	0.012	0.004
	(0.021)	(0.020)	(0.020)	(0.020)	(0.020)	(0.021)	(0.020)	(0.018)
Bank deposits/GDP	-0.229***	-0.222***	-0.223***	-0.227***	-0.217***	-0.190***	-0.196***	-0.216***
	(0.043)	(0.042)	(0.042)	(0.045)	(0.043)	(0.042)	(0.045)	(0.040)
Overhead costs	0.139***	0.147***	0.149***	0.129***	0.157***	0.193***	0.159***	0.124***
	(0.046)	(0.045)	(0.045)	(0.045)	(0.045)	(0.049)	(0.045)	(0.042)
Concentration	0.008	0.008	0.007	0.009	0.004	0.004	0.008	0.010*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)
Crisis	-0.529**	-0.549**	-0.625	-0.580**	-0.539*	-0.662**	-0.451	-0.461*
	(0.281)	(0.287)	(0.287)	(0.274)	(0.280)	(0.267)	(0.289)	(0.270)
GDP p.c.	0.00002	0.00002	0.00003	0.00001	0.00008	0.00001	0.00004	0.00004
	(0.00008)	(0.00008)	(0.00008)	(0.00008)	(0.00009)	(0.00008)	(0.00008)	(0.00008)
GDP p.c. growth rate	-0.037	-0.036	-0.045**	-0.357	-0.053	-0.048**	-0.047**	-0.041*
	(0.025)	(0.024)	(0.022)	(0.023)	(0.023)	(0.022)	(0.022)	(0.021)
Inflation	-0.111***	-0.107***	-0.105***	-0.100***	-0.100***	-0.097***	-0.093***	-0.096***
	(0.022)	(0.023)	(0.021)	(0.021)	(0.021)	(0.020)	(0.022)	(0.020)
Money market interest rate	0.129***	0.131***	0.128***	0.128***	0.126***	0.128***	0.129***	0.121***
	(0.014)	(0.015)	(0.014)	(0.013)	(0.014)	(0.014)	(0.014)	(0.013)
Countries	11	11	11	11	11	11	11	11
Observations	121	120	120	121	119	120	121	118

Notes. First step GMM results. All regressions include common time effects. Bank-specific variables are treated as endogenous and instrumented with two lags. Standard errors in parentheses. Significance at the 1/5/10% level is indicated by ***/**/*. Constant not reported.

Table D3. Other transition economies

	General government final consumption expenditure (% of GDP)	*General government final consumption expenditure (annual % growth)*	*Government spending*	*General government expenditure/GDP*	*General government deficit/surplus in GDP*	*General government debt/GDP*	*Government consumption share of PPP converted GDP per capita at current prices*	*General government revenue/GDP*
Government variable	-0.095	0.001	-0.029	-0.086*	-0.014	0.002	0.151	0.078**
	(0.061)	(0.025)	(0.029)	(0.048)	(0.080)	(0.009)	(0.118)	(0.034)
Net interest margin (t-1)	0.428***	0.204**	0.464***	0.414***	0.452***	0.370***	0.455***	0.407***
	(0.067)	(0.091)	(0.070)	(0.070)	(0.068)	(0.060)	(0.067)	(0.075)
Liquid liabilities/GDP	0.203***	0.178***	0.098	0.236***	0.201**	0.207***	0.178**	0.179**
	(0.078)	(0.065)	(0.109)	(0.082)	(0.087)	(0.068)	(0.081)	(0.087)
Bank assets/GDP	0.151*	0.257***	0.080	0.190**	0.139	0.156**	0.144*	0.148*
	(0.083)	(0.073)	(0.121)	(0.087)	(0.089)	(0.070)	(0.084)	(0.088)
Private credit/GDP	-0.003	-0.080	0.024	-0.029	-0.077	0.008	-0.006	-0.254
	(0.066)	(0.058)	(0.080)	(0.068)	(0.081)	(0.059)	(0.068)	(0.071)
Bank deposits/GDP	-0.375***	-0.399***	-0.202	-0.415***	-0.362***	-3.384***	-0.339***	-0.331***
	(0.105)	(0.087)	(0.166)	(0.110)	(0.113)	(0.090)	(0.107)	(0.118)
Overhead costs	0.277*	0.375***	0.118	0.310**	0.190	0.239**	0.157	0.097
	(0.142)	(0.124)	(0.151)	(0.147)	(0.136)	(0.114)	(0.137)	(0.144)
Concentration	-0.006	-0.008	-0.009	-0.007	-0.006	-0.009	-0.008	-0.008
	(0.011)	(0.010)	(0.013)	(0.012)	(0.012)	(0.011)	(0.012)	(0.123)
Crisis	-2.671***	-3.397***	-2.160**	-2.835***	-2.811***	-3.486***	-2.700***	-2.525***
	(0.818)	(0.688)	(0.967)	(0.822)	(0.860)	(0.716)	(0.834)	(0.866)
GDP p.c.	-0.0003	-0.0004	-0.0005	-0.0004	-0.0003	-0.0003	-0.0002	-0.0005
	(0.0004)	(0.0003)	(0.0004)	(0.0003)	(0.0004)	(0.0003)	(0.0004)	(0.0004)
GDP p.c. growth rate	0.135***	0.161***	0.119**	0.137***	0.148***	0.160***	0.150***	0.184***
	(0.047)	(0.043)	(0.057)	(0.048)	(0.051)	(0.046)	(0.048)	(0.033)
Inflation	-0.021	0.003	-0.021	-0.023	-0.023	-0.022	-0.025	-0.028
	(0.022)	(0.021)	(0.024)	(0.023)	(0.023)	(0.019)	(0.023)	(0.025)
Money market interest rate	0.166***	0.171***	0.155***	0.178***	0.168***	0.186***	0.170***	0.184***
	(0.030)	(0.026)	(0.033)	(0.030)	(0.031)	(0.025)	(0.030)	(0.033)
Countries	7	6	7	7	7	7	7	7
Observations	79	68	76	79	79	78	79	75

Notes. First step GMM results. All regressions include common time effects. Bank-specific variables are treated as endogenous and instrumented with two lags. Standard errors in parentheses. Significance at the 1/5/10% level is indicated by ***/**/*. Constant not reported

DETAILED SUMMARY (DALJŠI POVZETEK)

Cilj doktorske disertacije je bil proučevati povezavo med državo in finančnim posredništvom bank in opazovati vpliv te povezave na gospodarsko rast. Povezavo smo proučevali z različnih zornih kotov:

- pregled literature o povezavi med finančnim posredništvom bank in gospodarsko rastjo;
- pregled literature o povezanosti med državo in bankami s politično ekonomskega vidika, s poudarkom na državnih in tržnih nepopolnostih;
- empirična analiza stroškov finančnega posredništva bank kot pokazatelja operativne učinkovitosti bank v smislu gospodarske rasti;
- empirična analiza povezave med državo, bankami in gospodarsko rastjo;
- analiza povezanosti bank in države na Hrvaškem s politično ekonomskega vidika.

Iz pregleda literature o povezavi med finančnim posredništvom bank in gospodarsko rastjo v prvem poglavju izhaja, da so mnenja ekonomistov o tem različna. Na eni strani obstajajo ekonomisti, ki so mnenja, da se finančnim dejavnikom pripisuje prevelik pomen. Na drugi strani pa so ekonomisti, ki trdijo, da so finance pomemben dejavnik gospodarske rasti.

V skladu s teorijo lahko finančni sistem vpliva na gospodarsko rast zlasti na tri načine: 1) z ustvarjanjem spodbud za akumulacijo fizičnega in človeškega kapitala; 2) z usmerjanjem kapitala v najbolj produktivne dejavnosti; 3) z zmanjševanjem stroškov v procesu posredovanja med posojilojemalci in posojilodajalci. Finančni sistem z alokacijo kapitala med najbolj inovativne podjetnike vpliva na stopnjo tehnološkega napredka. S preoblikovanjem prihrankov v investicije določen del teh sredstev absorbira finančni sistem, zato se ena enota prihrankov odrazi na manj kot eni enoti investicij. Razliko predstavlja zaslužek finančnih posrednikov (v primeru bank je to razlika med obrestnimi merami). V kolikor finančni razvoj povzroči znižanje stroškov finančnega posredništva, se ravnotežna stopnja rasti zviša.

Pregled empirične literature je pokazal na določene pomanjkljivosti. V večini člankov je finančni sistem obravnavan kot statičen, kar pomeni, da se odnos med agentom in posrednikom ne spreminja skozi čas, kar pa ni nujno tako. Statičen odnos zahteva nespremenjeno raven finančne globine v času rasti gospodarstva, kar pa je v nasprotju z empiričnimi raziskavami. Večina modelov tudi predpostavlja popolno konkurenčni bančni sistem, medtem ko je za bančne sisteme dejansko značilna monopolistična konkurenca. Nekateri avtorji tudi upoštevajo trg vrednostnih papirjev, vendar pa se morajo običajno agenti v modelih odločati med bankami in vrednostnimi papirji, kar pa se medsebojno izključuje. Pomanjkljivost modelov je tudi ta, da velikokrat ne podajajo dobrega opisa dejanskega stanja.

Modeli kot pomemben dejavnik investicij izpostavljajo dostopnost sredstev, vendar so pomembni tudi drugi dejavniki, in sicer makroekonomska stabilnost, javne investicije, devizni tečaj, negotovost, itd. Splošno sprejeto je prepričanje, da banke posojajo uspešnim podjetjem. To drži, saj bi se v nasprotnem primeru banke znašle v težavah. Predpostavka modelov je tudi, da banke posojajo sredstva podjetnikom, ki so pravkar pričeli opravljati svojo dejavnost. Nujno tudi ni, da so družbeno najbolj produktivne dejavnosti donosne za banke, prav tako projekti z velikim donosom nimajo nujno velikih družbenih donosov. Nadalje teoretični modeli pri poudarjanju vloge bank pri izboljšanju korporativnega upravljanja zanemarjajo problem principala in agenta. Modeli tudi zanemarjajo dejstvo, da se industrija financira večinoma z lastnimi sredstvi. Težko je oceniti, ali je dejanski problem na strani bank, ker ne ponujajo dovolj sredstev, ali v nezadostnem povpraševanju po teh sredstvih.

Sklenemo lahko, da empirične raziskave ne dajejo jasnih odgovorov o pomenu finančnega posredništva bank za gospodarsko rast. Ugotovitve se razlikujejo glede na proučevane države v vzorcu, uporabo različnih kontrolnih spremenljivk in ekonometričnih metod, glede na stopnjo gospodarskega razvoja, itd. Napredek na področju raziskav je bil napravljen zlasti na področju uporabe ekonometričnih metod, namenitvi več pozornosti nelinearnosti in heterogenosti ter vključitvi tranzicijskih gospodarstev v analizo. Napredek je počasen in zdi se, da se raziskovalci vrtijo v začaranem krogu, predvsem kar se tiče proučevanja vzročne povezave med financami in gospodarsko rastjo. Ključno vprašanje ostaja brez odgovora: ali so finance pomembne za rast; zakaj imajo nekatere države finančne sisteme, ki pospešujejo rast, druge pa ne? Potrebno je ugotoviti, kdaj in pod kakšnimi pogoji ima finančni sistem pozitiven vpliv na gospodarsko rast in kaj določa njegovo učinkovitost.

Vloga države je pri proučevanju povezave med financami in rastjo premalo poudarjena. Tega številni avtorji v svojih raziskavah niso opazili. Država pogosto vstopa v regresijske modele v obliki državne potrošnje v BDP (t. j. velikost države). Iz raziskav smo ugotovili, da lahko država vpliva na rezultate tudi prek politične stabilnosti in institucionalnih spremenljivk kot so lastninske pravice, korupcija, administrativne ovire in učinkovitost birokracije. Raziskave v veliki meri zanemarjajo vlogo države in njeno intervencijo na finančnih trgih. Državna intervencija je v bančnem sektorju večja kot v drugih sektorjih, saj je bančni sistem pomemben za gospodarstvo in pomemben vir financiranja. Država se pri tem lahko znajde v navzkrižju interesov, saj je istočasno regulator bančnega sistema, hkrati pa bančni sistem predstavlja njen vir financiranja. V drugem poglavju smo poskušali opredeliti možne "skrite" dejavnike, ki jih teorija financ in rasti ter empirične raziskave ne omenjajo. Poglavje smo razdelili na pet delov: 1) tržne nepopolnosti na finančnem trgu; 2) finančna represija; 3) finančna liberalizacija in bančne krize; 4) značilnost javnega upravljanja; in 5) interesne skupine. Gre za nov pristop k proučevanju, na podlagi katerega lahko ugotovimo, da obstajajo dovolj utemeljeni razlogi, da finančno posredništvo bank nima nujno pozitivnega vpliva na gospodarsko rast.

Prvič, za finančne trge so značilni problemi moralnega hazarda, napačne izbire in omejene konkurence. Čeprav so lahko za odpravo nekaterih tržnih nepopolnosti državni posegi na trgu upravičeni, to še ne pomeni njihove splošne upravičenosti. Kot primer lahko navedemo finančno represijo. Politike, ki so usmerjene v nadzor kapitalskih tokov, omejitve glede vstopa, visoke rezerve in likvidnostne zahteve, obrestne mere ter v omejevanje kreditov, lahko povzročijo distorzijo v finančnem posredništvu in posledično vplivajo na učinkovitost alokacije sredstev ter negativno vplivajo na rast. Finančna represija se običajno ne izvaja z namenom odprave tržnih nepopolnosti, zato obstaja dvom, v kolikšni meri lahko izboljša delovanje finančnega posredništva. Ko gre za državno lastništvo bank, se izkaže, da tega ni možno povezati s pozitivnimi učinki. Vendar pa povezava med državnim lastništvom bank in nižjo rastjo BDP-ja ne drži za vse države. Odvisna je tudi od finančnega razvoja države in političnih institucij.

Finančna liberalizacija predstavlja odpravo prej omenjenih omejitev finančnega posredništva. Po liberalizaciji bi morali konkurenca in tržna učinkovitost zagotoviti primerno delovanje dereguliranega finančnega sistema. Ključni problem je, da ni mogoče trditi, da bo dereguliran finančni sistem učinkovit. V popolnoma liberaliziranem finančnem sistemu obstaja tveganje neustrezne alokacije sredstev in možnost zloma finančnega sistema. Pojavijo se lahko bančne krize (problemi solventnosti) in bančne panike (likvidnostni problemi). Bančne krize so lahko precej številčne in drage, kar je še posebej škodljivo za države v razvoju. Poleg tega, da vplivajo na rast, imajo tudi velike fiskalne stroške. Po vsaki krizi se pojavijo še večje zahteve po regulaciji in bolj skrbnejšemu nadzoru, da ne bi prihajalo do novih kriz. Državna intervencija je v času bančne krize usmerjena v preprečevanje zloma finančnega sistema in morebitne izgube državljanov. Raziskovalci pogosto zanemarjajo negativno stran financ, ko proučujejo povezavo med financami in rastjo. Številne bančne krize so še en dokaz več, da povezava med finančnim posredništvom in rastjo ni nujno pozitivna.

Država je lahko pri odpravi tržnih nepopolnosti tudi neuspešna. Implicitna predpostavka ukrepov, ki so usmerjeni v finančni sistem, je prizadevanje države za skupno blaginjo, vendar takšno delovanje ne upošteva dejavnikov, s katerimi se snovalci ekonomskih politik soočajo, niti političnega sistema, v katerem le-ti delujejo. Postavlja se vprašanje, kako lahko snovalci ekonomskih politik odpravijo tržne nepopolnosti, če delujejo v zasebno korist? Nadalje: kakšna je verjetnost sprejetja ustrezne finančne politike, če pa je le-ta v nasprotju z interesi politikov, ki so trenutno na oblasti? Velikokrat so prav osebni interesi politikov povzročili težave v finančnem sistemu, kar je povzročilo krizo ali prenos bančnih sredstev v državno last zaradi političnih in osebnih razlogov.

Tudi upravičena intervencija države lahko pripelje do pridobivanja koristi. V teoriji se pridobivanje koristi povezuje predvsem z ugodnostmi, ki izhajajo iz regulacije, monopola in tarif. Ekonomska teorija regulacije ali zasebna teorija interesov temelji na predpostavki, da je za regulatorni proces značilno tekmovanje različnih interesnih skupin, ki poskušajo s pomočjo

države pridobiti določene koristi na račun drugih skupin. Interesne skupine so lahko tako močne, da lahko regulatorje ujamejo v mrežo svojih interesov. Nedelovanje regulatornega okvira je možno delno pojasniti tudi s tem, da so politiki in regulatorji stalno ujetniki interesov tistih, ki bi morali biti regulirani. V tem primeru regulatorna politika služi zasebni in ne družbeni koristi. Kljub na videz strogi regulaciji lahko obstajajo luknje v zakonu.
Bančniki so vedno imeli tesen odnos s politiki, najpogosteje kot njihovi svetovalci, saj so imeli dobro tehnično znanje o financah. Povezava je še toliko bolj močna, saj so bili državni uradniki pogosto na vodilnih položajih v bankah. Banke so bile preko vpliva na politiko zainteresirane za doseganje svojih lastnih interesov, hkrati pa so želele ostati neodvisne od države. Banke lahko vplivajo na države in regulatorje pri oblikovanju predpisov, ki bi bili namesto v zagotavljanje družbene blaginje usmerjeni v zasledovanje njihovih lastnih interesov. Banke lahko vplivajo na politike in regulatorje, da namesto v interesu družbe delujejo v interesu bank. Uspešnost interesnih skupin je pogojena z interesi politikov in strukturo institucij. Poleg lobiranja in financiranja političnih kampanj je lahko vpliv dosežen tudi preko podkupnin.

Za državne uradnike je značilno, da niso benevolentni družbeni planerji, zato bodo, v kolikor jim zakon to dovoljuje, poskušali povečati svoje lastno bogastvo in ne družbene blaginje. Za pridobitev določenih koristi so pripravljeni sodelovati z različnimi interesnimi skupinami. Na drugi strani imamo bankirje, ki so predvsem pragmatične interesne skupine. Ti bodo s svojo močjo, ne glede na vpliv na agregatno gospodarsko aktivnost, skušali povečati dobiček. Država nastopa kot regulator bančnega sistema (ki je eden izmed najbolj reguliranih sektorjev), vendar lahko pri tem banke regulatorja ujamejo v mrežo svojih interesov. Poleg tega si lahko bančniki in politiki delijo določene koristi, o katerih se medsebojno dogovorijo. Ko gre za močno vpletenost države v finančno posredništvo, obstaja malo razlogov za optimizem, vendar pa bi bile lahko posledice popolnega umika države tudi škodljive.

Odnos med državo in bankami je veliko bolj zapleten, kot je predstavljen v običajnih empiričnih študijah s področja financ in rasti. V tretjem in četrtem poglavju smo poskušali ugotovitve iz drugega poglavja bolj skrbno proučiti v luči povezave med finančnim posredništvom bank in gospodarsko rastjo. V ta namen smo proučili dejavnike, ki vplivajo na stroške finančnega posredništva bank in gospodarsko rast. Oblikovali smo empirični model z različnimi državnimi in tržnimi nepopolnostmi in ga uporabili za proučevanje povezave med financami in rastjo.

Kot približek za stroške finančnega posredništva smo uporabili neto obrestno maržo, ki je tudi pokazatelj operacijske učinkovitosti bank. Banke zbirajo sredstva in jih preusmerjajo od posojilodajalcev k posojilojemalcem. Z vidika družbene blaginje je pomembno, da so stroški finančnega posredništva čim manjši. Manjši stroški pomenijo večjo operativno učinkovitost finančnega posredništva, saj je razlika med neto donosom na posojanje in bruto stroški izposojanja manjša. Tako se povečata posojanje in izposojanje, kot tudi varčevanje in

investicije. Ob visoki bančni marži lahko postanejo stroški uporabe finančnega sistema za določene posojilojemalce previsoki. Zaradi previsokih stroškov pridobivanja sredstev, so lahko ogroženi zlasti najbolj donosni projekti, kar povzroči znižanje agregatnih investicij in posledično gospodarske rasti.

Empirično analizo dejavnikov neto obrestne marže smo izvedli na vzorcu starih in novih držav članic EU (in Hrvaške) ter sedmih drugih tranzicijskih gospodarstev za obdobje med letoma 1996 in 2009. Pri analizi smo uporabili metodo posplošenih momentov. Rezultati so potrdili naše hipoteze z nekaterimi manjšimi odstopanji. Prvič, večja vpletenost države v gospodarstvo ima v povprečju negativen učinek na stroške finančnega posredništva bank, saj pride do njihovega povišanja. Druga hipoteza je bila, da so posledice vpletenosti države v gospodarstvo na stroške finančnega posredništva bolj izrazite v državah z bolj razširjeno korupcijo. Rezultati kažejo, da se ta dva učinka seštevata posebej. Država negativno vpliva na neto obrestno maržo s svojo velikostjo (javne finance) in korupcijo. Z drugimi besedami povedano, negativni učinki so bolj izraziti, če je država hkrati velika in koruptivna. Povezava med velikostjo države in korupcijo ni bila statistično značilna. Čeprav so za pojasnjevanje dejavnikov neto obrestne marže nekateri raziskovalci v regresijskih modelih že uporabili institucije in velikost države, njihove raziskave niso temeljile na uporabi številnih približkov za velikost države, niti na opazovanju agregatnega vpliva države v smislu njene velikosti in institucionalnih značilnosti. Dodana vrednost naše analize je primerjava med starimi in novimi članicami EU kot tudi uporaba drugih tranzicijskih gospodarstev kot kontrolne skupine. Novost naše raziskave je tudi proučevanje vpliva države na gospodarsko rast preko neto obrestne marže, ki je pokazatelj finančne učinkovitosti. Pretekle raziskave s področja dejavnikov neto obrestne marže v večini niso temeljile na uporabi dinamične panelne analize.

Negativen vpliv velikosti države lahko izhaja iz več virov, ki pa niso posebej analizirani v doktorski disertaciji. Prvič, država financira svojo potrošnjo z neposredno in posredno obdavčitvijo bank. Banke nato poskušajo svojo davčno obveznost v največji možni meri prevaliti na stranke, tako da povišajo aktivne obrestne mere ali različne provizije, kar nazadnje povzroči povišanje stroškov finančnega posredništva. Drugi način je, da lahko država spodbuja banke k nakupu državnih obveznic. Banke nato nizke obrestne mere na državna posojila nadomestijo z zaračunavanjem višjih obrestnih mer zasebnemu sektorju, kar poveča stroške finančnega posredništva za gospodarstvo. Običajno obsežne programe državnih izdatkov spremljajo strogi predpisi, ki lahko zavirajo delovanje zasebnega sektorja, obenem pa lahko zahtevajo tudi višjo stopnjo obdavčitve. Če so obsežni programi državnih izdatkov slabo zasnovani, so lahko tudi kontraproduktivni, poleg tega pa lahko odpirajo nove možnosti za pridobivanje koristi. Zviševanje državnih izdatkov lahko povzroči tudi povečanje deželnega tveganja.

Negativen vpliv korupcije izhaja predvsem iz dveh virov. Banke povišajo svojo obrestno maržo, da bi se zaščitile pred tveganji, ki so posledica razširjene korupcije (različna

regulatorna izkrivljanja, neskladnost v politikah, ki so usmerjene v finančni sistem, vprašljiva neodvisnost denarne politike, itd.). Drugič, istočasno lahko predpostavljamo, da korupcija omogoča lažje delovanje zlasti velikih interesnih skupin (kot npr. bank). Če so oblikovalci ekonomskih politik nagnjeni k zlorabi oblasti za dosego lastnih koristi, lahko v tem položaju interesne skupine hitro dosežejo svoj vpliv. Možno je tudi, da banke vplivajo na oblikovalce ekonomskih politik preko regulacije in/ali monopolnega položaja z namenom po pridobitvi določenih koristi, ki si jih nato obe strani delita. V obeh primerih pride do povišanja stroškov finančnega posredništva.

Na podlagi naših rezultatov smo ugotovili, da je eden izmed ključnih dejavnikov neto obrestne marže operativna učinkovitost (režijski stroški), kar se je izkazalo pri vseh treh skupinah držav. Statistično značilen vpliv ima tudi odložena vrednost neto obrestne marže, kar nakazuje na ustrezno izbiro dinamičnega modela. Med makroekonomskimi spremenljivkami imata v skupini starih držav članic EU in v skupini tranzicijskih gospodarstev statistično značilen vpliv rast BDP na prebivalca in obrestna mera denarnega trga. Rast BDP na prebivalca povzroči znižanje neto obrestne marže, obrestna mera denarnega trga pa jo zviša, kar nakazuje, da so poslovni cikli in denarna politika pomemben dejavnik neto obrestne marže. Inflacija se izkaže za pomembno zgolj v novih državah članicah EU in na Hrvaškem, kjer povzroči znižanje neto obrestne marže. Bančne krize znižajo neto obrestno maržo v vseh treh skupinah gospodarstev, vpliv pa je najmočnejši pri tranzicijskih gospodarstvih.

Ko govorimo o vpletenosti države v gospodarstvo, je pomembna velikost države. V starih državah članicah EU državni izdatki za končno potrošnjo/BDP (spremenljivka World Bank) povišajo neto obrestno maržo, povišata pa jo tudi državna potrošnja (spremenljivka Heritage Foundation) in državni deficit/BDP. Ne preseneča tudi ugotovitev, da institucionalne spremenljivke v državah EU15 nimajo statistično značilnega vpliva, saj so te države znane po dobri institucionalni ureditvi. V skladu s pričakovanji ima nadzor nad korupcijo negativen predznak, kar pomeni, da je boljši nadzor nad korupcijo povezan z nižjo neto obrestno maržo. Večja učinkovitost vlade tudi zniža neto obrestno maržo, medtem ko jo spremenljivka za delovanje pravne države in spremenljivka, ki odraža vlogo državljanov pri izbiri oblasti, povišata. Vse spremenljivke za državo ostajajo statistično značilne, ko so v analizi vključene institucionalne spremenljivke. Ker v visoko razvitih gospodarstvih korupcijo nadomeščajo interesne skupine, smo poskušali ugotoviti, ali ima v državah z večjim deležem bančnih kreditov zasebnemu sektorju državna potrošnja večji vpliv na neto obrestno maržo. Predpostavljali smo, da je vpliv bančnega sektorja preko državnih oblasti močnejši v državah, kjer je izpostavljenost zasebnega sektorja do bank večja.

To predpostavko smo preverili tako, da smo v model vključili člen, ki meri odnos med krediti zasebnemu sektorju/BDP in državnimi izdatki za končno potrošnjo/BDP. Spremenljivki sami po sebi nista imeli statistično značilnega vpliva, statistično značilen vpliv pa je imela njuna

povezava. Pri prvem kvartilu zasebnih kreditov/BDP, povečanje državnih izdatkov za končno potrošnjo/BDP poviša neto obrestno maržo za 0.02 odstotnih točk, kar je ekonomsko neznačilno, medtem ko pri tretjem kvartilu zasebnih kreditov/BDP povečanje državnih izdatkov za končno potrošnjo poviša neto obrestno maržo za 1 odstotno točko. Rezultat je verjetno v skladu s tem, da spremenljivki za vlogo državljanov pri izbiri oblasti in za delovanje pravne države povišata neto obrestno maržo v starih državah članicah EU. Pretekle študije potrjujejo, da demokracija omogoča lažje delovanje interesnih skupin. V visoko razvitih demokratičnih državah korupcijo nadomeščajo interesne skupine. Te države imajo praviloma tudi visoko raven delovanja pravne države.

V nasprotju s pričakovanji imajo v novih državah članicah EU vse spremenljivke, ki smo jih uporabili kot približek za vlogo države, statistično neznačilen vpliv. Rezultati so potrdili naše domneve o močnejšem vplivu institucij v novih državah članicah EU kot v starih članicah. Ko smo v analizo vključili spremenljivko nadzora nad korupcijo, je postal vpliv državnih izdatkov/BDP statistično značilen. Za razliko od držav EU15 vse institucionalne spremenljivke znižajo neto obrestno maržo in imajo statistično značilen vpliv, pri čemer ima spremenljivka za pravno državo najmočnejši učinek. Ko govorimo o interesnih skupinah, odnos med državnimi izdatki/BDP in zasebnimi krediti/BDP ni statistično značilen. Zanimivo je, da v modelih z vključenimi institucijami, bančna koncentracija pridobi na pomenu in poviša neto obrestno maržo.

Kar se tiče vloge države v tranzicijskih gospodarstvih, sta statistično značilni dve spremenljivki: državni prihodki/BDP in državni izdatki/BDP. Državni prihodki/BDP povišajo neto obrestno maržo, državni izdatki/BDP pa jo znižajo. Nenavadno je, da imajo državni izdatki negativen predznak, vendar pa je povprečna vrednost te spremenljivke za 15 odstotnih točk nižja kot v državah članicah EU13 in za 20 odstotnih točk nižja kot v državah EU15. Istočasno pa je neto obrestna marža višja. Na nek način izbira tranzicijskih gospodarstev kot kontrolne skupine za preverjanje naše hipoteze ni ustrezna, saj imaju ta gospodarstva manjšo državo. Tudi potem, ko v model vključimo spremenljivko za nadzor nad korupcijo, državni prihodki in spremenljivka, ki meri vlogo državljanov pri izbiri vlade ohranijo statistično značilen predznak, vendar pa spremenljivki za delovanje pravne države in učinkovitost vlade povzročita, da državni prihodki nimajo več statistično značilnega vpliva. Spremenljivki za nadzor nad korupcijo in delovanje pravne države sta statistično značilni, ko so v model vključeni državni prihodki, medtem ko spremenljivki za vlogo državljanov pri izbiri vlade in učinkovitost vlade nista statistično značilni. Presenetljiv v modelu z državnimi prihodki je ekonomski učinek spremenljivke nadzora nad korupcijo in spremenljivke za delovanje pravne države. Povečanje nadzora nad korupcijo za eno enoto (na raven držav EU15) bi znižal neto obrestno maržo za 2.3 odstotne točke. V primeru spremenljivke za delovanje pravne države, bi bilo to znižanje za 2.9 odstotnih točk. V skupini tranzicijskih gospodarstev so se institucionalne spremenljivke in bančne krize izkazale za najpomembnejše dejavnike neto obrestne marže.

Četrto poglavje je temeljilo na hipotezi, da je vpliv finančnega posredništva bank na gospodarsko rast odvisen od spodbud za potrošnjo in pridobivanje koristi. Spodbude za pridobivanje koristi so pojem, ki pomeni, da posameznik v družbi verjame, da je vpliv preko politike pomemben vir zasebnih koristi, in da snovalci ekonomskih politik podeljujejo določene koristi v zameno za lastne koristi. Da bi posamezniki postali premožnejši in izboljšali svoj položaj, svoja prizadevanja usmerjajo v doseganje ugodnih odločitev vlade. Spodbude za potrošnjo pa pomenijo, da je institucionalna ureditev, v kateri agenti sprejemajo zasebne odločitve, takšna, da imajo zaradi nedelovanja pravne države, razširjene korupcije in razlaščanja države investicijski projekti majhen zasebni donos, kar dodatno spodbuja potrošnjo. V doktorski disertaciji sta pridobivanje koristi in korupcija pojma, ki sta v nasprotju z investicijami in proizvodnjo (produktivni dejavnosti).

Tako kot v tretjem poglavju smo tudi v četrtem poglavju analizo napravili za države članice EU in Hrvaško za obdobje med letoma 1996 in 2009. Za kontrolno skupino smo uporabili sedem tranzicijskih gospodarstev in deset latinsko ameriških gospodarstev. Kot metodološko orodje smo uporabili dinamični model panelnih podatkov, ki smo ga ocenili s posplošeno metodo momentov. Kot približek za potrošnjo in pridobivanje koristi smo uporabili spremenljivko za nadzor nad korupcijo in spremenljivko, ki meri delovanje pravne države (Worldwide Governance Indicators). Dejavnike gospodarske rasti smo razdelili v štiri skupine: "običajni dejavniki", država, finančno posredništvo bank in institucije. V vse regresijske modele smo vključili nepravo spremenljivko za bančne krize. Za finančno posredništvo smo uporabili spremenljivko za finančno globino in finančno učinkovitost.

V starih državah članicah EU neto obrestna marža kot pokazatelj učinkovitosti finančnega posredništva ni statistično značilna. Zasebni krediti/BDP (pokazatelj finančne globine) imajo statistično značilen vpliv v vseh različicah modela in vplivajo na znižanje realne stopnje rasti BDP na prebivalca. Rezultat je robusten glede na uporabo različnih spremenljivk za velikost države kot tudi na uporabo spremenljivke za terciarno izobrazbo (namesto za sekundarno) in na uporabo neprave spremenljivke za bančne krize. Spremenljivka zasebni krediti/BDP ohrani statistično značilnost, tudi ko v model vključimo institucionalne spremenljivke. Ostale statistično značilne spremenljivke so državni izdatki/BDP (negativen predznak), inflacija (negativen predznak), začetni BDP na prebivalca (negativen predznak) in odložena vrednost stopnje rasti (pozitiven predznak). Najmočnejši učinek imajo institucije in začetni BDP na prebivalca. Za razliko od prejšnjega poglavja, kjer smo proučevali dejavnike neto obrestne marže, se tokrat institucije izkažejo za pomembne v državah članicah EU15, kjer povzročijo zvišanje stopnje rasti. Vpliv na rast poteka preko drugih kanalov in ne preko stroškov finančnega posredništva. Odnos med neto obrestno maržo in nadzorom nad korupcijo ter odnos med privatnimi krediti/BDP in nadzorom nad korupcijo ni statistično značilen.

Ker so bile države EU13 v opazovanem obdobju priča številnim gospodarskim in političnim spremembam kot posledica njihovega približevanja EU, je bila gospodarska rast v teh državah drugačna kot v starih državah članicah EU. Pri državah EU13 smo za razliko od držav EU15 (z izjemo institucij) v model postopoma dodajali spremenljivke. Najprej smo v model vključili začetni BDP na prebivalca, bančne krize, neto obrestno maržo, državne izdatke/BDP, inflacijo in investicije/BDP.

Vse spremenljivke z izjemo neto obrestne marže so statistično značilne. Vse spremenljivke z izjemo odložene stopnje rasti in investicij imajo negativen predznak. Bančne krize imajo močan negativen ekonomski učinek, tako kot odložena vrednost BDP na prebivalca, ki pa v primeru držav EU15 nista imeli statistično značilnega vpliva. Ker vpliv neto obrestne marže ni bil statistično značilen, spremenljivka pa je imela pričakovan negativen predznak, smo namesto nje uporabili odloženo vrednost iste spremenljivke, ki pa je nato postala statistično značilna.

Ko smo v model vključili spremenljivko za nadzor nad korupcijo, smo vse spremenljivke z izjemo državnih izdatkov/BDP in investicij/BDP upoštevali za eksogene. Odložena vrednost neto obrestne marže je statistično značilna pri stopnji značilnosti 1%, prav tako tudi bančne krize, državni izdatki/BDP, investicije/BDP, terciarno izobrazbo in nadzor nad korupcijo. Inflacija je statistično značilna pri stopnji značilnosti 5%. Vse spremenljivke z izjemo nadzora nad korupcijo imajo pričakovan predznak: boljši nadzor nad korupcijo je povezan z nižjo gospodarsko rastjo. Enako je pri spremenljivki, ki meri delovanje pravne države. Pri tem ne moremo trditi, da sta nižja raven delovanja pravne države in razširjena korupcija vplivali na višjo gospodarsko rast, ampak lahko z gotovostjo določimo le korelacijo. Obstaja možnost, da je v državah EU13 negativen vpliv korupcije na gospodarsko rast skrit v ozadju spremenljivke za bančne krize. Pokazali smo, da je odnos med nadzorom nad korupcijo in bančnimi krizami statistično značilen pri 5%. Negativni učinek bančnih kriz na gospodarsko rast je šestkrat večji pri nižjih (prvi kvartil) kot pri višjih (tretji kvartil) ravneh nadzora nad korupcijo. V skladu z našim vedenjem, povezava med bančnimi krizami in korupcijo še ni bila uporabljena za pojasnjevanje gospodarske rasti.

Večji obseg zasebnih kreditov/BDP je povezan z nižjimi gospodarskimi rastmi. Edina spremenljivka, ki zasebnim kreditom jemlje njihovo statistično značilnost, je terciarna izobrazba. Zaradi pomanjkanja podatkov pa slednja spremenljivka tudi zmanjša število opazovanj. Tako kot pri neto obrestni marži, je tudi v tem primeru povečanje nadzora nad korupcijo in večje delovanje pravne države povezano z nižjimi gospodarskimi rastmi. Odnos med zasebnimi krediti/BDP in nadzorom nad korupcijo ni statistično značilen.

Rezultati za druga tranzicijska gospodarstva kažejo, da so njihove stopnje rasti precej različne od predhodno obravnavanih gospodarstev. V modelih z neto obrestno maržo kot približkom za finančno posredništvo, sta imeli statistično značilen vpliv samo odložena stopnja rasti in

inflacija. Zaradi pomanjkanja podatkov smo iz modela izključili spremenljivko za izobrazbo. Za razliko od držav EU13, imajo institucije in neto obrestna marža pozitiven predznak, vendar njun vpliv ni statistično značilen. Na drugi strani imajo zasebni krediti/BDP pozitiven predznak in statistično značilen vpliv. Izboljšanje institucionalnega okvira je povezano z višjo gospodarsko rastjo. Poleg zasebnih kreditov/BDP so statistično značilni dejavniki gospodarske rasti še bančne krize, inflacija in investicije. Vključitev terciarne izobrazbe zmanjšuje število opazovanj in spremeni predznak pri zasebnih kreditih/BDP, ki postane negativen, vendar spremenljivka izgubi statistično značilen vpliv. Odnos med neto obrestno maržo in nadzorom nad korupcijo ni statistično značilen, za statistično značilnega pa se izkaže odnos med zasebnimi krediti/BDP in nadzorom nad korupcijo, vendar samo v primeru, ko v modelu ni prisotna spremenljivka za izobrazbo. Ker je koeficient pri tem pozitiven, poleg tega pa se za pozitivnega izkaže tudi koeficient pri zasebnih kreditih/BDP, je pri večjih ravneh nadzora nad korupcijo pozitiven učinek zasebnih kreditov/BDP na gospodarsko rast večji.

Latinskoameriške države niso bile predmet proučevanja doktorske disertacije, ampak smo jih uporabili samo kot primerjalno skupino držav. Rezultati kažejo, da imata v skupini latinskoameriških držav finančna učinkovitost in finančna globina negativen vpliv na gospodarsko rast. Finančna globina postane pomembna, ko v model vključimo spremenljivko za nadzor nad korupcijo. Slednja spremenljivka ima močan pozitiven vpliv na gospodarsko rast. Prav tako je statistično značilen odnos med neto obrestno maržo in nadzorom nad korupcijo. Negativni učinek neto obrestne marže na gospodarsko rast je večji v državah s slabim nadzorom nad korupcijo. Zanimivo je, da sta človeški in fizični kapital bolj pomembna kot spremenljivke ekonomskih politik; terciarna izobrazba in investicije imata pozitiven vpliv na gospodarsko rast. Izkaže se, da bančne krize niso pomembne za rast, čeprav imajo pričakovan negativen predznak. Za razliko od prejšnjih skupin držav (z izjemo tranzicijskih gospodarstev v modelih s finančno globino), je koeficient pri državnih izdatkih/BDP pozitiven.

Nazadnje smo v analizo vključili vse države, da bi ugotovili, ali se vpliv neto obrestne marže na gospodarsko rast razlikuje glede na različne ravni nadzora nad korupcijo. Vse države smo razdelili v dve skupini: na tiste z visoko (nad tretjim kvartilom) in na tiste z nizko (pod prvim kvartilom) stopnjo nadzora nad korupcijo/delovanja pravne države. Koeficient pri neto obrestni marži je negativen pri nadzoru nad korupcijo pod prvim kvartilom in pozitiven nad tretjim kvartilom. V slednjem primeru pa je ekonomsko in statistično neznačilen. Zaključimo lahko, da razširjena korupcija predstavlja dodatno težavo pri vplivu financ na gospodarsko rast. Rezultati tudi kažejo, da je negativen učinek finančne globine na gospodarsko rast večji v državah s slabim nadzorom nad korupcijo. Zasebni krediti so edina spremenljivka, ki je statistično značilna v obeh skupinah držav. Rezultati so robustni, če pri analizi namesto spremenljivke za korupcijo uporabimo spremenljivko za delovanje pravne države. Neto obrestna mera je pomembna samo v državah z nizko stopnjo delovanja pravne države in ima negativen vpliv na gospodarsko rast. Vpliv zasebnih kreditov/BDP na gospodarsko rast je

negativen v obeh skupinah držav, njihov vpliv pa je večji v državah s slabim delovanjem pravne države. Sklenemo lahko, da je vpliv finančnega posredništva bank na gospodarsko rast odvisen od korupcije in delovanja pravne države, kot pokazateljev nagnjenosti k varčevanju in proizvodnji. V državah z večjo nagnjenostjo k potrošnji in pridobivanju koristi finančno posredništvo bank nima pozitivnega vpliva na gospodarsko rast (učinek je negativen), kar velja tako za finančno učinkovitost kot tudi za finančno globino.

Glavna ugotovitev je, da je v obdobju med letoma 1996 in 2009 finančna globina (povečanje posojanja) negativno vplivala na gospodarsko rast v državah EU in na Hrvaškem, v državah EU13 pa je imela negativen vpliv tudi finančna učinkovitost. Dodatno so imele bančne krize ekonomsko in statistično značilen vpliv na realno stopnjo rasti BDP na prebivalca v državah EU13. Rezultati potrjujejo negativen vpliv finančnega posredništva na gospodarsko rast na kratek rok. Rezultati prav tako kažejo na pomembnost vključitve bančnih kriz pri proučevanju povezave med financami in gospodarsko rastjo, česar prejšnje študije niso upoštevale. Rezultati tudi pokažejo, da več financ ni vedno najbolje. Ker je pozitiven učinek finančne globine na gospodarsko rast prisoten samo v skupini tranzicijskih držav, ki nimajo globokih finančnih trgov, je povezava med financami in gospodarsko rastjo zagotovo nelinearna, kar so pokazali že številni avtorji. Naši rezultati so v skladu z "učinkom izginotja" financ, kar so na podlagi najnovejših podatkov potrdili številni avtorji. Državam EU13 lahko povečanje finančne učinkovitosti (nižji stroški finančnega posredništva) koristi, t. j. približevanje vrednostim držav EU15.

Velikost države je imela negativen vpliv na gospodarsko rast, vendar ekonomski učinek ni bil velik. V tem poglavju potrjujemo dvojni negativni učinek države na gospodarsko rast, in sicer neposredni učinek in preko finančne učinkovitosti, kar še ni bilo napravljeno s strani drugih avtorjev. V opazovanem obdobju je imela finančna globina negativen vpliv na gospodarsko rast celo v državah z majhnim deležem korupcije in precejšnjim delovanjem pravne države. Rezultate lahko povežemo z raziskavo, ki so jo izvedli Beck et al. (2008), iz katere izhaja, da je v ozadju pozitivnega vpliva financ na gospodarsko rast dejstvo, da banke posojajo podjetnikom in ne gospodinjstvom.

Zaključimo lahko, da so bila posojila namesto v proizvodnjo usmerjena predvsem v potrošnjo, zaradi česar je bil vpliv zasebnih kreditov/BDP negativen. Finančna učinkovitost je imela pozitiven, a vendar statistično neznačilen vpliv. Podobno kot Cameron (1972) lahko sklenemo, da so banke morda zapravile naložbene priložnosti za neproduktivna posojila.

V doktorski disertaciji pokažemo, da imajo različne skupine držav različne gospodarske rasti, zato je v analizi bolj primerno uporabiti podobne države oziroma proučevati posamezne države v času. Podobnost ni zagotovljena, če opazujemo določeno skupnost držav (npr. EU). Znotraj EU je potrebno proučevati različne skupine držav. V pričujoči raziskavi smo države

razdelili v dve skupini, in sicer na stare in nove države članice EU. Rezultati so verjetno bolj verodostojni, ko proučujemo države s podobnimi institucionalnimi značilnostmi.

Namen zadnjega poglavja je bil s pomočjo ekonometričnega modela opazovati povezavo med državo in bankami na Hrvaškem. Poglavje je bilo razdeljeno na štiri dele: 1) opis regulatornega okvira 2) analiza državnega lastništva bank in njihova privatizacija 3) bančne krize 4) alokacija bančnih virov. Ti elementi nam omogočajo dober vpogled v ozadje povezave med državo in bankami na Hrvaškem, kar predhodno na takšen način še ni bilo proučevano.

Na podlagi petega poglavja lahko podamo več ugotovitev. Prvič, pomanjkanje omejitev na državno oblast (politične pravice in državljanske svoboščine so bile močno kršene v 90 letih), nizka raven delovanja pravne države in majhna transparentnost so na Hrvaškem ustvarili priložnosti za pridobivanje in medsebojno podeljevanje koristi, tudi v bančnem sektorju, kar je bilo še posebej opazno med privatizacijo. Čeprav obstajajo dokazi za mnoge nepravilnosti, ki so se zgodile v času privatizacije bank, nihče še ni bil obsojen.

Drugič, ko je institucionalna ureditev nepopolna (nedelujoča) in je politična korupcija razširjena, lahko interesne skupine (kamor so vključeni tudi bančniki) lažje vplivajo na oblikovanje politik. Finančna in politična elita sta na Hrvaškem prepleteni, kar pomeni, da obstaja močna povezava med državo in bankami, zlasti na področju javnih financ. Poglavje potrjuje, da je vloga države ključnega pomena ob spremembi finančnega sistema. Poleg tega je namen vedno isti, vlada išče sredstva za javno financiranje, da lahko uresničuje svoje politične cilje oziroma ohranja moč. Tako kot na začetku tranzicije so tudi danes banke na Hrvaškem pomemben državni "sponzor". Glavna razlika je, da je danes dobičkonosnost glavni dejavnik kreditne politike bank. Samo ena tretjina vseh bančnih kreditov je namenjena zasebnim podjetjem, ki najbolj pripomorejo h gospodarski rasti.

Pričakujemo lahko, da bo povezava med državo in bankami vedno močna, saj se je v zgodovini izkazalo, da so bančne krize sestavni del finančnega sektorja, kar pomeni, da bodo bančniki vedno pričakovali določeno reševanje s strani države. Dodano so bančniki izkazali zanimanje tudi za spodbujanje deficita, saj od posojanja sredstev državi pričakujejo obresti. Na koncu bo v vsakem primeru račun izstavljen zdajšnjim ali prihodnjim generacijam davkoplačevalcev.

V doktorski disertaciji smo želeli ugotoviti pogoje, ki morajo biti izpolnjeni, za pozitiven vpliv finančnega posredništva bank na gospodarsko rast. Pokazali smo, da je potrebno odpraviti nekatere državne in tržne nepopolnosti. Potrebno je zagotoviti boljši nadzor nad korupcijo, bolj spoštovati načela pravne države, neodvisnost od delovanja interesnih skupin, fiskalno disciplino in bolj uspešno preprečevati bančne krize, za kar pa so potrebne močnejše vlade. Vendar tudi s temi spremembami več financ ne bo pripeljalo do višje gospodarske rasti.

Za spodbujanje gospodarske rasti oblikovalci ekonomskih politik ne bi smeli dajati prednosti politikam, ki so usmerjene v finančni sistem, saj so nedavne empirične raziskave (vključno z našo) pustile dvom na financah kot generatorju rasti.