Charles University in Prague
Faculty of Social Sciences

Institute of Economic Studies

RIGOROUS THESIS

2011 **Anna Krafková**

Charles University in Prague
Faculty of Social Sciences

Institute of Economic Studies

RIGOROUS THESIS

Foreign Bank Participation in Transition Economies
The Effects on Access to Credit

Author: Mgr. Anna Krafková
Supervisor: PhDr. Adam Geršl, PhD.
Academic Year: 2010/2011

Prohlášení

Prohlašuji, že jsem rigorózní práci vypracovala samostatně a použila pouze uvedené prameny a literaturu.

Declaration

Hereby I declare that I compiled this rigorous thesis independently, using only the listed literature and resources.

Prague, 14th February 2011

Anna Krafková

Acknowledgments

I would like to express my gratitude to PhDr. Adam Geršl, PhD. from IES FSV UK for supervising my work.

Abstract

The thesis discusses the topic of foreign bank participation in transition economies. First part presents theoretical considerations about foreign bank entry and their empirical support. The main focus is then on the empirical investigation of the possible relation between the degree of foreign bank participation and the availability of credit across transition countries. Combining responses from a survey of firms operating in 38 transition economies with data on the degree of foreign bank participation, we derived some interesting conclusions. The analysis suggests that conditions for obtaining credit seem to be better in economies having higher share of foreign banks within countries of Central and Eastern Europe. The opposite conclusion was derived for countries of Commonwealth of Independent States; there economies with higher foreign presence tend to perceive conditions of financing as more problematic. Moreover, it was shown that enterprise size, its ownership and sector within which operates also matter when drawing conclusions on the effects on foreign bank on the availability of credit. Additionally, we identified that the share of state-owned banks and the effectiveness of domestic banking sector are other determinants of credit accessibility.

Abstrakt

Rigorózní práce se zabývá tématem přítomnosti zahraničních bank v tranzitivních ekonomikách. První část prezentuje teoretické hypotézy týkající se vstupu zahraničních bank a příslušnou empirickou evidenci. Dále se práce zaměřuje především na empirické testování vztahu mezi dostupností úvěrů a mírou účasti zahraničních bank v tranzitivních ekonomikách. Analýza, která je založena na datech z průzkumu provedeného mezi firmami z 38 zemí, přináší zajímavé výsledky. Odhady naznačují, že země s větším podílem zahraničních bank mají lepší podmínky pro získání úvěru v regionu střední a východní Evropy. Naproti tomu, ekonomiky Společnosti nezávislých států s větší účastí zahraničních bank, hodnotí dostupnost úvěrů hůře. Analýza dále ukazuje, že velikost podniku, typ vlastnictví a sektor, v němž působí, jsou významnými faktory, které určují vliv zahraničních bank na jejich financování. Na závěr jsme ukázali, že podíl státních bank v ekonomice a efektivita domácího bankovního sektoru jsou dalšími proměnnými, které ovlivňují dostupnost úvěrů.

Content

1. Rigorous Thesis Introduction

The presented rigorous thesis is an extension of the diploma thesis defended at the Institute of Economic Studies (Faculty of Social Studies, Charles University in Prague) in June 2010. The diploma thesis focuses on the effects of foreign bank participation in transition economies on the access to credit. First chapters discuss the topic of foreign bank penetration in general and suggest possible consequences for domestic banking sectors. Next section introduces microeconomic model that enables to formulate main hypotheses about foreign bank entry. The empirical part then includes investigation of hypotheses derived from theoretical model. First, there is examined the hypothesis that higher share of foreign banks in transition economies is related to lower level of credit provided in these countries. Second, the research examines whether the effect of foreign banks is distributed among all types of enterprises equally (distinguishing small, medium-sized and large enterprises).

The referee of the diploma thesis suggested discussing also other characteristics of domestic banking sector and their possible effects on the level of granted credit. Thereby the research should contribute even more to the topic of credit availability in transition economies. She considers the share of state-owned banks to be relevant for the overall credit accessibility; it is supposed that state-owned banks might always have incentives to grant more easily credits to domestic enterprises. Next, the referee suggested examining also the effect of domestic banking sector efficiency on credit availability. We suppose that banks in countries with more effective banking sectors should provide more credit to enterprises; the variable reflecting efficiency should therefore also influence the overall credit accessibility.

The extension of the diploma thesis reflects referee's suggestions. Chapter 7.2 discusses the effects of the share of state-owned banks in the economy and the efficiency of domestic banking sector on the overall credit availability.

2. Introduction

The international trade in goods and financial services has become an important feature of many world economies over the last decades. To facilitate such a trade, also many banks expanded internationally. By establishing foreign subsidiaries and branches or by acquiring local institutions foreign banks entered domestic markets. This trend has become increasingly important and therefore a large literature regarding the consequences of foreign bank presence spurred. The topic is of a great importance since conclusions of empirical research might be used as guidelines for politicians when considering whether to open their banking systems to foreigners. This thesis will contribute to the issue of foreign bank entry by examining the possible effects of foreign bank presence on the availability of credit in host country.

The first part of the thesis will discuss theoretical considerations about foreign bank entry. Why banks expand abroad? Are there any particular characteristics of countries that attract foreign bank? What types of banks became international? Once the banks enter foreign markets how do they behave? Is there any difference between their behavior and behavior of local banks? Finally, how does their entry affect domestic economy? On these questions was focused theoretical and especially empirical research of last two decades. It was proposed that there are some crucial factors determining the type of country into which foreign banks tend to expand. Namely, the economic integration between home and host country, market opportunities of host country and restrictions on foreign bank entry in the host country seem to play an important role. Further, there were identified particular characteristics of banks that tend to expand abroad. It is supposed that bank of large size, banks of higher efficiency and banks with better performance are more likely to enter foreign markets. Additionally, banks coming from countries with more restricted banking sector seem to not expand a lot.

The main focus of this thesis will be on the issue of the possible effects of foreign bank presence on domestic economy. It is assumed that foreign bank presence influences the efficiency and performance of local banking system, its stability and also should have some impact on the supply of credit in host country. The impact of foreign banks on supply of credit will be discussed in detail and some hypotheses will be also examined empirically.

The second part of the thesis will present theoretical model that describes the impact of foreign bank participation on the volume of credit provided in transition countries. It will be presented existing model, proposed by Detragiache and others (2006). The model is based on a crucial assumption that foreign banks have advantage in lending to large customers, compared to domestic banks. Accepting this assumption we can then derive from the model the basic testable hypotheses about the impact of foreign banks on the availability of credit. It will be shown that higher degree of foreign bank presence in transition economies is usually associated with lower amount of provided credit. Moreover, the model indicates that all benefits resulting from foreign bank participation will be appropriated by large borrowers.

The third part of the thesis then presents empirical estimation of the effects of foreign bank presence on the availability of credit in transition economies. Two main relations will be examined. First, we will see whether there is any significant relation between the degree of foreign bank presence and the availability of credit in transition countries. Second, we will examine whether conditions for obtaining credit differ among enterprises of different sizes and how this effect is related to foreign bank presence. Concretely, we will test the hypothesis that countries with higher foreign bank participation tend to finance large businesses more than businesses of small and medium size.

The main source for the empirical estimation will be the data set of The Business Environmental and Enterprise Survey (BEEPS) 2005[1] made by the European Bank for Reconstruction and Development. The survey was realized in order to assess conditions for doing business in transition economies. Among others, it includes useful information of how particular enterprises evaluate conditions for obtaining credit. We will be interested especially in assessment of two factors related to banking sector, namely the perceptions about the accessibility of credit and the cost of finance. Empirically we will try to identify possible links between the degree of foreign bank presence and the assessment of conditions related to firm's financing.

The estimation will be therefore based on the firm-level data combined with the data on the degree of foreign bank presence in the countries. To separate the independent effect of foreign banks, we will include into the model also several variables characterizing the macroeconomic and institutional environment of countries.

[1] Data from 2005 are the latest available.

Moreover, we will include firms' characteristics to capture for the effects of enterprise size and ownership. Finally, we will also control for the region and the sector within which the company operates.

BEEPS study covers enterprises from 16 transition countries in Central and Eastern Europe and 12 transition countries from the Commonwealth of Independent States. The empirical estimation presented in the thesis will therefore be made only for sample of transitions countries. The inclusion of CEE region enables us to draw conclusions applicable also in the Czech Republic.

The rest of the paper is organized as follows. Chapter 3 first describes the development of foreign bank presence among countries of BEEPS sample. Chapter 4 summarizes the theoretical considerations related to foreign bank presence and discusses the existing empirical evidence in this field. Chapter 5 presents theoretical model describing the effects of foreign banks on the supply of credit in domestic market. There are also derived the main hypothesis for empirical testing. Chapter 6 describes the data set. Chapter 7 presents the empirical tests. There is examined the relation between the degree of foreign bank presence and the perceptions about availability of credit. Further, there is tested the hypothesis that the effect of foreign bank is distributed equally among enterprises of different sizes. Chapter 8 concludes.

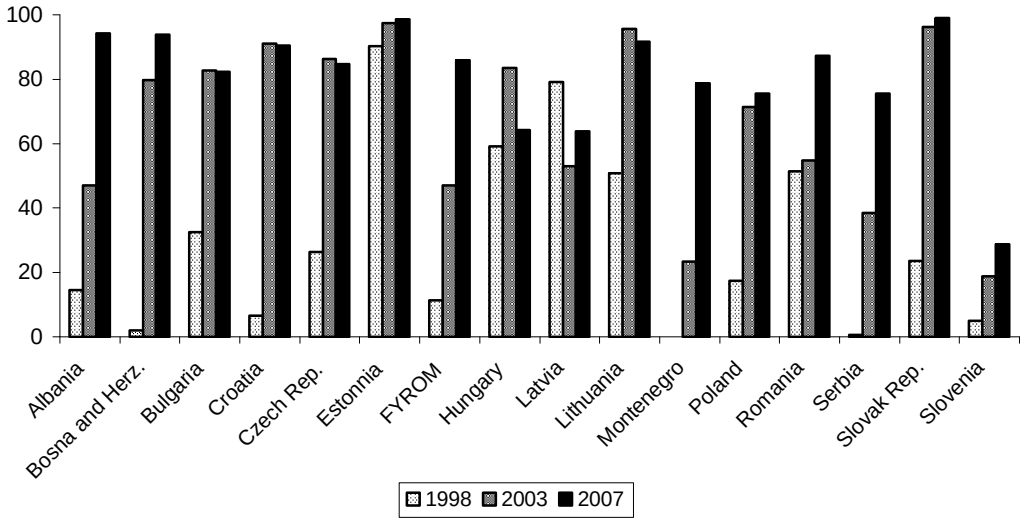
3. The Pattern of Foreign Bank Penetration in Transition Countries

Although foreign bank entry has occurred in all countries of Central and Eastern Europe and the Commonwealth of Independent States over the last decade, it is difficult to identify any uniform pattern that would characterize the phenomenon. There are countries in which the share of banking assets held by foreigners increased significantly between 1998 and 2007; for example in Albania, Bosnia and Herzegovina, Croatia, FYROM or Georgia the share of foreign banks rose from less than 20 percent to more than 80 percent over the period. By contrast, there are countries in which foreign banks received only minority shares of the markets; such as Slovenia, Belarus, Moldova or Russia. In this section we will look at the development of foreign bank participation in the sample [2] of countries and we will try to identify possible relations between countries' characteristics and the degree of foreign bank presence.

Figures 1 and 2 show the degree of foreign bank presence across countries in 1998, 2003 and 2007, measured as the share of total bank sector assets held by foreign banks. It is evident, that all countries of the sample experienced significant inflow of foreign banks during the last decade. Divided figures for countries of Central and Eastern Europe (CEE) and the Commonwealth of Independent States (CIS) enable us to see whether there is an obvious difference in trend among these two groups of states. At the first view, we can see that in countries of CIS foreign bank presence is considerably lower than in the states of CEE. Georgia and Kyrgyz Republic are the only states of CIS region where foreign banks hold more than 50 percent of banking assets in 2007. Contrary, CEE countries all experienced more than 50 percent of foreign ownership in banking sector and in fact most economies have approximated the share of 90 percent in the same year. The only exception of European region is Slovenia where foreign banks got only 28.8 percent of the banking sector.

[2] In this section we always refer to the sample of the following transition countries: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, FYROM, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovak Republic, Slovenia, Tajikistan, Ukraine

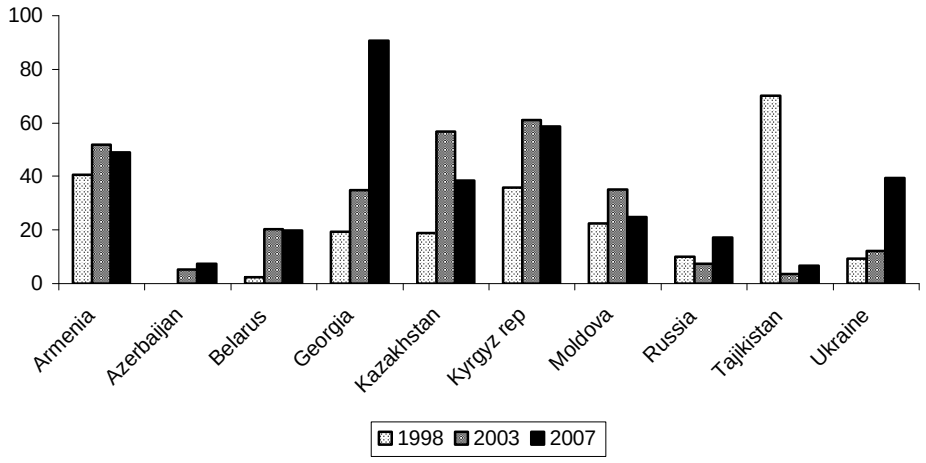
Figure 1: Share of banking assets held by foreign banks in countries of Central and Eastern Europe (in percent). 1998, 2003 and 2007



Data Source: European Bank for Reconstruction and Development, Transition Report 2007

Similarly, the growth of foreign bank presence differs a lot among these two regions. Looking at the Figure 2, it is obvious that foreign bank entry was very slight among countries of CIS; the only shock experienced Georgia where the share of foreign banks increased from 19.3 to 90.6 percent in the period 1998-2007. The other countries noticed only slow increase, and in the later period (from 2003 to 2007) even decrease of foreign presence in banking sector. On the other hand, shares of foreign banks in all CEE countries increased significantly. The growth was not so strong only in economies where high foreign share was already present. As it shows the Figure 1, in most states rapid foreign entry occurred in the first part of observed period (1998-2003), while in the second period (2003-2007) the increase was only slow and in some cases was experienced even decrease (but notice that this was mainly due to already very high foreign presence).

Figure 2: Share of banking assets held by foreign banks in countries of Commonwealth of Independent States (in percent). 1998, 2003 and 2007

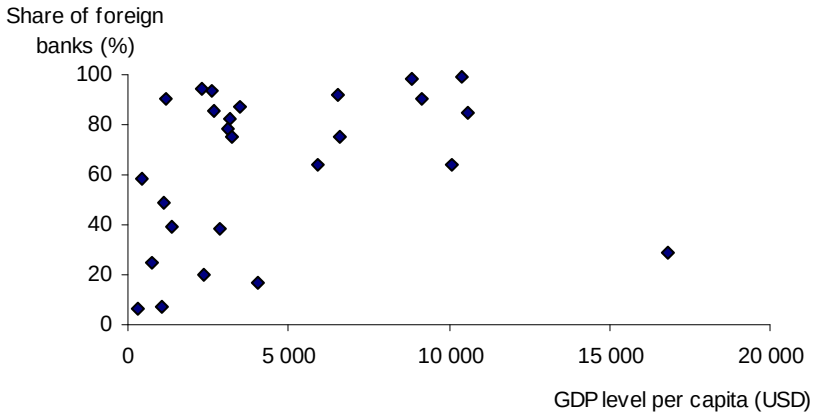


Data Source: European Bank for Reconstruction and Development, Transition Report 2007

Since Commonwealth of Independent States is in general poor region, the data might indicate that foreign bank entry is more intensive in high income countries. To look closely at this possibility, we plotted in the relationship of foreign bank presence and the level of GDP per capita in our sample. Figure 3 should capture these effects but unfortunately it does not indicate any clear dependence of foreign bank penetration on the level of economical development. From previous figures (Figure 1 and 2) we can see that foreign bank presence is very high (more than 90 percent) in very poor countries such as Albania, Bosnia and Herzegovina or Georgia. By contrast, there are relatively high-income[3] countries of our sample, such as Hungary or Latvia, in which the share of foreign banks is only around 60 percent. And Slovenia, which is the richest country of the sample, has one of the lowest foreign participation rates. Thus we can conclude that the level of economic development is not the only country characteristics that should be taken into account when considering the pattern of foreign bank entry.

[3] High-income countries (relative within the sample) refer to the states with GDP per capita higher than 3160USD in 2005.

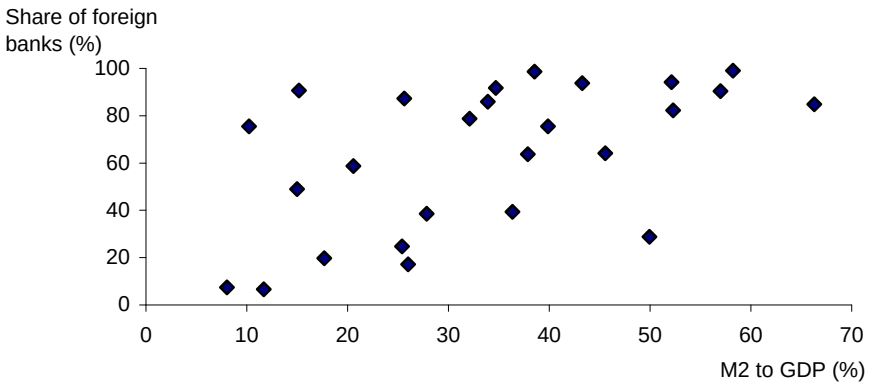
Figure 3: Relationship between foreign bank presence and the level of economical development among transition countries



Data source: European Bank for Reconstruction and Development, Transition Report 2007 (Structural Change Indicators of 2007 and Selected Macroeconomic Indicators of 2005)

Financial development of country is another variable that might influence the penetration of foreign banks. It is assumed that countries with less developed financial systems should attract more foreign investors because of better market opportunities. Figure 4 presents the relation between the share of foreign banks and the level of financial development (measured as the ratio of money and quasi-money (M2) to GDP) in the sample of transition economies. Obviously, there is not any negative relationship found. On the contrary, we might conclude that high foreign bank presence occurs mainly in states with high level of financial development (concluding for transition economies).

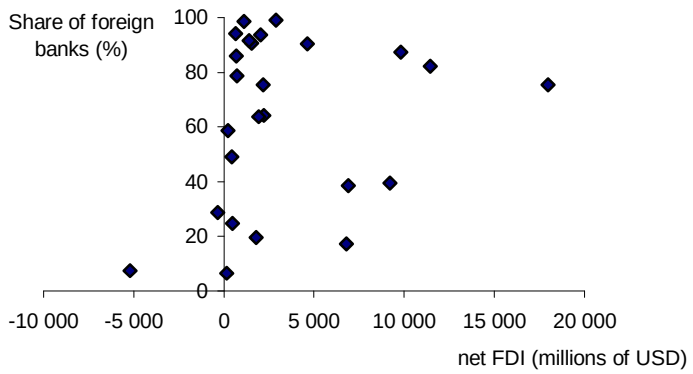
Figure 4: Relationship between foreign bank presence and the level of financial development among transition countries



Data source: European Bank for Reconstruction and Development, Transition Report 2007 (Structural Change Indicators of 2007 and Selected Macroeconomic Indicators of 2005)

Another important factor that might influence the degree of foreign bank participation is the overall level of foreign direct investment in the country. If the hypothesis that banks are following their customers abroad is true, there should be an obvious link between foreign direct investment in non-financial sector and foreign investment in financial sector. Figure 5 will help us to identify whether this effect is present in transition countries of CEE and CIS. The figure plots foreign bank entry in particular states as a function of net foreign direct investment. Again the pattern from the figure itself is not very clear. There are countries with very low level of foreign direct investment that at the same have very high presence of foreign banks (such as Estonia, Lithuania or Slovak Republic). And there are also countries with relatively high level of foreign direct investment and very low degree of foreign bank participation; Russia, Kazakhstan or Ukraine is the case.

Figure 5: Relationship between foreign bank presence and the level of net foreign direct investment



Data source: European Bank for Reconstruction and Development, Transition Report 2007 (Structural Change Indicators of 2007 and Selected Macroeconomic Indicators of 2007)

The evidence in this section was presented to point out some features of foreign bank entry in transition economies of Central and Eastern Europe and the Commonwealth of Independent States. First, foreign bank entry was not distributed equally across countries in the sample. Second, there are no obvious whether foreign banks are more willing to enter in countries with higher income level, better financial development or countries having higher level of foreign direct investment.

4. Theoretical Concerns and Empirical Evidence

In this chapter we are going to discuss the main determinants of foreign bank entry. We will present theoretical considerations (and their empirical support) about the specifics of countries that attract foreign banks and as well about the particular characteristics of foreign banks that are willing to expand abroad. In the further section we will discuss the potential impact of foreign bank penetration. And because the effects of foreign bank entry on domestic economy is the core topic of the thesis, the evidence on this issue will be presented more extensively. Finally, we will present conclusions applicable in the Czech Republic.

4.1 Type of Countries that Attract Foreign Banks

Empirical evidence points to three basic factors that are crucial when the bank is deciding whether to enter the host country: the economic integration between foreign bank's home and host country, the market opportunities in the host country and restrictions on entry and other regulations of banking sector in the host country (including tax treatment).

(i) Economic Integration between Home and Host Countries

The theory suggests that foreign banks are willing to enter into states that are more integrated with their home countries. The idea is based on the assumption that foreign banks follow their customers abroad. In other words if the economy experiences high level of foreign direct investments in non-banking sectors, it is probable that foreign investments will occur also in banking sector because foreign bank would like to benefit from new opportunities of their current clients. As a measure of economic integration is usually taken the volume of foreign direct investment and therefore many empirical researches are focused on examining the correlation between foreign direct investment and foreign bank presence.

However, it is not very clear if the positive relationship between investments in non-financial and banking sectors really refers to the causality effect. It is also possible that foreign bank presence might attract foreign direct investments, i.e. the causality

will be vice-versa. Another possible concern regarding the idea of "following customers abroad" is that not necessarily foreign banks provide financial services only (or even principally) to the affiliates of their home clients.

The evidence from developed countries supports the hypothesis that economic integration plays role (for example Budzeika (1991) or Fisher and Molyneux (1996)). In developing countries, on the other hand, foreign bank entry seems to not be attracted by foreign investment (as pointed out in Miller and Parkhe (1998)). One possible explanation for this finding might be the fact that there are another reasons why investors enter developing countries; particularly it is assumed that underdeveloped financial systems can drive foreign investors because of lower level competition in domestic banking systems and therefore because of better opportunities. This might be the case when foreign entry precede or even bring foreign investments in non-financial sector.

(ii) Opportunities in the Host Country

Another explanation why foreign banks enter domestic economies is that they are looking for new investment opportunities. One branch of empirical research addresses that foreign banks expand more to countries with higher level economic development (for example Claessens and others (2000)). Related hypothesis is that foreign bank entry occurs more frequently in countries that expect higher economic growth.

Focarelli and Pozzolo (2000) refer to the inefficiency of domestic banking systems as the main determinant. Higher average costs, lower net interest margins or higher cash flows (signaling an inefficient use of capital), attract new investors that can take the advantage of their expertise and human resources to restructure inefficient banks. They also show that bigger share of foreign banks is found in countries where banks are on average small. This might indicate another opportunity for foreign banks – easier acquisition of local banks and greater chance to increase the market share after restructuring.

Once more we can conclude that the motive that leads foreign banks to enter domestic economies will differ in the case of entering developed and developing countries. Inefficient banking systems will be most probably found in developing economies, therefore foreign banks will invest there to take the advantage of their expertise. However, also this effect have possible limitation; especially in the least

developed countries where expectation of foreign bank profitability is very weak, the underdeveloped banking system is not the sufficient condition for foreign entry. Contrary, in developed economies the economic integration between home and host country will remain more important factor.

(iii) Restrictions in the Host Country

Naturally, home country regulations restricting foreign bank entry will be the crucial determinant of foreign bank presence. The effect of these limitations are quite straightforward, they limit the degree of competition and therefore helps to protect inefficient domestic banks. This idea is supported for example in Barth and others (2001), where cross country evidence shows that restrictions on foreign bank entry are usually associated with higher interest rate margins and higher overhead costs.

Despite of these concerns, many countries still maintain the policy of foreign entry restrictions.

4.2 Type of Banks that Expand Abroad

The rich variation of banks that expand abroad let arise a large discussion on the topic of what type of banks usually enter foreign markets. Most theoretical explanations consider the product differentiation and comparative advantage as the main factors influencing the entry decision. However, because of difficulties with obtaining data for such a testing, the empirical evidence is missing. On the other hand, the empirical research focused mainly on the effect of other factors, such as bank's size, their efficiency and performance, and their home countries restrictions on banking.

(i) Size

Generally, it is assumed that large banks are more likely to enter foreign countries. There are several supports for the hypotheses. First, foreign banks have usually customers among multinational companies and therefore the probability that they will be pulled to new regions is high. Second, if the bank covers a large share in home country it will be willing to seek new opportunities for better risk diversification. The

foreign investment offers such an opportunity. Third, large banks might benefit from economies of scale. Especially when their basic activities are some services characteristic for international banking, such as portfolio management and investment banking, the large banks might benefit.

The empirical evidence in general found existing correlation between size of the bank and internationalization. For example Focarreli and Pozzolo (2001) find that bank size, measured by total assets, is positively linked to their internationalization in OECD countries.

(ii) Efficiency and Performance

Other evidence focuses on the question whether there is any relationship between the efficiency and performance of foreign banks and their willingness to enter new markets. There are studies that link the internalization of bank to their performance. Again Focarelli and Pozzolo (2000) show that there is positive and significant correlation between bank's returns on assets and the degree to which they expand abroad. This finding is consistent with the theoretical consideration that banks with better performance are more likely to expand to new markets because they will more probably benefit from comparative advantage. Moreover, the study indicates that banks with higher share of non-interest income enter new markets with more probability. The interpretation of this finding might clarify another characteristic of entrant bank: the more innovative the bank is, the more likely it will expand abroad where can benefit from product differentiation.

Different types of evidence bring studies that are comparing the differences in efficiency of domestic and foreign bank, both in developed and developing economies. Not surprisingly, the evidence differs a lot in these two samples. In developing countries, such as the United States, was found that foreign banks seem to be less efficient than domestic ones (for example Berger and others (2000) or DeYoung and Nolle (1996)). Contrary, in developing countries the opposite appears to be true. In these countries foreign banks exhibit lower profitability, as showed in cross-country studies of Dermiguc-Kunt and Huizinga (2000), and Claessens and others (2000).

(iii) Regulations in Home Country

Not only restrictions of banking sector in host countries but also regulation in home countries determines the pattern of foreign bank presence. Focarelli and Pozzolo (2000) provide the evidence that more restrictions in banking are linked to less foreign investments. The result is somehow surprising because one would expect that bank would be willing to expand into countries with no regulation. However, the authors offer a possible explanation. Since countries with more restrictions have usually less efficient banking system (as showed for example in Barth (2001)), their banks will not be able to compete in foreign environment. The lack of comparative advantage of banks from restricted banking systems cause the low likelihood of these institutions to expand abroad.

4.3 The Implications of Foreign Bank Presence

The biggest part of the research on foreign bank presence is dedicated to the implications of foreign bank penetration for domestic economies. This topic is of significant importance since there are still many countries that are comparing potential benefits and losses brought by foreign banks when deciding whether to let foreigners enter. The empirical research focuses mainly on three basic theoretical concerns regarding the foreign bank presence: (i) the effect on efficiency of domestic banking system (ii) the effect on stability of domestic banking and (iii) changes in credit supply.

(i) Efficiency

Supporters of foreign bank entry argue that foreign presence may improve the efficiency of banking systems through improvements in technologies (especially in risk management), supervision and regulation. As foreign entrants are usually of large size it is assumed as well that better economies of scale and risk diversification should be achieved. Moreover foreign entry increases competition in the country and helps thus to improve the efficiency. Finally, foreign banks are considered to be less susceptible to political pressures and less inclined to connected parties.

A number of studies investigated whether these concerns have some empirical support. The evidence is drawn both from, samples of developed and developing countries studies. Not surprisingly, the results often differ for these two groups since some improvements that foreign banks should bring (such as improvement in technologies or regulation) can be beneficiary only for less developed countries.

Claessens and others (2000) use a data set of 80 countries to show whether there is any difference in net interest margin, overhead costs, taxes and profitability between domestic and foreign banks. Their data set include all OECD countries, as well as many developing countries and economies in transition. The main finding of this paper is that foreign banks tend to have higher profitability in developing countries, whereas the opposite is true in developed countries.

Barajas and others (2000) investigate the difference between performance of domestic and foreign banks in Colombia. First by descriptive approach and then using panel estimation while controlling for several aspects of financial liberalization (such as overall increased inflow of capital or variables regarded to the number and relative size of new domestic entrants), they conclude that in general financial liberalization had beneficiary effect on Colombia's banking system. These gains arise from increase in competition, reduction in intermediary costs and improvements in loan quality. However, the authors point out that greater competition may result in increased risk and consequential deterioration in loan quality of domestic banks. Finally, the authors show that foreign entry lowered spreads among foreign banks, while domestic entry lowered spreads over all banks. This finding indicates that foreign banks did not compete against domestic banks in all sectors.

Hypothesis that foreign banks enter only areas where they have a comparative advantage is supported also by Clark and others (2000). On the sample of Argentine banks they show that foreign banks do not compete against domestic banks in all sectors but only in particular ones. The paper suggest that domestic banks with portfolios concentrated in manufacturing (traditional field of foreign banks investment) tended to have lower margins and lower profits than domestic banks in different sectors. Contrary banks oriented to consumer lending (the area were foreign investment was not relevant) had higher interest margins and higher profits.

Single country evidence provide also Unite and Sullivan (2001). Their evidence come from Philippines and tries to explain how the domestic banking changed after a

great reform that allowed foreign banks to enter in 1994. The analysis is based on accounting data of 16 Philippine's commercial banks that covers the period 1990-1998. The authors find that foreign bank presence is associated with reduction in interest spreads and banks profit, however, this result seems to be true only for domestic banks affiliated to family business group. In general, it is concluded in the paper that foreign entry improves the efficiency of local banking system. In compliance with Barajas and others (2000), the author note that increased risk associated with greater competition will deteriorate loan portfolios.

Consequences of financial liberalization in home country analyses also Denizer (2000). Turkish economy opened to foreign competition in 1989 and quickly received a significant foreign investment in banking sector. Based on data of several foreign and domestic banks from the period 1980-1997 Denizer evaluates how this entry affected performance of home banking system. The author concludes that foreign bank entry (i) reduced overhead expenses, strengthen profits (ii) had strong effect on competition and (iii) had positive impact on financial and operations planning, credit analysis and marketing and human capital.

Another country of interest of researchers is Mexico which allowed foreign banks unrestricted entry to market in 1997, after the total collapse of banking system. The case study of this country from 1997 to 2004 provide Haber and Musacchio (2005). However, the authors mostly provide the evidence on credit availability in the country, they also make some useful comments on banking system profitability. The finding is that foreign banks are more profitable than domestically-owned ones because they are able to charge higher service fees due to higher market power.

Positive influence of foreign ownership on cost efficiency in the Czech Republic and Poland is found in Weill (2003). This analysis is based on efficiency frontier approach and concludes that more open banking systems in general provide better efficiency.

(ii) Stability

Foreign banks are supposed to have access to more diversify (international) pool of liquidity than domestic banks, therefore it is assumed that foreign bank lending should be less affected by economic crises (especially when assuming crises in a home country). And even if foreign banks have some difficulties in providing credit they can

still ask for financial support their parent banks. These are the main reasons why foreign bank presence should be beneficiary for stability of domestic banking system and consequently for domestic economy at all.

On the other hand, there are also concerns regarding to the potential destabilization effect of foreign banks. In the case of economic crises in entrant's residence country, the economic difficulties might be transmitted into the domestic economy through restrictions in providing credit.

Latin America seems to be a good laboratory for investigation of the impact of foreign banks on countries' stability. That is because many countries in this region opened their banking systems to foreign competition in 90's and many of them experienced serious crises some years later. Peek and Rosengren (2001) find that in Argentina, Brazil and Mexico the economic difficulties did not harm the growth of foreign-owned banks. In fact, the position of foreign banks became even stronger because foreigners took the advantage of local crisis as an opportunity for their expansion. Thus foreign banks increased their impact by both, either by acquisition or by growth of existing subsidiaries.

The beneficiary effect of foreign banks for financial system stability in Argentine and Mexico find also Dages and others (2000). Comparing the behavior of foreign and domestically owned banks between 1990 and 1999, the authors see the foreign banks to be associated with stronger loan growth and lower volatility, and therefore contributing to the overall stability of financial system. Moreover, in both countries there is evidence on the loan growth during recent crises and after in the case of foreign banks. However, the authors point out that the results are not so straightforward, since not ownership per se but the asset quality of loan portfolios might be associated with higher growth. To support this concern, they show that banks with lower problem loan ratios are associated with lower volatilities, no matter whether they are foreign or domestically-owned.

More interesting evidence bring Detragiache and Gupta (2002) comparing foreign and domestic bank behavior in Malaysia during the financial crises in Asia. They find that the differentiation between domestic and foreign banks is not crucial when studying the effects on stability of financial system. Rather the differences between those subsidiaries of foreign banks whose operations were not concentrated in Asia and other banks should be taken into account. The authors conclude that whereas foreign banks concentrated outside of Asia improved their profitability and interest margins

during the crises, local banks and foreign banks operating in the region were hurt seriously by the economic turmoil. Most likely these implications are related to the fact that foreign non-regional banks were less involved in risky sectors (such as construction or real estate) compared to local banks. The authors control also for the possibility that foreign banks are supported financially from their parent banks, but this effect seems to be not significant. Similarly they reject the hypothesis that political connections or government play any role in explaining poor performance of local banks during the crises.

The findings of Detragiache and Grupta are supported by the study of Mian (2006) who stresses on the importance of geographical distance between foreign banks' headquarters and local branches. He claims that distance (either cultural or geographical) may be crucial constraint for providing finance to informationally opaque businesses. His evidence is supported by panel data analysis of about 80,000 loans over 7 years.

De Haas and Lelyveld (2003) focused their research on the region of Central and Eastern Europe. Based on panel data set that comprises more than 300 banks over the period 1993-2000 they reject the hypothesis that foreign banks presence should have destabilization effect on domestic economy. During the crises domestic banks contracted their credit and deposits, whereas foreign banks did not experience any reduction. Additionally, the authors find evidence of significant and negative relationship between home country economic conditions and foreign bank expansion. During periods of lower economic performance of home country, foreign banks seem to increase their credit to capture profitable investment opportunities in the home country.

Goldberg (2001) deals with subsidiaries of U.S. banks providing credit in emerging markets. The analysis suggests that U.S. banks contributes to steady provision of credit in host countries even in the period of their economic crises and supports therefore the basic concern that associates foreign bank entry with more stable financial system. On the other hand, the author admits that U.S. banks participating in emerging countries are sensible to the U.S. economic fluctuations. Home countries may thus benefit from more diversified supply of credit when allowing foreign banks to enter, but at the same time they might be hurt by economic instabilities of foreign entrants' home countries.

(iii) Credit Supply

Once we believe that foreign banks are improving the efficiency and are lowering the volatility of banking systems, we should associate foreign presence with increase in supply of credit to customers. Possible limitation of this effect is the suspicion that foreign banks extend the credit only to certain type of enterprises, leaving some types of businesses – like small and medium-sized firms – unattended.

Common argument against foreign banks is that these institutions tend to "cherry pick" the most profitable customers and reduce thus the credit available to another group of enterprises. The most affected according to the theory should be small businesses since foreigners usually choose among large companies because of better availability of enterprises' information. Especially in developing countries this hypothesis raise fears because significant share of total value added and large fraction of the jobs generated in these countries are dependent on small businesses.

"Cherry picking" seems to be dangerous for domestic banks as well. If foreign bank choose the most lucrative customers, local banks are then dependent only on customers with worse ratings and this worsen position on the market can finally result in domestic banks' collapses.

The impacts of foreign banks on the share and growth rate of lending to small enterprises in Latin America examine Clarke and others (2002). Using bank level data of Argentina, Colombia, Chile and Peru from mid 1990s they support the hypothesis that foreign banks in these countries devote in general smaller share of their lending to small enterprises than domestic banks. Further, the authors point out that this effect occurs mainly due to the behavior of small foreign banks (when comparing the effect of small, medium and large-sized foreign banks separately). In all countries of the sample small foreign banks provide considerably lower level of lending to small enterprises than small domestic banks. Contrary to this finding, the difference between lending of foreign and domestic banks of medium and large size is not so big. In fact in two countries of the four case study countries – Chile and Colombia – the authors find evidence that large foreign banks tend to lent more to small businesses in comparison with domestic large banks.

Taken into account that bank size plays an important role, the authors also investigate whether the rate of lending to small businesses (as a share of total lending) differs among small, medium and large domestic banks. Consistent with the evidence from foreign bank presence, they find that small local banks tend to finance small businesses more than medium and large-sized domestic banks. Additionally, the survey examine whether also bank ownership matters for banks' lending policy. In this case, there is no evidence that public and private banks should differ in respect of the lending to small businesses.

Argentine banking system in particular is analyzed in Berger and others (2001). This paper focuses also on the role of bank size and foreign ownership in provision of credit to small businesses. The authors employed a large sample of data on about 60,000 firms with loan from 115 both domestically and foreign-owned banks as of the end of 1998. The data are generally consistent with the hypotheses that informationally opaque small businesses tend to receive less credit from large and foreign banks. Further, they notice that this effect magnified for small businesses with delinquencies in repaying their loans. Another important contribution of this survey is the finding that distance of foreign bank headquarters is crucial; for foreign banks headquartered in far-away nation the evidence on reduced credit for small enterprises is much stronger (which supports the idea of Mian (2006)).

Another study on small enterprises in Argentina present Escudé and others (2001). The authors in general support the idea that small businesses receive less credit from foreign institutions when compared to domestic ones. But on the other hand when analyzing the structure of small businesses financing, they find that small foreign banks are these institutions that provide the most financing to small enterprises (noting their importance arise especially in 1998 and 1999 when Argentina experience a significant foreign entry). The last conclusion suggests that even if small firms are not principle clients of foreign banks, they still receive most of their credit by these institutions (by 2000 more than half). Thus the paper basically rejects the hypotheses that foreign entrance should cause any discrimination of small businesses. Moreover, the study supports the idea that geographical distance is important; more distant banks are less active in providing credit to small businesses.

The idea that even small enterprises may benefit from foreign bank presence is supported also by Bonin and Abel (2000). Foreign bank entry contributes to higher competition in domestic banking sector, especially in the area of large businesses

financing. Domestic banks can be displaced from that market and be forced to search for new market opportunities, such as credit provision to small and medium-sized enterprises. Bonin and Abel (2000) show that this might be the case of Hungary where increased foreign presence was associated with better condition for financing small enterprises by domestic banks. Similarly, Jenkins (2000) examining banking sectors of 60 countries shows that many domestic banks lose their large clients after foreign entry, and therefore had to look for another possible clients from small and medium enterprises.

Haber and Musacchio (2005) emphasize the importance of institutional environment when assessing the effect of foreign bank presence. Mexican case shows that due to poor institutional environment the country only hardly benefit from foreign bank entry that was a frequent feature of its economy since banking sector liberalization in 1997. Difficulties in assessing risk ex ante and enforcing contracts as post resulted in higher risk aversion among domestic banks and foreign banks were found to be even more risk averse. In practice foreign entrants preferred to hold securities and make loans to government rather than providing credit to firms and households. By this conclusion the authors support a large literature that claims that the impact of foreign bank entry is associated with the level of economic development (for example Lenisk and Hermes (2004)). These authors see the main difference between developed and developing economies in the degree of protection of property rights. Finally they conclude that foreign entry itself is not sufficient solution for the unavailability of credit in Mexico. The institutional reform is in fact crucial.

Haas and Lelyveld (2002) are going further with their analysis by not considering only the effects on credit provided by foreign bank subsidiaries but also taking into account cross-border credit. The authors showed that in countries of Central and Eastern Europe (Estonia, Hungary, Poland, Slovenia and Czech Republic) during the period 1993-2000 the total foreign bank credit increased when compared to GDP. And when compared to domestic credit, the amount of foreign credit has increased gradually as well. However, these findings differ when separating the effect of cross-border operations and foreign banks subsidiaries. In Hungary and Poland, foreign banks provided most credit throw cross-border credit at the beginning of transition period, while foreign bank subsidiaries outweigh their effect in later period. In Hungary, Poland and also Estonia there is evidence that credit by foreign subsidiaries grew faster

than cross-border credit. Contrary, in the Czech Republic and Slovenia credit provided by both foreign sources grew almost equally.

On the countries of Central and Eastern Europe is focused also the research of Haas and Naaborg (2005). By the method of interweaving managers they are trying to asses how the foreign bank entry influenced small and medium-sized enterprises' lending in transition economies. Their finding support the hypothesis that foreign bank entry has positive medium-term effects on financing of small and medium-sized firms. There is not evidence on the concern that foreign banks should increase their credit supply only to large companies. Although many of new entrants focused initially on multinationals and largest local corporations, the majority of them started gradually to provide more credit to small and medium-sized businesses.

Berger and Udell (2005) propose that foreign bank presence influences the availability of finance for small businesses due to comparative advantages in lending technologies. If foreign bank institutions are headquartered in developed nations they might have advantage in lending to small businesses because of access to better information technologies for collecting and assessing hard information.

Bruno and Hauswald (2009) provide evidence that foreign banks improve financial conditions, especially in developing countries where the lack of alternative sources of finance if frequent. Together with this analysis the authors are seeking for possible effects of foreign bank on economic growth of domestic countries. They conclude the overall beneficial impact of foreign banks on real economic activity.

As for methodological point of view, the closest to the empirical study presented in this thesis is the paper of Clarke and others (2006). Their analysis is based on huge cross-sectional survey (World Business Environment Survey) whose aim is to provide assessments of conditions for making business in 35 developing and transition economies. Among others, the issues regarded to the availability of finance for enterprises are included in the study. Using this firm level data and data on foreign bank participation, while controlling for various macroeconomic variables and indicators of institutional quality of particular countries, the authors conclude that higher level of foreign banks presence is associated with better conditions for obtaining credit in the country. When considering the effect on enterprises of different sizes, some results indicate that large enterprises benefit from foreign presence more. On the

other hand, when drawing conclusions we can't omit the fact that small and medium-sized companies still benefit and there is no support for the hypothesis that firms of this category should be harmed after foreign entry.

4.4 The Role of Mode of Entry

Another determinant of the effect of foreign bank presence is the mode of entry and the organizational form that foreign bank choose. It was shown in several studies that banks behavior differs for banks that entered through mergers and acquisitions and for banks that decided for de novo entry. The type of organizational form also matters; we will discuss the differences in behavior of representative offices, agencies, branches and subsidiaries.

The evidence on this topic is very important since many countries apply policies that somehow affect the way by which foreign banks enter. In some cases, governments directly require specific mode of entry and organizational form. But state influence can be also indirect, for example throw the limitation of banking licenses. If the number of licenses is finite then foreign banks can enter only by acquiring the license of domestic bank, i.e. by purchase or acquisition. To look at the possible consequences of government decisions we will present the empirical evidence on this issue.

(i) Mergers and Acquisitions (M&A)

As it was already discussed, foreign entry might theoretically lead to better efficiency in domestic countries. This is particular the case of entry throw M&A, since by acquiring local institution foreign bank can benefit from scale, scope and product mix efficiencies. However, as the empirical evidence suggests these advantages are applicable only in developing countries.

One of the concerns related to cross-border consolidation in developing countries is the fact that foreign entry in these economies tend to coincide with greater consolidation also among domestic banks (involving also large banks). Such as effect might have negative impact on lending to small businesses. The research from United States indicates that mergers and acquisitions involving large banks cause fall in credit provided to this sector. Theoretically, this evidence is explained by the existence of informational disadvantage that are facing large banks when providing credit to

informationally opaque borrowers. However, there are also potential benefits brought by foreign banks that should be taken into account when drawing conclusions. The improvements in credit scoring models, greater access to data, together with the overall enhance of computer power can allow large banks to identify credible small borrowers (argued in Mester (1997)). And even if M&As in home countries lead to the fall in credit for small borrowers provided acquired banks, this effect might be offset by increased volume of lending for small borrowers offered by other banks on the same local market. Berger and others (2000) point to this issue that even if this idea would be true, there will be still some costs associated with searching for new creditor and the company's disruption that small businesses will have to face. Moreover, it is not sure whether new contracts will be made under favorable conditions.

(ii) De Novo Entry

It seems that developed countries that experienced mergers and acquisitions are also more likely to receive de novo entrants (Berger and others 1999). In contrast to mergers and acquisitions several studies provide the evidence that de novo entries should be beneficiary for small borrowers. DeYoung and others (1999) show that in the United States young banks tend to provide more credit to small businesses than similar older competitors. Similar findings are interpreted in Goldberg and White (1998) who identify the inverse relation between the age of the bank and small business lending. Both studies, however, point out that foreign banks are less efficient in the United States than domestic banks.

Whether these implications will remain valid for financial sector in developing countries is not certain. It seems unlikely that entrants in developing countries, typically large institutions with history in their home countries, would behave as the relatively small de novo entrants in the United States.

(iii) Organizational Form

There are basically four types of organizational forms among which the bank can choose when entering new market: representative office, agency, branch and subsidiary. Representative office is the easiest way how to enter foreign market. Its role is however very limited, the office cannot take deposits nor make loans; their role is only to be an

agent of foreign bank in the host country. Representative offices are usually established to identify possible opportunities of local markets. The range of services provided by agencies is broader but still limited. These can make commercial and industrial loans but are not allowed to make consumer loans or accept deposits (at least in the United States). But neither agencies nor representative offices represent full-value foreign penetration, therefore the most of the influence in banking sector will be made through branches and subsidiaries.

Branch is the most common organizational form in the United States. Comparing to agencies or representative offices branch represents much deeper foreign penetration: branch can draw on parent's capital and it is allowed to provide wider range of financial services. Even broader range of financial services is provided by subsidiaries. Their power is in some countries identical to this of domestic banks and therefore they are also regulated in the similar way as local institutions.

The discussion is focused mainly on the determinants of foreign banks choice about organizational form. It is found, for example, that those countries permitting foreign entrants universal banking have larger share of subsidiaries. The reason is obvious, by providing wider range of financial service subsidiary can better take the advantage of local market. In countries with high tax rates and regulations for establishment of subsidiaries is naturally found lower presence of subsidiaries. Other studies point to the link between foreign direct investment and choice of organizational form: if the foreign investment is higher, usually presence of subsidiaries is more frequent. Again supported by the idea that subsidiary can benefit from all types of services provided.

In the centre of interest of regulators is the question of which of the organizational form has most beneficiary effects on the economy and therefore should be preferred. Clearly, there should be support of the type of entry that provides the most financial service but at the same time that is not raising concerns about stability. Evidence on this topic has not emerged yet and thus we cannot present here any conclusions.

4.5 Evidence from the Czech Republic

The separate evidence on the effects of foreign bank participation in the Czech Republic, to my knowledge, does not exist. However, there are several papers that

examine the issue of foreign bank presence in emerging markets of Central Europe. It was already cited the paper of De Haas and Lelyveld (2003) who investigated the impact of foreign banks on stability in this region. They found no evidence that foreign banks should have any destabilizing effect on domestic economy. The impact of cross-border credit on stability in the Czech Republic and other CEE countries is analyzed also in Geršl (2007). The author concludes that the risk of destabilizing effect is present, nevertheless it is relatively limited.

As for the credit accessibility, it was already mentioned the paper of de Haas and Lelyveld (2002). The paper supports the idea that foreign bank participation increases the supply of credit in CEE countries, including the Czech Republic. By interviewing managers from CEE region, de Haas and Naabor (2005) show that foreign bank presence have beneficiary effect on firm financing. Moreover, they point out that there is no indication that large companies should benefit more than small or medium-sized. However, neither of theses papers brings conclusions based on econometric analysis. Both studies directly compare the data on foreign bank participation and on the volume of credit provided, while inclusion of any control variables is missing. This thesis will investigate the relation of foreign banks and credit availability in CEE econometrically, controlling for several macroeconomic and institutional variables. The analysis will therefore be original, to my knowledge, not yet be done for the sample of CEE countries.

5. Theoretical Model of Foreign Bank Entry

In this section we are going to present theoretical background for the hypotheses regarding to the effects of foreign bank presence in transition economies. The model is based on standard credit market model with adverse selection and was developed by Detragiache and others (2006).

In the world of perfect competition and complete information foreign presence should improve banking system of transitions economies since new entrants, typically from more developed countries, have advantage in better lending technologies and more opportunities for risk diversification. Therefore foreign banks should be able to offer more favorable interest rates and consequently increase the volume of total credit. However, if we relax the assumption about the world of full information, the conclusion is not so clear. Let's assume now that foreign banks have to face the imperfect information about borrower's quality. Then banks must use monitoring and screening to identify borrowers with good investment opportunities. If the cost of this monitoring is too high, it can offset the improvements brought by foreign banks, and their advantage in banking can thus be lost.

5.1 The Model without Foreign Bank Presence

In the simple variant of the model it is assumed the presence of domestic banks only. Two categories of agents are taken into account: banks and entrepreneurs. It is a two period model; at the end of first period domestic banks decide about their monitoring strategy and rates that they are going to offer (and determine thus the total volume of credit), in the second period entrepreneurs realize their projects.

There are three types of entrepreneurs in the model: *H*, *S*, *B*; defined according to the quality of their projects (*H* refers to borrowers with the highest quality, *B* stands for bad borrowers). Each entrepreneur knows his type but the rest of the world not. Proportions of types of borrowers are given by μ_H, μ_S, μ_B, where $\mu_H + \mu_S + \mu_B = 1$. All types of entrepreneurs are assumed to be risk-neutral. They have no private wealth; they are dependent on bank credit only.

Entrepreneurs of type *B* are the worst borrowers. They have access to the project that requires initial investment of 1 and provides returns $R>1$ with probability $p\in[0,1)$ in the second period. In fact, net present value of their investment is negative (assume $pR<1$, then $NPV=-1+pR<0$) but because of limited liability of entrepreneurs the borrowing becomes interesting for them and if they receive the credit from bank, they will go for the project. Entrepreneurs *S* and *H* dispose of the identical safe projects that require initial investment of 1 and generate returns $R>1$ with probability $p=1$ in the second period.

Banks are operating under perfect competition, their access to supply of funds is perfectly elastic, and therefore banks can raise unlimited funds. Cost of funds is normalized to 1. Banks have available two types of technologies for identification of the type of their borrowers ex ante: monitoring hard information and monitoring soft information. Monitoring hard information is a method which is based on analysis of financial statements – such assessing the transparency of accounting methods or identification of assets that can be used as collateral. By analyzing hard information, the bank can identify the entrepreneurs of type H, but cannot differentiate between entrepreneurs of type S and B. To separate S borrowers from B borrowers the bank can use strategy of monitoring soft information, that means detailed analysis of entrepreneurial skills and other qualities (such as trustworthiness for example). The costs associated with these technologies are c_H and c_S per project, for monitoring hard and soft information respectively. We assume that cost of monitoring soft information exceeds the cost of monitoring hard information, i.e. $c_S > c_H$.

At the beginning of the first period, bank offers to potential borrowers interest rates corresponding to the level of monitoring. It means that bank can offer even not to monitor the client but charging higher interest rate at the same time. On the other hand the bank can offer monitoring only for hard information charging lower interest rate and different rate would be offered if the bank monitors soft information. Entrepreneurs then decide whether they will accept any of the offers or whether they will decline to borrow.

In this setup there are four possible equilibrium states. Let's call equilibrium A (pooling equilibrium) the state in which bank offers not to monitor firms and all firms

accept that contract. The bank, to break-even, must then charge the rate r_p from all borrowers that is equal to:

$$r_p = \frac{1}{\mu_H + \mu_S + p\mu_B} = \frac{1}{p + (1-p)(\mu_H + \mu_S)}.$$

The offer will be accepted by entrepreneurs only if the revenues from their investment will exceed the cost of financing, if $R > rp$. And there must be no better rate available at the same time.

There is another condition that must be satisfied to ensure that pooling is equilibrium. The cost of monitoring of hard information must be large enough relative to the cost from potential losses resulting from borrowing to bad borrowers and the costs of adverse selection. Formally, the following equation must be fulfilled:

$$r_H = 1 + c_H > r_P,$$

where r_H stands for the interest factor charged in the case of monitoring hard information.

If this condition is not satisfied, the bank decides for monitoring hard information at the cost c_H . However, monitoring hard information enables the bank to identify only borrowers of H type but not to differentiate between S and B. Then bank can choose among the following strategies: (i) Monitoring also the soft information for the cost c_S and separate thus S and B entrepreneur (equilibrium B - separating). Then type B will be excluded from lending and bank will offer credit only to H and S borrowers. (ii) Not to monitor soft information and simply pool S and B borrowers together offering them the same rate (equilibrium C - semi-pooling). All groups will then obtain the credit. (iii) Not to monitor soft information and offer credit only to H type borrowers (equilibrium D – credit constraint).

Equilibrium B will occur if the cost of monitoring soft information will be low relative to the possible losses from borrowing to entrepreneurs with bad projects. Formally, the condition is described as follows:

$$r_S = 1 + c_S < \hat{r}_P,$$

where $\hat{r}_P$ denotes the break-even interest factor for pooling S and B borrowers given by equation:

$$\hat{r}_P = \frac{1}{\frac{\mu_S}{\mu_S + \mu_H} + p\frac{\mu_S}{\mu_S + \mu_H}} = \frac{1}{p + (1-p)\frac{\mu_S}{(1-\mu_H)}}.$$

We should take into account that interest factor in pooling equilibrium (r_p) is always lower than $\hat{r}_P$. To prove this it is enough to show that $\mu_H + \mu_S > \frac{\mu_S}{1-\mu_H}$, which is always true since $1-\mu_H-\mu_S < 1$. The interpretation of this equation is straightforward: in separating equilibrium the bank faces to worse quality of borrowers (since H types were excluded from the pool) and therefore higher interest rate will be charged.

Lat situation (equilibrium D) will occur in the state when the return from project R is not sufficient to cover costs associated with monitoring soft information or the cost of adverse selection.

Putting all these conditions together, we can derive propositions characterizing the equilibrium state of the economy:

(i) If $R > r_P$ and $r_H > r_P$, then the equilibrium is pooling all agents together. All participants receive credit and bank pays no monitoring costs.

(ii) If $r_H < r_P$, $r_S < \hat{r}_P$ and $r_S < R$ then the equilibrium is to separate H, S, B. Bank monitors both, hard and soft information. Only H and S borrowers obtain credit.

(iii) If $r_H < r_P$, $r_S > \hat{r}_P$ and $r_S < R$ then the equilibrium is semi-pooling; separate only H borrowers while S and B borrowers are pooled together

(iv) If $r_H < r_P$, $R > r_H$ and $R < \min[r_S, \hat{r}_P]$ then the equilibrium is to monitor hard information and providing credit only to H. S and B remains without financing.

5.2 The Model including Foreign Bank Presence

Next, we will present similar model for the economy where foreign banks are allowed to enter. Foreign banks are assumed to have advantage in monitoring hard information, such as more efficient control of financial statements, better judgments about the transparency of accounting procedures or indication of assets that can be used as collateral. Let's denote the cost of monitoring hard information by foreign banks as $c_H - \Delta$, where c_H remains for the cost of monitoring hard information by domestic banks, the difference $\Delta > 0$ is assumed to be positive. On the other hand foreign participants are supposed to be less effective in monitoring soft information (such as entrepreneurs' skills) due to not so strong knowledge of local system. Monitoring of soft information by foreign banks will be denoted as $c_S + \Delta'$, where c_H is the monitoring cost of soft information of domestic banks, $\Delta' > 0$ is assumed to be positive. Moreover, as a simplification of the model, it is assumed that when the entrepreneur is indifferent, he will prefer borrowing from local bank to borrowing from foreign bank.

Now, the effect of foreign bank presence will be included into the basic model. Note, that the only adjustments of the model will be associated with the fact that foreign banks have access to lower cost technologies for monitoring hard information.

Pooling will remain to be the equilibrium if the condition $r_H^* = 1 + c_H - \Delta > r_P^*$ is satisfied. Comparing to the original model, we can see that foreign banks are able to offer more attractive interest rates when monitoring hard information. But note that this advantage will be in equilibrium A useless, since it is the state when no monitoring is applied. On the contrary foreign banks will be hurt because we assume that firms will prefer local banks when the offer will be identical. We can conclude that even after foreign bank entry all credit will be provided by local banks. Remind that firms of all types will obtain the financing and total volume of credit provided will be 1 in equilibrium A.

Foreign banks will bring one differentiation regarding to the pooling equilibrium. With lowered cost of hard information monitoring technology, H type firms will be more willing to sort themselves out and therefore the equilibrium A will occur with lower probability.

Conditions for other equilibrium states will not differ when foreign banks enter because the costs of monitoring hard or soft information do not determine any of the equilibria. However, it will change the interest rate offered to particular groups of borrowers and of course the share of credit provided by foreign banks.

In separating equilibrium (when banks monitor both soft and hard information), foreign banks will offer the break-even interest rate $r_H^* = 1 + c_H - \Delta$ that is more attractive than the rate offered by local banks $r_H = 1 + c_H$. All H type borrowers will thus prefer the foreign lending. On the other hand, foreign banks have disadvantage in lending to S type borrowers because the cost of monitoring soft information enable them to offer only the rate $r_S^* = 1 + c_S + \Delta'$ that is higher than the rate offered by local banks $r_S = 1 + c_S$, therefore soft information firms will borrow from domestic bank. To summarize, in this state H entrepreneurs will obtain the credit from foreign banks, S entrepreneurs will apply for credit at local banks and H entrepreneurs will not obtain any financing. Total volume of provided credit will be the sum of proportion of hard- and soft-information firms, i.e. $\mu_H + \mu_S$

In semi-pooling equilibrium (monitoring hard information and pool firms of type S and B), as in the previous case hard-information firms will get credit from foreign banks since they can offer better conditions of financing (r_H^*) compared to domestic banks (r_H). Contrary, for soft-information borrowers and bad borrowers will be more attractive the financing provided by domestic banks (because $r_S^* > r_S$). In this situation, all types of agents will obtain the credit, total volume of credit will therefore be equal to 1; the credit provided by foreign banks will equal to the share of H type entrepreneurs μ_H, domestic banks will provide the volume equal to the sum of proportion of S and B type borrowers $\mu_S + \mu_B$.

If credit-constraint equilibrium occurs, banks will monitor only hard information and only H type borrowers will benefit from credit. Foreign banks will be the only credit providers (because of lower interest rate offer resulting from hard information monitoring advantage). Total volume of lending will equal to the proportion of hard-information firms in the economy μ_H.

The total volume of credit and the share of foreign and domestic banks in the four possible equilibria are summarized in the following table:

	Total credit	Foreign bank share	Domestic bank share
Pooling	1	0	1
Separation	$\mu_H + \mu_S$	$\frac{\mu_H}{\mu_H + \mu_S}$	$\frac{\mu_S}{\mu_H + \mu_S}$
Semi-pooling	1	μ_H	$\mu_S + \mu_B$
Credit constraint	μ_H	1	0

As it is obvious from the table, the equilibria with foreign bank presence are also the equilibria with lower total supply of credit. So, according to the model, we can associate the countries having higher degree of foreign bank participation with higher volume of total credit. In the second part of the thesis we will examine this assertion empirically. Our main hypothesis will be that transition countries with higher share of foreign banks will provide lesser volume of credit.

5.3 Welfare Effects of Foreign Bank Entry

Further, we will analyze how the welfare of domestic economy changes when foreign banks enter. As a welfare measurement we will consider the total output net of investment and monitoring costs. At the first view we can see that welfare improvements are not necessarily associated with foreign banks because soft-information firms are never better off with foreign entry and in some cases they are even worse off. In fact the results are dependent on several parameters; let's now discuss the particular cases.

Assume that initially the economy is in one of the non-pooling equilibrium states, i.e. monitoring of hard information is applied. In this case hard-information borrowers are always better off after foreign banks entry because foreign banks are able to offer them more attractive interest rates due to lower cost of hard information monitoring. These borrowers will thus not be willing to move towards pooling equilibrium since pooling would indicate higher interest rate. On the other hand, borrowers of S and B

type will not benefit nor be hurt by foreign bank entry because their financing will be provided by domestic banks whose costs do not change. By the nature of the model it is not possible that the equilibrium state would change with the entry of foreign banks. Once the equilibrium of type B, C or D is set up, there will be no willingness to move towards other equilibrium type since this equilibrium does not depend on c_H. So once the equilibrium is semi-pooling it will remain semi-pooling even after foreign bank entry. To summarize, if the parameters are such that the initial equilibrium is not pooling, foreign bank presence will increase the welfare, but all the gains will be absorbed by less opaque borrowers on the market (i.e. hard-information firms).

Let's turn now to the situation when pooling is the initial equilibrium. If foreign bank enter causes considerable decrease in costs of monitoring hard information, then pooling will no longer be the equilibrium. If moreover costs of monitoring soft information are relatively low, the economy will move towards separating equilibrium. In this case the overall credit provided will fall since bad borrowers will not receive the financing but at the same time the economy will benefit from not realizing bad projects. On the other hand, the economy will face costs of monitoring hard and soft information. Therefore the effect of foreign entry on welfare is not so clear. Formally, we can judge welfare improvements by comparing the welfare attained in equilibria of type A and B. Let's denote S_A and S_B as the total welfare in equilibrium A and B, they are defined as follows:

$$S_A = (\mu_H + \mu_S + p\mu_B)R - 1$$
$$S_B = (\mu_H + \mu_S)R - \mu_H(1 + c_H) - \mu_S(1 + c_S).$$

We will express the change in welfare after foreign bank entry as the difference between the net outputs between the two equilibrium states:

$$\Delta S_B = S_B - S_A = \mu_B(1 - pR) - (\mu_H c_H + \mu_S c_S).$$

The first term is the gain resulting from not borrowing to bad borrowers, note that the term is always positive since $\mu_B > 0$ and $pR < 1$. The second term expresses the losses associated with monitoring of soft and hard information. The overall effect is therefore

ambiguous and will depend on which of these effects will dominate. Sufficiently large decline in costs of monitoring hard information is the crucial condition.

Another equilibrium state will occur if the cost of monitoring soft information is relatively large compared to the costs of adverse selection. In this case it is not profitable to separate B borrowers and the economy will move towards semi-pooling equilibrium, i.e. monitoring only hard information which indicates separation of H type borrowers while pooling B and S borrowers together. All types of firms will receive the credit under this strategy, so the volume of total credit provided will not change. However, it is evident that the welfare will decrease since there will be losses from borrowing to bad borrowers as well as losses regarded to the cost of monitoring hard information. Formally, we can prove this by comparing the overall welfare in A and C equilibria. S_C, the total welfare associated with state C is as follows:

$$S_C = \left(\mu_H + \mu_S + p\mu_B\right) R - 1 - \mu_H c_H .$$

The comparison of welfare in equilibrium A and C is straightforward. Evidently, there will be welfare loss since the difference is negative:

$$\Delta S_C = S_C - S_A = -\mu_H c_H \leq 0 .$$

Finally, let's discuss the situation when the cost of monitoring soft information and the cost of adverse selection are both very large relatively to the return of projects such that the only profitable state will be the credit constraint equilibrium. It means that the bank will monitor hard information and will provide the credit only to H type; other borrowers will not receive the financing. In this situation the total volume of lending will decrease. The welfare effect is again ambiguous. It can be positive in the case that savings from not financing bad borrowers will exceed the cost of monitoring hard information and the cost of not getting the profits from projects of S type firms. The welfare in equilibrium D is equal to:

$$S_D = \mu_H R - \mu_H \left(1 + c_H\right).$$

If we compare the welfare in equilibrium states A and D we get the result:

$$\Delta S_D = S_D - S_A = -\mu_{H}\left(1+c_H\right)-\left[R\left(\mu_S + p\mu_B\right)-1\right].$$

First term stands for the costs of financing projects of H type borrowers and monitoring costs, it is always negative. The second term expresses potential gains from not financing bad borrowers but at the same time losses from not realizing projects of type B, the sign is not straightforward and will depend on parameters of the model.

We have shown that the impact of foreign bank entry on the overall welfare is not straightforward. There are particular situations in which the economy benefits from foreign presence, but there are also cases in which the total welfare decreases. Important conclusion of the model is the finding that even if foreign banks bring welfare improvement, all the gains are appropriated by less opaque borrowers. Since less opaque borrowers are usually represented by large companies, this finding will be the basis for the second hypothesis tested in the empirical part of the thesis. There we will try to show that benefits associated with foreign bank entry are absorbed by large borrowers.

5.4 Conclusions of the Theoretical Model

In this chapter we presented model developed by Detragiache and others (2006) that theoretically derives the basic hypotheses about the effects of foreign bank entry in transition countries. If we accept the crucial assumption that foreign entrants have advantage in monitoring hard information while domestic banks are better in monitoring soft information, we can derive some straightforward conclusions.

In the first part of the model it was shown that higher foreign bank presence is associated will lower volume of total lending. Then we showed that if foreign presence has some beneficiary effect, all the gain will be absorbed by less opaque borrowers on the market.

Using results of the model we can formulate the main hypotheses for our empirical research that will be presented in the next section:

Hypothesis 1: In transition countries, the total volume of private credit is declining with higher degree of foreign bank participation.

Hypothesis 2: If foreign entry improves conditions for obtaining credit, all the benefits will be appropriated by large borrowers.

6. Data

The empirical part of the thesis will focus on the impact of foreign bank presence on the accessibility of credit in transition economies. We will examine whether there is any relation between the perceptions about credit conditions and the degree of foreign bank presence in the country. Concretely, we will see how are the perceptions about accessibility of finance (considering for example collateral requirements or willingness of banks to provide credit) and the cost of finance (interest rates and charges) related to the level of foreign investment in banking sector.

We will try to find support for the two hypotheses derived from theoretical model. First, the total volume of provided credit is in transition economies negatively correlated with the degree of foreign bank participation. Second, the benefits of foreign bank presence are absorbed by large borrowers.

Moreover we will identify whether conditions for obtaining credit differ in particular regions and whether also the sector within which the enterprise operates plays role. Finally, we will consider not only the effect of foreign banks but also the impact of state-owned banks and the efficiency of domestic banking sector.

6.1 Data Description

The analysis of the effect of foreign bank presence on credit availability will be based on dataset that combines firm-level data and the information about the degree of foreign bank participation across countries, together with selected macroeconomic variables.

The firm-level data come from The Business Environment and Enterprise Performance Survey (BEEPS) 2005[4] which is a joint initiative of the European Bank for Reconstruction and Development (EBRD) and the World Bank Group. The aim of this survey was to assess conditions for private enterprise and business development in transition economies. The survey includes responses of firms operating in 28 countries; 16 of them are from Central and Eastern Europe (CEE) plus Turkey: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, FR Yugoslavia, FYROM,

[4] Source: European Bank For Reconstruction and Development: BEEPS 2005

Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia and Turkey. And 12 from the Commonwealth Independent States (CIS): Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

Approximately 9,500 enterprises were included into the sample. To ensure cross-country comparability in BEEPS the authors selected only firms that met the general targeted criteria; the conditions were as follows: (i) Sector: In each country the proportion of sectors (manufacturing versus services) was selected as to reflect their relative contribution to GDP. (ii) Size: At least 10% of firms were to be small (2-49 employees) and at least 10% large (250-9,999). Companies with only one or more than 10,000 employees were not included. (iii) Ownership: At least 10% of the firms were of foreign control (more than 50% shareholding). (iv) Exporters: At least 10% of the firms were to be exporters (exports more than 20% of total assets). (v) Location: At least 10% of the firms were in small city/countryside (population under 50,000). (vi) BEEPS 2002 sample coverage: The aim was to preserve as much comparability with the BEEPS 2002 sample as possible.

The survey had a form of interviews with managers of the firms. The questionnaire included 75 questions in which the respondents should evaluate the conditions for doing business in their countries. Among others, managers were asked to assess how problematic several financing issues were to the operation and growth of their businesses on a scale from 1 (no obstacle) to 4 (major obstacle). Our study will be primary interested in assessment of two factors that are most related to the banking, namely, the access to finance (e.g., collateral required or financing not available from banks) and the cost of financing (e.g., interest rates and charges). In our study we will try to show how is the perception of these factors related to the presence of foreign banks in the country and other dependent variables.

Furthermore, we will use the information about enterprise characteristics that BEEPS includes. Our analysis will distinguish between the credit availability for small, medium and large firms[5]. We will control also for the effect of state and foreign ownership of the company[6].

[5] small=2-49 employees, medium=50-250 employees, large=250-9999 employees

[6] state=over 50 per cent of the enterprise is owned by state, foreign=over 50 per cent of the enterprise is owned by foreign investors

Moreover we will take the advantage of BEEPS study to control for the effect of different institutional quality among countries. There is a question in the survey regarded to the enforcement of property rights; managers were asked to assess to what degree they are confident that legal system will uphold their contract and property rights in business disputes. Their answers are ranked from 1 (lowest degree) to 6 (highest degree). Complementary, managers were asked to assess the degree of corruption of legal system in their countries, similarly on the scale from 1 (no corruption) to 6 (strong suspicion of corruption). We will include these assessments into the model as proxies for the quality of institutional environment. The idea behind is that businesses having less difficulties in obtaining credit will operate in countries with better institutional quality.

Information about the degree of foreign bank participation across countries come from Economic Statistics (Structural Change Indicators)[7] published by EBRD. As a measure of foreign bank presence in our study we take the indicator *Asset share of foreign-owned banks (in percent)* that stands for the share of total bank sector assets in banks with foreign ownership exceeding 50 percent.

To separate the independent impact of foreign banks on access to credit from macroeconomic and institutional factors that might influence foreign presence as well as conditions for obtaining credit, we will directly control for them. Also these data come from Economic Statistics (Selected Economic Indicators)[8] published by EBRD. We will control for the share of M2 to GDP, the change in this variable, the level of GDP per capita, the growth rate of GDP per capita and inflation.

M2 as a percentage of GDP is included as a proxy for level of financial development. It is expected that the higher overall financial development is the better perceptions about credit accessibility and cost of financing. Furthermore, we control for a change in this M2 to GDP, since recent changes in financial sector development might be significant for managers perceptions as well.

There are two basic ideas behind the inclusion of GDP level. Several studies suggest that richer countries tend to have better protection of property rights and the rule of law. First, we expect that credit providing should be easier in countries with stronger institutions. Second, better institutions will probably influence the willingness

[7] Source: European Bank For Reconstruction and Development: Transition Report 2007
[8] Source: European Bank For Reconstruction and Development: Transition Report 2007

of foreign banks to enter the domestic market. GDP per capita growth is included because we expect that this variable might influence banks' perceptions about business climate in the country and therefore influence lending policy.

Inflation is controlled as an indicator of macroeconomic stability. It is assumed that perceptions about the access to finance and the cost of finance might be distorted in instable economy.

In the last part of the thesis we will discuss also the impact of other characteristics of domestic banking sector that might influence the overall perceptions about credit accessibility. Namely, the share of state-owned banks in the country and the level of credit provided to households. Data on both variables come also from Economic Statistics (Structural Change Indicators)[9] published by EBRD.

All dependent and independent variables together with their descriptions and sources are summarized in table 1.

[9] Source: European Bank For Reconstruction and Development: Transition Report 2007

Table1: Description of dependent and independent variables

Variable	Description	Source
DEPENDENT VARIABLES		
Access to finance	ordered value 1-4	BEEPS
Cost of finance	ordered value 1-4	BEEPS
INDEPENDENT VARIABLES		
Foreign banks		
Assets of foreign banks	Percent of total banking system assets in 2005	EBRD
Enterprise characteristics		
Small enterprise (less than 50 employees)	Dummy	BEEPS
Medium enterprises (between 50 and 250 employees)	Dummy	BEEPS
Foreign ownership	Percent of state owned	BEEPS
State ownership	Percent of foreign owned	BEEPS
Corruption	ordered value 1-6	BEEPS
Property rights	ordered value 1-6	BEEPS
Macroeconomic factors		
Per capita GDP	Natural log (2004)	EBRD
Per capita GDP growth	2004	EBRD
M2 (quase-money and money)	Percent of GDP (2004)	EBRD
Change in M2	Percent of GDP (2004)	EBRD
Inflation	2004	EBRD
Regional dummies		
CEE	Dummy	BEEPS
Sector dummies		
Mining and quarrying	Dummy	BEEPS
Construction	Dummy	BEEPS
Manufacturing	Dummy	BEEPS
Transport storage and communication	Dummy	BEEPS
Wholesale, retail, repairs	Dummy	BEEPS
Real estate, renting and business services	Dummy	BEEPS
Hotels and restaurants	Dummy	BEEPS
Domestic banking sector		
State-owned banks	Percent of total banking system assets in 2005	EBRD
Credit to HH	Percent of GDP (2004)	EBRD

Notes: BEEPS refers to BEEPS2005, EBRD refers to EBRD Transition report 2007, both published by EBRD

6.2 BEEPS Results

Before estimating the econometric model we will make a brief analysis of the results of BEEPS survey. Table 2 summarizes the average scoring for access to finance and cost of finance among countries in 2002 and 2005[10]. By comparing differences in each indicator we can conclude that there is no clear pattern about the improvement of

[10] Source: European Bank For Reconstruction and Development: BEEPS 2002 and BEEPS 2005

conditions for financing enterprises between 2002 and 2005. However most of the countries rated the access to finance better in 2005, there are still 12 countries that at averaged considered finance accessibility becoming worse. Very similar results can be concluded for cost of financing.

Table 2: Average score for access to finance and cost of finance, 2002 and 2005

	Access to finance		Cost of finance	
	2002	2005	2002	2005
Albania	2,07	2,45	2,59	2,74
Armenia	2,34	2,8	2,52	3,12
Azerbaijan	2,16	2,18	2,20	2,53
Belarus	2,47	1,99	2,78	2,23
Bosna and Herzegovina	2,53	2,09	2,79	2,33
Bulgaria	2,80	2,4	2,88	2,79
Croatia	2,18	1,94	2,27	2,08
Czech rep	2,45	2,75	2,53	3,04
Estonia	1,94	2,31	2,01	2,76
FYROM	2,08	2,46	2,38	2,4
Georgia	2,21	2,44	2,53	2,67
Hungary	2,22	2,46	2,31	2,62
Kazakhstan	2,00	1,67	2,16	1,85
Kyrgyz rep	2,24	2,42	2,40	2,55
Latvia	1,85	2,06	2,01	2,46
Lithuania	1,62	2,43	1,99	2,8
Moldova	2,49	1,64	2,95	1,88
Poland	2,65	1,64	3,17	1,9
Romania	2,55	1,66	2,80	1,72
Russia	2,31	2,29	2,24	2,46
Slovak Republic	2,50	1,97	2,58	2,39
Slovenia	1,82	2,17	2,20	2,28
Tajikistan	2,62	1,96	2,69	2,06
Ukraine	2,44	2,03	2,62	2,35

Source: Author's calculations with BEEPS 2002 and 2005 datasets
Note: The average score is based on scale of 1 (no obstacle) to 4 (major obstacle)

Further we will look more closely whether BEEPS results differ for small, medium and large enterprises. Table 3 provides the average score of whole sample with respect to the size of companies. On average small and medium sized firms perceive the access to financing as greater obstacle for the operation and growth of their businesses than large firms do. The same conclusion seems to be true for the cost of financing.

Table 3 also includes the average ratings of state and foreign-owned companies. State- and foreign owned enterprises generally assessed the access to finance as well as the cost of finance as lesser constraints than private domestic companies did. These findings are not so surprising if we admit that state-owned enterprises might have better access to government finance and foreign-owned can be more easily financed from their home countries.

Table 3: Average score for access to finance and cost of finance

	Access to finance	Cost of finance
Small (2-49 employees)	2,30	2,54
Medium (50-249 employees)	2,19	2,47
Large (250-9,999 employees)	2,00	2,26
State-owned (over 50 percent of the enterprise owned by the state)	2,14	2,23
Foreign owned (over 50 percent of the enterprise owned by foreigners)	1,93	2,21
All	2,25	2,50

Source: Author's calculations with BEEPS 2005 dataset
Note: The average score is based on scale of 1 (no obstacle) to 4 (major obstacle)

To obtain a more complex picture about the financing of enterprises we should look at sources of their funding. Respondents of BEEPS were asked to estimate what proportion of their working capital and new investments was financed through funds from several different sources, including commercial banks. Tables 4 and 5 shows statistics for the share of investment financed by internal funds, equity, commercial banks (with distinction of local private, foreign and state-owned), government and informal sources. The data show that the main source of financing for all types of enterprises is internal funds. Small enterprises rely heavily on own sources of financing, more than 70 percent of working capital and new investments are financed by internal funds. Contrary, large firms use internal funds for about 60 percent of their investing activities. The value is still very high but considerably lower than in the case of small enterprises. Equity financing seems to play minor role in financing working capital and new investments for all types of enterprises. Similarly informal sources and trade credits are not crucial for firms' financing.

The point of our interest will be the share of firms' activities financed by banks, whether private commercial, foreign- or state-owned. Bank credit plays a big role in financing of large enterprises; almost 16 percent of working capital and 18 percent of new investments is financed through bank credit. On the contrary, bank financing seems to be not so important for small companies; only about 8 percent of their working capital and 11 percent of new investments is financed by bank credit. Medium-sized companies finance 13 percent of their working capital and 15 percent of new investments by banks. The data therefore show that bank credit plays a relatively small role in the overall financing, especially in the case of small companies.

Table 5 distinguishes between foreign- and state-owned enterprises. Government enterprises rely little on bank credit; the average share of 7 percent for bank financing is actually the lowest among types of companies we analyze. Not surprisingly the

government financing plays significant role (more than 10 percent) in this case. That might be the explanation of why state-enterprises rated the accessibility of credit as a lesser constraint for their business than private companies did. Foreign enterprises generally also do not rely so heavily on bank financing comparing to the average (around 11 percent).

Table 4: Share (%) of working capital and new investments financed by different sources; average for small, medium and large enterprises

	Small		Medium		Large	
	Working capital	New investments	Working capital	New investments	Working capital	New investments
Internal funds/Retained earnings	74,27	71,80	69,06	67,70	64,19	64,35
Equity (i.e. issue new shares)	5,15	4,90	4,55	3,95	4,37	3,60
Borrowing from local private commercial banks	5,89	8,65	9,25	11,13	11,12	11,75
Borrowing from foreign banks	0,70	1,15	1,33	2,00	2,78	3,42
Borrowing from state-owned banks, including state development banks	1,26	1,56	2,36	2,37	2,03	2,57
Loans from family/friends	3,95	3,74	1,30	1,19	0,49	0,25
Money lenders or other informal sources (other than family/friends)	0,83	0,81	0,93	0,66	0,37	0,33
Trade credit from suppliers	3,41	1,29	4,30	1,39	5,24	1,86
Trade credit from customers	1,18	0,55	1,81	0,82	2,01	0,86
Credit cards	0,47	0,26	0,24	0,15	0,24	0,14
Leasing arrangement	1,07	3,17	1,50	4,66	1,23	4,42
The government (other than state-owned banks)	0,62	0,63	2,09	2,15	3,54	3,65
Other	1,18	1,49	1,28	1,84	2,41	2,81

Source: Author's calculations with BEEPS 2005 dataset

Table 5: Share (%) of working capital and new investments financed by different sources; average for state- and foreign owned enterprises

	Government		Foreign	
	Working capital	New investments	Working capital	New investments
Internal funds/Retained earnings	66,87	68,35	70,15	71,43
Equity (i.e. issue new shares)	5,56	3,09	4,97	5,12
Borrowing from local private commercial banks	3,90	4,68	7,38	7,44
Borrowing from foreign banks	0,94	0,91	2,66	3,08
Borrowing from state-owned banks, including state development banks	1,89	1,61	1,36	1,05
Loans from family/friends	0,36	0,16	1,23	0,70
Money lenders or other informal sources (other than vamily/friends)	0,44	0,15	1,02	0,93
Trade credit from suppliers	2,95	1,31	5,87	1,97
Trade credit from customers	1,49	0,87	1,56	0,60
Credit cards	0,10	0,02	0,52	0,27
Leasing arrangement	0,73	2,18	1,23	4,38
The government (other than state-owned banks)	10,33	11,90	0,26	0,39
Other	4,43	4,78	1,80	2,63

Source: Author's calculations with BEEPS 2005 dataset

7. Estimation Strategy

In this section we will examine econometrically whether the accessibility of credit is better in countries having higher degree of foreign bank participation and whether the results differ for enterprises of different size. To analyze these questions empirically, we follow an estimation strategy proposed by Clarke and others (2006) who employed firm-level data from international survey to investigate the issue. The main difference between this thesis and the paper of Clarke and others (2006) is that we examine the relation in different sample of countries; this thesis is focused on the Central and Eastern Europe and Central Asia whilst Clarke and others provide evidence from all over the world. There are also differences in types of explanatory variable included into the model.

The basic equation of our estimation is following:

$$\begin{aligned} Obstacle_{ij} = {} & \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j \\ & + \beta_3 Size_{ij} ForeignBankParticipation_j + \beta_4 X_{ij} + \beta_5 C_j + u_{ij}, \end{aligned} \tag{1}$$

where the index *i* identifies the enterprise and index *j* identifies the country.

The dependent variable *Obstacle* stands for the responses from BEEPS in which managers assess how problematic are several factors for the operation and growth of their business. Namely, we will be interested in managers' perceptions about the access to finance and cost of finance. Both variables take discrete values, from 1 to 4, in ascending order, corresponding to no obstacle, minor obstacle, moderate obstacle and major obstacle.

$Size_{ij}$ is a set of dummy variables indicating whether the company *i* in state *j* is small, medium-sized or large, i.e. if has 2-50 employees, 50-500 employees or 500-9,999 employees, respectively.

$ForeignBankParticipation_j$ stands for the share of total bank sector assets in banks with foreign ownership exceeding 50 per cent in country *j*. The interaction between $Size_{ij}$ and $ForeignBankParticipation_j$ is included to control whether the effect of foreign bank participation differs for different sizes of firms.

The variables X_{ij} are various characteristics of firm *i* in country *j* that might affect managers' perceptions about obstacles to growth of their businesses. There is included

the ownership type (state or foreign) and institutional quality of countries as perceived by particular enterprises (degree of corruption and degree of property rights enforcement). C_j are macroeconomic characteristics of country *j*, namely ratio of M2 to GDP, change in this variable, GDP per capita, GDP per capita growth and inflation.

Finally, u_{ij} is a disturbance term. It is assumed that the disturbance term has a normal distribution.

Since both dependent variables of our analyses are limited dependent variables, taking four discrete values in ascending order, we will estimate the model as an ordered response model by logit method.

7.1 Econometric Estimation

7.1.1 Basic Regression

First, we are going to examine the relationship between the access to finance and the degree of foreign bank participation among countries of BEEPS sample. Equation (1) will in this case have the following form:

$$AccessToFinance_{ij} = \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 X_{ij} + \beta_4 C_j + \beta_5 Region + u_{ij} \quad (2)$$

where the dependent variable is the access to financing as evaluated by companies participating in BEEPS and independent variables are countries' and enterprises' characteristics as described in section 6.1.

Table 6 presents results of estimation using the method of ordered logit model. The model indicates that foreign bank presence is important for explanation of the assessment of credit availability since it is significant at 5% significance level. However, we can also conclude that the effect is quite small. A percentage change in the share of bank assets held by foreign-owned banks should cause the change of only 0.0024 percentage points in access to finance evaluation. Positive value of coefficient suggests that the bigger is the share of foreign banks in a country the worse are the conditions for obtaining credit.

Regarding to the enterprise size, there is evidence that small and medium-sized enterprises rate the access to finance as a greater constraint than large firms do (large

firms is the omitted category in our model). Both variables are significant at one-percent level and both with relatively high values of estimated coefficients (0.34 and 0.28) point to the significant difference between the effects of enterprises of various sizes. This conclusion was already proposed after short BEEPS result analysis (see table 3) and remains true after controlling for another explanatory variables.

The ownership type of an enterprise seems to play in important role as well. The results suggest that foreign-owned enterprises tend to evaluate the access to finance as lesser obstacle than private domestic companies do. Again this proposition is consistent with the conclusion of section 6.2 (see table 3). However, contrary to our expectation the state ownership seems to be irrelevant when assessing conditions for obtaining credit.

With exception of GDP all macroeconomic variables are significant for explanation of access to finance, coefficients of all of them are negative which is mostly in compliance with our theoretical considerations (see section 6.1). Only estimate for inflation does not support our hypothesis.

In the model was included also regional dummy variable. Its significance at one-percent level suggests that assessments differ among countries of Central and Eastern Europe and countries of Commonwealth of Independent States.

Institutional quality matters as well. Both variables, the degree of corruption and property rights protection is significant for explanation credit availability at even 1 percent level. Both estimates have negative signs which is in line with our expectation; better assessment of access to finance is associated with higher evaluation of institutional quality (in our case the estimates are negative because the conditions for obtaining credit are ranked in descending order, while the indicators of institutional quality in ascending order).

Table 6: The effect of foreign bank participation on access to finance (ordered logit estimation)

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Asset share of foreign-owned banks (in %)	0,00239412	0,000986225	2,4276	0,01520	**
Small (dummy)	0,342259	0,0754888	4,5339	<0,00001	***
Medium (dummy)	0,277237	0,0821904	3,3731	0,00074	***
Foreign (% of enterprise that is foreign-owned)	-0,00641963	0,000827291	-7,7598	<0,00001	***
State (% of enterprise that is state-owned)	-0,000211025	0,000865931	-0,2437	0,80746	

(continued on next page)

Table 6 (*continued)*

GDP level per capita (natural log)	0,00604886	0,0431829	0,1401	0,88860	
GDP per capita growth	-0,0357308	0,0141077	-2,5327	0,01132	**
Change in M2 to GDP	-0,0260561	0,00270806	-9,6217	<0,00001	***
M2 (% of GDP)	-0,0108572	0,002079	-5,2223	<0,00001	***
Inflation	-0,0366416	0,00802903	-4,5636	<0,00001	***
Region CEE (dummy)	-0,60644	0,0988694	-6,1337	<0,00001	***
Corruption	-0,0600679	0,0167376	-3,5888	0,00033	***
Property rights	-0,135916	0,0174331	-7,7964	<0,00001	***

Notes: dependent variable is the access to finance, estimation based on 8811 observations
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Further, we will examine the relation between foreign bank participation and the obstacles regarded to the cost of finance. The estimated equation thus changes by the following way:

$$CostOfFinance_{ij} = \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 X_{ij} + \beta_4 C_j + \beta_5 Region + u_{ij} \quad (3)$$

The results of estimation by ordered logit model are presented in table 7. All estimated coefficients are quite similar to those estimated by model (2). Asset share of foreign-owned banks seems to be important for explanation of how problematic the companies' managers saw the cost of finance for operation and growth of their businesses. The relationship is positive, but still quite small. The estimated coefficient 0.008 indicates that the effect is not crucial.

According to the model the cost of finance tends to be bigger obstacle for small and medium-sized enterprises. The effect is considerable, since the values of estimated coefficients (0.21 and 0.23) are relatively high. Further, it is suggested that state- and foreign-owned enterprises rank the cost of finance as smaller constraint than private domestic companies do. Significance of all firms' characteristic variables included in the model is confirmed at even 1 percent significance level.

All countries' characteristic variables are significant at 1 percent level. The estimation indicates that the share of M2 to GDP and change in this variable have a negative impact on the assessment of the cost of financing (i.e. evaluating as lesser problem). This result is in compliance with our expectation. On the other hand, we

wouldn't expect the positive sign of estimated coefficients for GDP level per capita and GDP growth. Thereby is suggested that richer countries consider the cost of financing to be a bigger constraint for their business than poor countries do. Nor we would predict that countries having higher inflation should have more favorable conditions for financing, as is suggested by the estimates.

Similarly to the previous model the region of the country matters. Countries of CEE region seem to have lesser problems with the cost of financing. Moreover, we may conclude that the difference between regions is considerable.

Finally, we may conclude that variables capturing the institutional quality play an important role (due to significance of both variables at even 1 percent level).

Table 7: The effect of foreign bank participation on cost of finance (ordered logit estimation)

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Asset share of foreign-owned banks (in %)	0,00779236	0,000985557	7,9066	<0,00001	***
Small (dummy)	0,214306	0,0737244	2,9068	0,00365	***
Medium (dummy)	0,227631	0,08027	2,8358	0,00457	***
Foreign (% of enterprise that is foreign-owned)	-0,00588081	0,000810326	-7,2573	<0,00001	***
State (% of enterprise that is state-owned)	-0,0037148	0,000849213	-4,3744	0,00001	***
GDP level per capita (natural log)	0,168	0,0429989	3,9071	0,00009	***
GDP per capita growth	0,048722	0,0139842	3,4841	0,00049	***
Change in M2 to GDP	-0,024642	0,00262468	-9,3885	<0,00001	***
M2 (% of GDP)	-0,00569029	0,00207207	-2,7462	0,00603	***
Inflation	-0,0405416	0,00780611	-5,1936	<0,00001	***
Region CEE (dummy)	-0,934483	0,0979423	-9,5412	<0,00001	***
Corruption	-0,0753081	0,0164851	-4,5682	<0,00001	***
Property rights	-0,129362	0,0172243	-7,5104	<0,00001	***

Notes: dependent variable is the cost of finance, estimation based on 8864 observations
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Our results suggest that managers in countries having higher degree of foreign bank participation perceive the access to finance and the cost of finance as bigger constraints for operation and growth of their businesses. Now, we would like to examine what part of this effect is absorbed by small and medium sized enterprises relative to the large ones. To control for this possibility we include into to the model interaction terms; the interaction between variables small and asset share of foreign-

owned banks and the interaction between variables medium and asset share of foreign-owned banks.

The access to finance will be then characterized by the following equation:

$$AccessToFinance_{ij} = \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 Size_{ij} ForeignBankParticipation_j + \beta_4 X_{ij} + \beta_5 C_j + u_{ij}. \quad (4)$$

Coefficients estimated by ordered logit model, together with standard errors of estimates and p-values are presented in the table 8. By comparing p-values of estimates, we see that both interactive terms are significant for explanation of dependent variable at 5 percent level. That is why we can draw the conclusion that foreign bank presence does not affect all enterprises equally.

Although the sign of coefficient for the impact of foreign bank presence is negative, the variable is not significant in this model. The effect of foreign presence can be thus deduced only through impact of its interaction with size variables. The same is true as for the size of enterprises. Large enterprises, which are the omitted category in the model, should according to estimated coefficient rate access to finance better than small and medium-sized, but the difference is not statistically significant.

Macroeconomic variables, except of GDP and GDP growth, remain significant at even 1 percent level. Coefficients does not differ much from these estimated by model (2). Similarly, regional dummy for countries of CEE is important, low p-value and high estimated coefficient indicate a big difference between countries of CEE and CIS. As well the institutional quality is important.

Table 8: The effect of foreign bank participation on access to finance including interactive terms (ordered logit estimation)

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Asset share of foreign-owned banks (in %)	-0,00201351	0,00227062	-0,8868	0,37521	
Small (dummy)	0,03698	0,164686	0,2245	0,82233	
Medium (dummy)	-0,0520839	0,185746	-0,2804	0,77917	
Foreign (% of enterprise that is foreign-owned)	-0,00641007	0,000827472	-7,7466	<0,00001	***
State (% of enterprise that is state-owned)	-0,00031117	0,000866924	-0,3589	0,71964	
GDP level per capita (natural log)	0,00670662	0,0431914	0,1553	0,87660	
GDP per capita growth	-0,035986	0,0141073	-2,5509	0,01075	**
Change in M2 to GDP	-0,0260485	0,00270778	-9,6199	<0,00001	***

(continued on next page)

Table 8 (*continued*)

M2 (% of GDP)	-0,0109455	0,00208096	-5,2598	<0,00001	***
Inflation	-0,0369647	0,00803247	-4,6019	<0,00001	***
Corruption	-0,605953	0,0988779	-6,1283	<0,00001	***
Property rights	-0,0603821	0,0167377	-3,6075	0,00031	***
Region CEE (dummy)	-0,135797	0,0174334	-7,7895	<0,00001	***
Asset share of foreign-owned banks*Small	0,00479978	0,00230565	2,0817	0,03737	**
Asset share of foreign-owned banks*Medium	0,00520281	0,00263635	1,9735	0,04844	**

Notes: dependent variable is the access to finance, estimation based on 8811 observations
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Further, we will study how the effect of foreign bank presence differs among enterprises of different sizes in the model explaining the cost of finance. The estimated model is in this case summarized by equation

$$CostOfFinance_{ij} = \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 Size_{ij} ForeignBankParticipation_j + \beta_4 X_{ij} + \beta_5 C_j + u_{ij}. \quad (5)$$

Results presented in the table 9 propose again that the impact of foreign banks is not distributed equally. It is suggested that the effect is absorbed more by large enterprises than by small ones. However, this conclusion can't be drawn for medium-sized businesses since the statistical significance of interactive term between asset share of foreign owned banks and medium size enterprise is rejected.

All countries' characteristics are statistically significant for explanation of perceptions about cost of financing (significance at 5 percent level or better). Positive coefficients for level of GDP and GDP growth suggest that richer countries tend to rate the costs of finance as bigger constraint than poor countries do. Negative values of estimated coefficients of other macroeconomic characteristics indicate conclusions similar to the previous model.

The evaluation of cost of finance seems to be very different in countries of CEE and countries of CIS. The estimated coefficient of regional dummy variable is very high (-0.93) which indicates a really important difference between the two studied samples.

As in the previous models, the degree of property rights enforcement and the presence of corruption seem to be significantly related to the explanatory variable.

Table 9: The effect of foreign bank participation on the cost of finance including interactive terms (ordered logit estimation)

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Asset share of foreign-owned banks (in %)	0,004527	0,00221055	2,0479	0,04057	**
Small (dummy)	-0,0238633	0,158313	-0,1507	0,88018	
Medium (dummy)	0,0390795	0,179001	0,2183	0,82718	
Foreign (% of enterprise that is foreign-owned)	-0,00588593	0,000810499	-7,2621	<0,00001	***
State (% of enterprise that is state-owned)	-0,00381794	0,000850879	-4,4871	<0,00001	***
GDP level per capita (natural log)	0,168914	0,0430055	3,9277	0,00009	***
GDP per capita growth	0,0483929	0,0139844	3,4605	0,00054	***
Change in M2 to GDP	-0,0246233	0,00262434	-9,3827	<0,00001	***
M2 (% of GDP)	-0,00580622	0,0020739	-2,7997	0,00512	***
Inflation	-0,0409907	0,00781141	-5,2475	<0,00001	***
Region CEE (dummy)	-0,933619	0,0979522	-9,5314	<0,00001	***
Corruption	-0,0751882	0,0164895	-4,5598	<0,00001	***
Property rights	-0,129448	0,017226	-7,5147	<0,00001	***
Asset share of foreign-owned banks*Small	0,00379605	0,00223781	1,6963	0,08983	*
Asset share of foreign-owned banks*Medium	0,0030461	0,00256415	1,1880	0,23485	

Notes: dependent variable is the cost of finance, estimation based on 8864 observations
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

7.1.2 Estimation of Separate Models for CEE and CIS Countries

Summarizing the results till now, we can conclude that in countries having higher degree of foreign bank participation managers tend to rate financing conditions as bigger constraints for development of their companies (the proposition is valid for both, the access to finance and the cost of finance). Second part of our analyses suggests that this effect of foreign banks is not distributed equally among companies of different sizes. It is proposed that bigger part of the effect is absorbed by large enterprises, compared to enterprises of small and medium-sized (similar results concluded for the access to finance and cost of finance).

Regarding other explanatory variables, regional dummy for countries of CEE calls special attention. The variable is significant at even one percent level in all regressions and its estimated coefficient is considerably high in all cases. It suggests that perceptions about financing conditions differ a lot in countries of CEE and countries of CIS. Since the difference is substantial, it might be useful divide the sample into two subsamples and treat each group separately.

Next, we will continue our analysis by studying the subsamples for countries of CEE and CIS separately. Table 10 summarizes the estimations of model (2) for both, CEE and CIS countries. The significance of asset share of foreign banks is confirmed in both cases, at 1 percent level. However, the relation with the dependent variable is completely different. In CEE region it is suggested that higher foreign bank presence improves the perceptions about the finance accessibility, whilst in CIS the opposite proposition seems to be true. Moreover, the effect in countries of CIS is stronger compared to this of CEE as well as compared to the overall regression.

As for the effect of enterprise size, in compliance with previous results the model for CEE region predicts that small and medium-sized enterprises consider the access to finance as a bigger constraint than large firms. Contrary, enterprise size seems to be irrelevant for model explaining credit conditions in CIS region. Foreign enterprises tend to grade access to finance as lesser obstacle and state ownership is not significant in both models at all.

In contradiction to the overall model GDP level per capita is significant in submodels. Countries having higher level of GDP are supposed to rate the access to finance worse in CEE region, whilst in CIS the contrary is true. Estimated coefficient for the growth of GDP indicates its expected positive relation with dependent variable. But only on the case of CEE the relation is significant.

Most of the estimates of coefficients for other response variables do not differ significantly from these of overall model. The only exception is the perception of corruption which surprisingly is not significant for the explanation of model for CIS region.

Table 10: The effect of foreign bank participation on access to finance in CEE countries (columns a-c) and CIS countries (columns d-f), ordered logit estimation

	(a)	*(b)*	*(c)*		*(d)*	*(e)*	*(f)*	
	Coefficient	*Std. Error*	*t-ratio*		*Coefficient*	*Std. Error*	*t-ratio*	
Asset share of foreign-owned banks (in %)	-0,00654934	0,00156183	-4,1934	***	0,0105156	0,0024034	4,3753	***
Small (dummy)	0,459703	0,0966104	4,7583	***	0,141646	0,121552	1,1653	
Medium (dummy)	0,340392	0,106127	3,2074	***	0,172003	0,130305	1,3200	

(continued on next page)

Table 10 (*continued*)

Foreign (% of enterprise that is foreign-owned)	-0,00598004	0,00105445	-5,6712	***	-0,00733664	0,00134724	-5,4457	***
State (% of enterprise that is state-owned)	4,48718e-06	0,00110072	0,0041		-0,000719429	0,00141863	-0,5071	
GDP level per capita (natural log)	-0,351305	0,0662843	-5,3000	***	0,278298	0,0681863	4,0814	***
GDP per capita growth	0,186564	0,0387773	4,8112	***	0,031053	0,0288314	1,0771	
Change in M2 to GDP	-0,0507872	0,00629864	-8,0632	***	-0,0231658	0,00413301	-5,6051	***
M2 (% of GDP)	0,0104822	0,00353528	2,9650	***	-0,0295448	0,00473711	-6,2369	***
Inflation	-0,0635125	0,0110463	-5,7497	***	-0,0259541	0,0141037	-1,8402	*
Corruption	-0,0830677	0,0214692	-3,8692	***	-0,0357882	0,0275493	-1,2991	
Property rights	-0,12206	0,0222533	-5,4850	***	-0,162727	0,0286453	-5,6808	***

Notes: dependent variable is the access to finance, estimation based on 5539 observations from CEE and 3272 from CIS
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Table 11 shows results of regression (3) for sample of countries in CEE and sample of countries in CIS separately. As in the previous case, the estimated coefficient of variable of our interest (cost of finance) has got the opposite sign for our subsamples. The interpretation is that managers in countries of CEE region having higher presence of foreign banks perceive the cost of finance as a lesser constraint for their businesses. On the other hand, in countries of CIS the higher degree of foreign bank participation indicates worse evaluation of cost of finance.

Enterprise size matters only in the model for countries of CEE. Similarly to the previous conclusion, small and medium-sized companies tend to rate the cost of finance as bigger constraint. Results for foreign and state firms are consistent with these of overall model; generally these types of companies see the cost of financing as lesser problem than private domestic companies.

Institutional quality seems to be important for explanation of cost of finance. Both indicators of institutional environment are significant at least at 5 percent in both subsamples.

Estimated coefficients for countries' characteristic variables would lead to the same conclusions as were made in model explaining the access to finance.

Table 11: The effect of foreign bank participation on cost of finance in CEE countries (columns a-c) and CIS countries (columns d-f), ordered logit estimation

	(a)	*(b)*	*(c)*		*(d)*	*(e)*	*(f)*	
	Coefficient	*Std. Error*	*t-ratio*		*Coefficient*	*Std. Error*	*t-ratio*	
Asset share of foreign- owned banks (in %)	-0,00319877	0,00156028	-2,0501	**	0,0124031	0,00233314	5,3161	***
Small (dummy)	0,274306	0,0946766	2,8973	***	0,0894559	0,118734	0,7534	
Medium (dummy)	0,27508	0,104073	2,6432	***	0,137995	0,127166	1,0852	
Foreign (% of enterprise that is foreign-owned)	-0,00605999	0,00103505	-5,8548	***	-0,0056693	0,0013254	-4,2774	***
State (% of enterprise that is state-owned)	-0,00472463	0,00108418	-4,3578	***	-0,00260356	0,00138907	-1,8743	*
GDP level per capita (natural log)	-0,215649	0,0671121	-3,2133	***	0,454578	0,0672735	6,7572	***
GDP per capita growth	0,34872	0,0380527	9,1642	***	0,0747522	0,0279035	2,6790	***
Change in M2 to GDP	-0,0484703	0,00612184	-7,9176	***	-0,0298787	0,0040313	-7,4117	***
M2 (% of GDP)	0,0254196	0,00352097	7,2195	***	-0,0330844	0,00468578	-7,0606	***
Inflation	-0,0696275	0,0106987	-6,5080	***	-0,0312041	0,0132426	-2,3563	**
Corruption	-0,090707	0,0212185	-4,2749	***	-0,061448	0,0269352	-2,2813	**
Property rights	-0,101083	0,0221309	-4,5675	***	-0,188138	0,0281202	-6,6905	***

Notes: dependent variable is the cost of finance, estimation based on 5580 observations from CEE and 3476 from CIS
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

To finish our analyses it remains to look at the estimation of the model including interactive terms for the two samples of countries separately. Table 12 indicates again the negative relationship between foreign bank presence and access to finance ratings in CEE countries, whereas positive relation in countries of CIS. Explanatory variables are statistically significant for both samples at least 5 percent level. However, the effect seems to be very small in both cases, close to zero we can conclude. As for the effect of enterprise size, in these models we mostly cannot reject the null hypotheses that the effect is distributed among all countries equally. Only in the model for access to finance we can find that small enterprises are affected by foreign bank presence more in CEE, since the interactive term is significant at 10 percent level. Dummy variables for enterprise sizes itself are not significant for the explanation of managers' perceptions about the access to finance.

Table 12: The effect of foreign bank participation on access to finance in CEE countries (columns a-c) and CIS countries (columns d-f) including interactive terms, ordered logit estimation

	(a)	*(b)*	*(c)*		*(d)*	*(e)*	*(f)*	
	Coefficient	*Std. Error*	*t-ratio*		*Coefficient*	*Std. Error*	*t-ratio*	
Asset share of foreign- owned banks (in %)	-0,0118624	0,00401182	-2,9569	***	0,00935418	0,00444386	2,1050	**
Small (dummy)	0,0484991	0,342195	0,1417		0,111993	0,204855	0,5467	
Medium (dummy)	-0,319037	0,392009	-0,8139		0,045724	0,227099	0,2013	
Foreign (% of enterprise that is foreign-owned)	-0,00598947	0,00105481	-5,6782	***	-0,00728924	0,00134943	-5,4017	***
State (% of enterprise that is state-owned)	-0,000114466	0,00110432	-0,1037		-0,000663946	0,00142345	-0,4664	
GDP level per capita (natural log)	-0,35321	0,0662973	-5,3277	***	0,280291	0,0682375	4,1076	***
GDP per capita growth	0,186551	0,0387791	4,8106	***	0,0319079	0,0288754	1,1050	
Change in M2 to GDP	-0,0508358	0,00629844	-8,0712	***	-0,0231033	0,00413837	-5,5827	***
M2 (% of GDP)	0,0105326	0,00353525	2,9793	***	-0,0295828	0,00473704	-6,2450	***
Inflation	-0,0631453	0,0110517	-5,7136	***	-0,026037	0,0141174	-1,8443	*
Corruption	-0,0833256	0,0214694	-3,8811	***	-0,0363968	0,0275578	-1,3207	
Property rights	-0,12237	0,0222598	-5,4974	***	-0,163345	0,0286709	-5,6972	***
Asset share of foreign-owned banks*Small	0,00521431	0,0041668	1,2514		0,00079875	0,004112	0,1942	
Asset share of foreign-owned banks*Medium	0,00840197	0,00481273	1,7458	*	0,0030803	0,00459262	0,6707	

Notes: dependent variable is the access to finance, estimation based on 5539 observations from CEE and 3272 from CIS
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level, ** Significance at the 5%, Significance at the 1%

Looking at the table 13 that presents the estimation of equation (5) for CEE and CIS region separately, we find evidence that foreign bank presence has impact on perceptions about the cost of finance only in countries of CIS. In CEE region the asset share of foreign banks is not important for explaining difficulties with cost of finance at all.

Another great contradiction to the overall model is that enterprise size does not matter much in both subsamples. Neither the interaction of foreign bank presence and enterprise size is significant.

Table 13: The effect of foreign bank participation on cost of finance in CEE countries (columns a-c) and CIS countries (columns d-f) including interactive terms, ordered logit estimation

	(a)	*(b)*	*(c)*		*(d)*	*(e)*	*(f)*	
	Coefficient	*Std. Error*	*t-ratio*		*Coefficient*	*Std. Error*	*t-ratio*	
Asset share of foreign- owned banks (in %)	-0,00462266	0,00405174	-1,1409		0,00951799	0,0042753	2,2263	**
Small (dummy)	0,183368	0,345184	0,5312		-0,0542717	0,195537	-0,2776	
Medium (dummy)	0,0277084	0,395302	0,0701		0,0873695	0,217425	0,4018	
Foreign (% of enterprise that is foreign-owned)	-0,0060671	0,0010352	-5,8608	***	-0,00565914	0,0013288	-4,2589	***
State (% of enterprise that is state-owned)	-0,00476254	0,00108807	-4,3770	***	-0,0027399	0,00139351	-1,9662	**
GDP level per capita (natural log)	-0,216378	0,0671206	-3,2237	***	0,453325	0,0673317	6,7327	***
GDP per capita growth	0,348472	0,0380552	9,1570	***	0,0738943	0,0279119	2,6474	***
Change in M2 to GDP	-0,0484761	0,00612165	-7,9188	***	-0,0300468	0,00403493	-7,4467	***
M2 (% of GDP)	0,0254456	0,00352126	7,2263	***	-0,033125	0,00468683	-7,0677	***
Inflation	-0,0694191	0,0107029	-6,4860	***	-0,031781	0,0132623	-2,3964	**
Corruption	-0,0908361	0,0212209	-4,2805	***	-0,0611787	0,0269351	-2,2713	**
Property rights	-0,101074	0,0221377	-4,5657	***	-0,187223	0,0281295	-6,6557	***
Asset share of foreign-owned banks*Small	0,00114933	0,00420898	0,2731		0,00363064	0,00399803	0,9081	
Asset share of foreign-owned banks*Medium	0,00315171	0,00485636	0,6490		0,00139279	0,00448426	0,3106	

Notes: dependent variable is the cost of finance, estimation based on 5580 observations from CEE and 3284 from CIS
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

7.1.3 Estimation of the Model including Sector Dummies

The BEEPS dataset allows identifying the sector in which companies operate. There are seven sectors taken into account: (i) mining and quarrying (ii) construction (iii) manufacturing (iv) transport, storage and communication (v) wholesale, retail, repairs (vi) real estate, renting and business services and (vii) hotels and restaurants. We will consider the enterprise to fall into the category if at least 50 percent of its sales come from the specific sector. The category “others” that is the eighth choice in the survey will be omitted variable in our model.

Now we will analyze whether the sector in which the company operates is relevant for the explanation of managers' perceptions regarding to the access of finance. We will estimate again the basic equation adding the dummies for sectors:

$$AccessToFinance_{ij} = \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 X_{ij} + \beta_4 C_j + \beta_5 Region + \beta_6 Sector_{ij} + u_{ij}$$

Table 14 presents the results. At 5 percent level only the sectors of manufacturing, real estate, renting and business services and hotels and restaurants are significant in the model. Negative estimated coefficients of real estates and hotels suggest that these sectors perceive the access to finance as a minor obstacle than other firms. Contrary, for manufacturing sector the same factor seems to be bigger constraint. All estimated coefficients of significant sector variables are relatively high (absolute value between 0.20 and 0.37), this fact points out to the considerable effect of industry on perception about finance availability.

Table 14: The effect of foreign bank participation on access to finance (ordered logit estimation), sector dummies included

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Asset share of foreign-owned banks (in %)	0,00220774	0,000993194	2,2229	0,02622	**
Small (dummy)	0,447699	0,0769527	5,8178	<0,00001	***
Medium (dummy)	0,309525	0,0825069	3,7515	0,00018	***
Foreign (% of enterprise that is foreign-owned)	-0,00615066	0,000832071	-7,3920	<0,00001	***
State (% of enterprise that is state-owned)	0,00040651	0,000884097	0,4598	0,64566	
GDP level per capita (natural log)	0,00150713	0,0434139	0,0347	0,97231	
GDP per capita growth	-0,0266216	0,0142103	-1,8734	0,06101	*
Change in M2 to GDP	-0,0232311	0,00273501	-8,4940	<0,00001	***
M2 (% of GDP)	-0,00931911	0,0020937	-4,4510	<0,00001	***
Inflation	-0,0370255	0,00807262	-4,5866	<0,00001	***
Region CEE (dummy)	-0,547653	0,0997546	-5,4900	<0,00001	***
Corruption	-0,0626295	0,0167795	-3,7325	0,00019	***
Property rights	-0,131169	0,0174756	-7,5058	<0,00001	***
Mining and quarrying	0,0696336	0,24729	0,2816	0,77826	
Construction	0,184896	0,117484	1,5738	0,11553	
Manufacturing	0,206613	0,102532	2,0151	0,04389	**
Transport storage and communication	0,0566541	0,127105	0,4457	0,65579	
Wholesale, retail, repairs	-0,112726	0,105567	-1,0678	0,28560	

(continued on next page)

Table 14 (*continued*)

Real estate, renting and business services	-0,371261	0,121619	-3,0527	0,00227	***
Hotels and restaurants	-0,270786	0,133402	-2,0299	0,04237	**

Notes: dependent variable is the access to finance, estimation based on 7567 observations
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Table 15 presents the estimation of the model explaining the assessment of problems regarding to the cost of finance:

$$CostOfFinance_{ij} = \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 X_{ij} + \beta_4 C_j + \beta_5 Region + \beta_6 Sector_{ij} + u_{ij}.$$

Mining and quarrying and wholesale, retail, repairs are variables that are significant in the model at even 1 percent level. Further, the significance at 5 and 10 percent level is evident for real estates, renting and business services and hotel and restaurants, respectively. Enterprises from these four sectors seem to rate the cost of finance as bigger constraint for operation and growth of their businesses.

Table 15: The effect of foreign bank participation on cost of finance (ordered logit estimation), sector dummies included

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Asset share of foreign-owned banks (in %)	0,00764403	0,000992232	7,7039	<0,00001	***
Small (dummy)	0,306693	0,0750898	4,0844	0,00004	***
Medium (dummy)	0,259644	0,0804999	3,2254	0,00126	***
Foreign (% of enterprise that is foreign-owned)	-0,00569916	0,00081406	-7,0009	<0,00001	***
State (% of enterprise that is state-owned)	-0,00276295	0,000867784	-3,1839	0,00145	***
GDP level per capita (natural log)	0,171248	0,0432073	3,9634	0,00007	***
GDP per capita growth	0,0583891	0,014073	4,1490	0,00003	***
Change in M2 to GDP	-0,0222319	0,00264969	-8,3904	<0,00001	***
M2 (% of GDP)	-0,00444657	0,00208454	-2,1331	0,03291	**
Inflation	-0,0411602	0,00784789	-5,2447	<0,00001	***
Region CEE (dummy)	-0,893876	0,0987914	-9,0481	<0,00001	***
Corruption	-0,077574	0,016509	-4,6989	<0,00001	***
Property rights	-0,125278	0,0172547	-7,2605	<0,00001	***
Mining and quarrying	0,437836	0,10104	4,3333	0,00001	***
Construction	-0,0906813	0,118999	-0,7620	0,44604	
Manufacturing	0,0256686	0,130808	0,1962	0,84443	

(continued on next page)

Table 15 (*continued*)

Transport storage and communication	-0,107529	0,239152	-0,4496	0,65298	
Wholesale, retail, repairs	0,371499	0,115785	3,2085	0,00133	***
Real estate, renting and business services	0,257806	0,125122	2,0604	0,03936	**
Hotels and restaurants	0,202617	0,10404	1,9475	0,05148	*

Notes: dependent variable is the cost of finance, estimation based on 7618 observations
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Further, we will examine whether the effect of foreign banks is distributed among enterprises of different sectors equally. As in the case of company's size, we will do that by inclusion of interactive terms between the sector dummy and the variable describing the foreign bank presence into the model. The estimated model will be thus as follows:

$$AccessToFinance_{ij} = \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 X_{ij} + \beta_4 C_j + \beta_5 Region + \beta_6 Sector_{ij} + \beta_7 Sector_{ij} * ForeignBankParticipation_j + u_{ij}$$

.

Table 16 presents the regression outcome. Sufficiently high p-value (5 percent or more) has interactions between foreign bank participation and the following sectors: manufacturing, construction and hotels. All three estimates have positive value which indicates that companies operating in these sectors are affected by foreign bank presence more than other companies, as regard to the perception of finance accessibility.

Table 16: The effect of foreign bank participation on the access to finance (ordered logit estimation), sector dummies included and interactive terms included

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Asset share of foreign-owned banks (in %)	0,00140358	0,00134286	1,0452	0,29592	
Small (dummy)	0,384503	0,113188	3,3970	0,00068	***
Medium (dummy)	0,307621	0,0782776	3,9299	0,00008	***
Foreign (% of enterprise that is foreign-owned)	-0,00655723	0,000783296	-8,3713	<0,00001	***
State (% of enterprise that is state-owned)	-0,000845599	0,000818742	-1,0328	0,30170	
GDP level per capita (natural log)	0,0664377	0,0392972	1,6906	0,09090	*
GDP per capita growth	0,00836423	0,0128121	0,6528	0,51386	
Change in M2 to GDP	-0,0255307	0,00246401	-10,3615	<0,00001	***
M2 (% of GDP)	-0,0100048	0,00196213	-5,0990	<0,00001	***

(continued on next page)

Table 16 (*continued*)

Inflation	-0,0470619	0,00736722	-6,3880	<0,00001	***
Region CEE (dummy)	-0,683775	0,0892516	-7,6612	<0,00001	***
Corruption	0,172535	0,437065	0,3948	0,69302	
Property rights	-0,184489	0,172141	-1,0717	0,28384	
Mining and quarrying	0,0693151	0,130822	0,5298	0,59622	
Construction	-0,369515	0,202293	-1,8266	0,06776	*
Manufacturing	-0,294356	0,144894	-2,0315	0,04220	**
Transport storage and communication	-0,46927	0,18747	-2,5032	0,01231	**
Wholesale, retail, repairs	-0,237749	0,225674	-1,0535	0,29211	
Real estate, renting and business services	-0,00371343	0,00668533	-0,5555	0,57858	
Hotels and restaurants	0,00566131	0,00225302	2,5128	0,01198	**
Mining*assets share of foreign banks	0,00229934	0,001435	1,6023	0,10908	
Construction*assets share of foreign banks	0,00612405	0,00272095	2,2507	0,02440	**
Manufacturing*assets share of foreign banks	0,00362797	0,00178386	2,0338	0,04197	**
Transport*assets share of foreign banks	0,00145341	0,00248156	0,5857	0,55809	
Wholesale*assets share of foreign banks	-0,000678924	0,00303122	-0,2240	0,82278	
Real estate*assets share of foreign banks	0,00140358	0,00134286	1,0452	0,29592	
Hotels*assets share of foreign banks	0,384503	0,113188	3,3970	0,00068	***

Notes: dependent variable is the access to finance, estimation based on 8811 observations
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Similarly, we analyze the effect of foreign banks in particular industries on the assessment of problems related to the cost of financing. The model to be estimated is characterized by the equation:

$$CostOfFinance_{ij} = \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 X_{ij} + \beta_4 C_j + \beta_5 Region + \beta_6 Sector_{ij} + \beta_7 Sector_{ij} * ForeignBankParticipation_j + u_{ij}$$

In compliance with the results for the model explaining the access to finance, in construction and manufacturing sector the effect of foreign bank presence seems to be magnified (interactive terms of both variables are significant at even 1 percent level and estimates of both coefficient are positive). Moreover, mining and real estates industries seem to reflect the same effect. These conclusions were made upon the estimation included in the table 17.

Table 17: The effect of foreign bank participation on the cost of finance (ordered logit estimation), sector dummies included and interactive terms included

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Asset share of foreign-owned banks (in %)	0,00315113	0,00131387	2,3983	0,01647	**
Small (dummy)	0,130731	0,109515	1,1937	0,23259	
Medium (dummy)	0,268424	0,076283	3,5188	0,00043	***
Foreign (% of enterprise that is foreign-owned)	-0,00646892	0,000764119	-8,4659	<0,00001	***
State (% of enterprise that is state-owned)	-0,0042333	0,000803435	-5,2690	<0,00001	***
GDP level per capita (natural log)	0,203269	0,0391228	5,1957	<0,00001	***
GDP per capita growth	0,0833916	0,012693	6,5699	<0,00001	***
Change in M2 to GDP	-0,025049	0,00238405	-10,5069	<0,00001	***
M2 (% of GDP)	-0,0055701	0,00195539	-2,8486	0,00439	***
Inflation	-0,0518442	0,00715289	-7,2480	<0,00001	***
Region CEE (dummy)	-0,96166	0,0880946	-10,9162	<0,00001	***
Corruption	-0,268466	0,407486	-0,6588	0,51000	
Property rights	-0,175213	0,167767	-1,0444	0,29631	
Mining and quarrying	0,0413788	0,128157	0,3229	0,74679	
Construction	-0,198099	0,193398	-1,0243	0,30569	
Manufacturing	-0,283552	0,141965	-1,9973	0,04579	**
Transport storage and communication	-0,338502	0,179113	-1,8899	0,05877	*
Wholesale, retail, repairs	-0,190134	0,221774	-0,8573	0,39126	
Real estate, renting and business services	0,00169995	0,00630055	0,2698	0,78731	
Hotels and restaurants	0,00798049	0,00221809	3,5979	0,00032	***
Mining*assets share of foreign banks	0,00600914	0,00141452	4,2482	0,00002	***
Construction*assets share of foreign banks	0,00689392	0,00263231	2,6190	0,00882	***
Manufacturing*assets share of foreign banks	0,00758118	0,00176384	4,2981	0,00002	***
Transport*assets share of foreign banks	0,00363423	0,00239991	1,5143	0,12995	
Wholesale*assets share of foreign banks	0,00261033	0,00295853	0,8823	0,37761	
Real estate*assets share of foreign banks	0,00315113	0,00131387	2,3983	0,01647	**
Hotels*assets share of foreign banks	0,130731	0,109515	1,1937	0,23259	

Notes: dependent variable is the cost of finance, estimation based on 7618 observations
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

7.2 The Role of State-owned Banks and Domestic Banking Sector Efficiency

This thesis focuses primary on the effect of foreign bank participation in transition economies on the availability of credit. To present more complex picture about the determinants of the overall credit accessibility, it might be useful to introduce also another characteristics of domestic banking sector and discuss their impact.

7.2.1 State-owned Banks

First, we will consider the variable reflecting the ownership type of domestic banks. We will try to show whether there is a relation between the share of state-owned banks in the economy and conditions for obtaining credit. The basic idea is that state-owned banks may always have an incentive to grant more easily credit to domestic enterprises and therefore have considerable effect on the perceptions about conditions of financing. The hypothesis is supported for example by the research of Sapienza (2004) who finds that state-owned banks charge lower interest rates than privately owned banks to similar or identical firms and thus positively influence the overall perception of credit accessibility. The author also concludes that state-owned banks mostly favor large firms. This will be the second hypothesis that we will test.

Into the basic regression of section 7.1 we will add the variable describing ownership type of banks. We will consider the effect of state-owned banks on perceptions of both, the access to finance and the cost of finance. The models are described by the following equations:

$$\begin{aligned} AccessToFinance_{ij} = {} & \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 X_{ij} \\ & + \beta_4 C_j + \beta_5 Region + \beta_6 StateOwnedBanks + u_{ij} \end{aligned} \tag{6}$$

$$\begin{aligned} CostOfFinance_{ij} = {} & \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 X_{ij} \\ & + \beta_4 C_j + \beta_5 Region + \beta_6 StateOwnedBanks + u_{ij} \end{aligned} \tag{7}$$

where the new variable *StateOwnedBanks* stands for the asset share of state-owned banks in the economy, in percent.

Table 18 summarizes the estimation using ordered logit model. According to the results the ratio of state-owned banks in the economy is not significant for the explanation of the accessibility of credit. The new model suggests again that the share of foreign banks, most of the enterprises´ characteristics as well as variables reflecting macroeconomic and institutional environment are crucial for the perceptions of managers about credit availability. As in the basic regression of section 7.1, the dummy for CEE region calls special attention. It is significant at even one percent level and the estimated coefficient suggests that its effect is considerably high. Therefore also in this case it will be useful to separate the data and estimate the particular model for each group of states.

Table 18: The effect of state-owned banks on the access to finance (ordered logit estimation)

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Asset share of foreign-owned banks (in %)	0,0025137	0,00109649	2,2925	0,02188	**
Small (dummy)	0,368721	0,0756516	4,8739	<0,00001	***
Medium (dummy)	0,285623	0,0825937	3,4582	0,00054	***
Foreign (% of enterprise that is foreign-owned)	0,384174	0,0693641	5,5385	<0,00001	***
State (% of enterprise that is state-owned)	0,375808	0,0996881	3,7698	0,00016	***
GDP level per capita (natural log)	-0,0115333	0,0441975	-0,2609	0,79413	
GDP per capita growth	-0,0301461	0,0143713	-2,0977	0,03594	**
Change in M2 to GDP	-0,0266715	0,00277228	-9,6208	<0,00001	***
M2 (% of GDP)	-0,0105212	0,002179	-4,8284	<0,00001	***
Inflation	-0,0368659	0,00880097	-4,1888	0,00003	***
Corruption	-0,059842	0,0168546	-3,5505	0,00038	***
Property rights	-0,133657	0,0176005	-7,5939	<0,00001	***
Region CEE (dummy)	-0,583299	0,101252	-5,7609	<0,00001	***
Asset share of state-owned banks (in %)	-0,000691168	0,00219367	-0,3151	0,75271	

Notes: dependent variable is the access to finance, estimation based on 7442 observations
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Estimate of the model 7 is presented in the table 19. Basically we can draw exactly the same conclusion as in the model for the access to finance. State ownership of banks seems to be not relevant for the explanation of managerial perceptions about the cost of finance and the variable identifying the region is of great importance.

Table 19: The effect of state-owned banks on the cost of finance (ordered logit estimation)

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
Asset share of foreign-owned banks (in %)	0,00814434	0,00108938	7,4761	<0,00001	***
Small (dummy)	0,268325	0,0738835	3,6317	0,00028	***
Medium (dummy)	0,261679	0,0807471	3,2407	0,00119	***
Foreign (% of enterprise that is foreign-owned)	0,361788	0,0686331	5,2713	<0,00001	***
State (% of enterprise that is state-owned)	0,0563528	0,0978565	0,5759	0,56470	
GDP level per capita (natural log)	0,153479	0,0439673	3,4907	0,00048	***
GDP per capita growth	0,0535985	0,0142496	3,7614	0,00017	***
Change in M2 to GDP	-0,0246864	0,00268997	-9,1772	<0,00001	***
M2 (% of GDP)	-0,00507111	0,00217381	-2,3328	0,01966	**
Inflation	-0,0426427	0,00864255	-4,9340	<0,00001	***
Corruption	-0,0748575	0,0166086	-4,5071	<0,00001	***
Property rights	-0,128851	0,0174016	-7,4046	<0,00001	***
Region CEE (dummy)	-0,919422	0,100131	-9,1822	<0,00001	***
Asset share of state-owned banks (in %)	0,000433099	0,00208413	0,2078	0,83538	

Notes: dependent variable is the cost of finance, estimation based on 7493 observations
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Separate estimations for countries of CEE and CIS regions bring completely different results. Tables 20 and 21 summarize the estimates of the equations (6) and (7). In both models the variable for state ownership is significant at least at 10 percent level. In compliance with our expectation the signs of estimated coefficients are negative and the regression therefore supports the hypothesis that bigger share of state-owned bank in the economy is associated with better conditions for financing enterprises (approximated by the perceptions about access to finance and the cost of finance).

Also after inclusion of new variables into the model the main conclusion of the empirical part of the thesis persist: CEE countries having higher degree of foreign bank participation seem to rate the access to finance and the cost of finance better, while countries in CIS region associate foreign bank presence with worse conditions for obtaining credit.

Table 20: The effect of state-owned banks in CEE countries on the access to finance (columns a-c) and the cost of finance (columns d-f), ordered logit estimation

	(a)	*(b)*	*(c)*		*(d)*	*(e)*	*(f)*	
	Coefficient	*Std. Error*	*t-ratio*		*Coefficient*	*Std. Error*	*t-ratio*	
Asset share of foreign-owned banks (in %)	-0,0107083	0,001974	-5,4239	***	-0,0082896	0,001915	-4,3267	***
Small (dummy)	0,49391	0,096571	5,1145	***	0,31217	0,094494	3,3036	***
Medium (dummy)	0,352492	0,106173	3,3200	***	0,293562	0,104062	2,8210	***
Foreign (% of enterprise that is foreign-owned)	0,351142	0,090046	3,8996	***	0,393749	0,088951	4,4265	***
State (% of enterprise that is state-owned)	0,355611	0,12712	2,7974	***	-0,0148553	0,124929	-0,1189	
GDP level per capita (natural log)	-0,482993	0,075586	-6,3900	***	-0,377539	0,075158	-5,0233	***
GDP per capita growth	0,229369	0,040627	5,6457	***	0,40122	0,039719	10,1014	***
Change in M2 to GDP	-0,0706589	0,008377	-8,4343	***	-0,0734516	0,008098	-9,0702	***
M2 (% of GDP)	0,00511479	0,003838	1,3324		0,0183932	0,003820	4,8140	***
Inflation	-0,0530845	0,011468	-4,6289	***	-0,0573752	0,011070	-5,1825	***
Corruption	-0,0750999	0,021551	-3,4846	***	-0,0809075	0,021297	-3,7990	***
Property rights	-0,122739	0,022234	-5,5201	***	-0,102357	0,022127	-4,6257	***
Asset share of state-owned banks (in %)	-0,0290897	0,008172	-3,5597	***	-0,0359523	0,007633	-4,7096	***

Notes: dependent variable is the access to finance (a-c) and the cost of finance (d-e), estimation based on 4810 observations from CEE
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Table 21: The effect of state-owned banks in CIS countries on the access to finance (columns a-c) and the cost of finance (columns d-f), ordered logit estimation

	(a)	*(b)*	*(c)*		*(d)*	*(e)*	*(f)*	
	Coefficient	*Std. Error*	*t-ratio*		*Coefficient*	*Std. Error*	*t-ratio*	
Asset share of foreign-owned banks (in %)	0,0160306	0,0037101	4,3208	***	0,0112514	0,0034813	3,2319	***
Small (dummy)	0,18172	0,122547	1,4829		0,19488	0,119703	1,6280	
Medium (dummy)	0,199839	0,132115	1,5126		0,229001	0,129161	1,7730	*
Foreign (% of enterprise that is foreign-owned)	0,430383	0,110277	3,9027	***	0,281035	0,109846	2,5584	**
State (% of enterprise that is state-owned)	0,380673	0,163566	2,3273	**	0,110074	0,160607	0,6854	
GDP level per capita (natural log)	0,191695	0,0740017	2,5904	***	0,446821	0,0740231	6,0362	***
GDP per capita growth	0,123519	0,0444971	2,7759	***	0,0907437	0,0416838	2,1770	**
Change in M2 to GDP	-0,0167635	0,0054828	-3,0575	***	-0,0322843	0,0053349	-6,0515	***
M2 (% of GDP)	-0,0396215	0,0059690	-6,6378	***	-0,044735	0,0060731	-7,3660	***
Inflation	-0,00484815	0,0184689	-0,2625		0,00426175	0,0176963	0,2408	
Corruption	-0,0349093	0,0280811	-1,2432		-0,0632364	0,0274739	-2,3017	**
Property rights	-0,159451	0,029263	-5,4489	***	-0,183175	0,0287306	-6,3756	***
Asset share of state-owned banks (in %)	-0,00571841	0,0032846	-1,7409	*	-0,0098402	0,0032803	-2,9997	***

Notes: dependent variable is the access to finance (a-c) and the cost of finance (d-e), estimation based on 2632 observations from CIS
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level., ** Idem. 5%, *** Idem 1%

The second suggested hypothesis about state ownership of banks is that state-owned banks tend to favor large companies. To test for such possibility we include into the model the interactions between the variables reflecting enterprise sizes and the state ownership. Thus we will estimate the following equations:

$$AccessToFinance_{ij} = \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 X_{ij} + \beta_4 C_j + \beta_5 StateOwnedBanks_j + \beta_6 Size_{ij} StateOwnedBanks_j + u_{ij} \quad (8)$$

$$CostOfFinance_{ij} = \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 X_{ij} + \beta_4 C_j + \beta_5 StateOwnedBanks_j + \beta_6 Size_{ij} StateOwnedBanks_j + u_{ij} \quad (9)$$

We will estimate models (8) and (9) for each group of countries separately (after several previous results we consider the dummy identifying the region to be crucial). Table 22 presents the evidence from CEE region. The interactive terms seem to be not significant for explication of both, the perceptions about the access to finance and the cost of finance. Therefore we can conclude that our model does not find any support that state-owned bank should provide more easily credit to large firms compared to small and medium-sized.

Table 22: The effect of state-owned banks including interactive terms in CEE countries on the access to finance (columns a-c) and the cost of finance (columns d-f), ordered logit estimation

	(a	*(b)*	*(c)*		*(d)*	*e)*	*(f)*	
	Coefficient	*Std. Error*	*t-ratio*		*Coefficient*	*Std. Error*	*t-ratio*	
Asset share of foreign-owned banks (in %)	-0,0107036	0,0019751	-5,4190	***	-0,0082256	0,001916	-4,2911	***
Small (dummy)	0,479047	0,12294	3,8966	***	0,278648	0,120579	2,3109	**
Medium (dummy)	0,460151	0,13734	3,3505	***	0,334881	0,1349	2,4824	**
Foreign (% of enterprise that is foreign-owned)	0,350784	0,0900927	3,8936	***	0,393369	0,089036	4,4181	***
State (% of enterprise that is state-owned)	0,35172	0,127142	2,7664	***	-0,0189483	0,125004	-0,1516	
GDP level per capita (natural log)	-0,481044	0,075616	-6,3617	***	-0,375082	0,075199	-4,9878	***
GDP per capita growth	0,227714	0,0406445	5,6026	***	0,39958	0,039739	10,0549	***
Change in M2 to GDP	-0,0704037	0,0083835	-8,3979	***	-0,0731186	0,008104	-9,0215	***
M2 (% of GDP)	0,00526631	0,0038424	1,3706		0,018513	0,003823	4,8420	***
Inflation	-0,0531467	0,0114723	-4,6326	***	-0,057586	0,011074	-5,1999	***
Corruption	-0,0751292	0,021556	-3,4853	***	-0,0810739	0,021299	-3,8065	***
Property rights	-0,1226	0,0222511	-5,5099	***	-0,102034	0,022138	-4,6089	***
Asset share of state-owned banks (in %)	-0,0266559	0,0161643	-1,6491	*	-0,0383184	0,014769	-2,5945	***
Small*StateOwned	0,00225911	0,0153766	0,1469		0,00591505	0,014255	0,4149	
Medium*StateOwned	-0,0208916	0,0174424	-1,1977		-0,0074375	0,016137	-0,4609	

Notes to the table 22: dependent variable is the access to finance (a-c) and the cost of finance (d-e), estimation based on 4810 observations from CEE
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Basically the same conclusion we can draw from estimates based on CIS data summarized in the table 23. According to the p-values of estimated coefficients of interactive terms, we can say that these terms are not significant for explaining the access to finance or the cost of finance.

Table 23: The effect of state-owned banks including interactive terms in CIS countries on the access to finance (columns a-c) and the cost of finance (columns d-f), ordered logit estimation

	(a)	*(b)*	*(c)*		*(d)*	*(e)*	*(f)*	
	Coefficient	*Std. Error*	*t-ratio*		*Coefficient*	*Std. Error*	*t-ratio*	
Asset share of foreign-owned banks (in %)	0,016554	0,003728	4,4400	***	0,0115963	0,003492	3,3199	***
Small (dummy)	0,0970267	0,142704	0,6799		0,103573	0,140891	0,7351	
Medium (dummy)	0,187323	0,155995	1,2008		0,161128	0,154164	1,0452	
Foreign (% of enterprise that is foreign-owned)	0,433935	0,110431	3,9295	***	0,283331	0,109931	2,5773	***
State (% of enterprise that is state-owned)	0,393812	0,164005	2,4012	**	0,121545	0,161037	0,7548	
GDP level per capita (natural log)	0,189761	0,074025	2,5634	**	0,445661	0,074023	6,0205	***
GDP per capita growth	0,127573	0,044589	2,8610	***	0,0929691	0,041731	2,2278	**
Change in M2 to GDP	-0,016149	0,005501	-2,9355	***	-0,0318077	0,005347	-5,9483	***
M2 (% of GDP)	-0,0397897	0,005970	-6,6645	***	-0,0447411	0,006072	-7,3676	***
Inflation	-0,00250051	0,018537	-0,1349		0,00556778	0,017728	0,3141	
Corruption	-0,0358591	0,028097	-1,2763		-0,063915	0,027491	-2,3249	**
Property rights	-0,159938	0,029268	-5,4645	***	-0,183006	0,028738	-6,3679	***
Asset share of state-owned banks (in %)	-0,0100866	0,005707	-1,7672	*	-0,0148133	0,005358	-2,7644	***
Small*StateOwned	0,00629525	0,005404	1,1648		0,00612582	0,004975	1,2313	
Medium*StateOwned	0,000843725	0,006069	0,1390		0,00439532	0,005645	0,7786	

Notes: dependent variable is the access to finance (a-c) and the cost of finance (d-e), estimation based on 2632 observations from CIS
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Summing up, we concluded that the type of bank ownership does matter. Also after inclusion of new variables into the basic model, we still support the previous result that the share of foreign banks in CEE countries is associated with better conditions of financing; however in CIS region the effect of foreign banks is exactly opposite. New estimates also suggest that bigger share of state-owned banks in transitions economies

are related to better perceptions about credit availability. The influence of state-owned banks seems to be the same in both regions. Finally, we did not find any support for the hypothesis that state-owned banks should favor large companies when providing credit.

7.2.2 Efficiency of Domestic Banking Sector

Another possible factor that might influence the overall credit availability is the effectiveness of domestic banking sector. It was suggested to discuss in the thesis the role of the effectiveness of banking sector and thereby analyze more broadly the problem of credit accessibility. As a proxy for efficiency we chose the volume of domestic credit provided to households because a variable that would describe the efficiency directly was no available for our type of data. Share of domestic credit provided to households should be good indicator; it is supposed that more effective banking systems provide more credit to households. Our hypothesis is that countries providing more credit to households have overall better conditions for financing.

The model reflecting also the efficiency of domestic banking system has the following form:

$$\begin{aligned} AccessToFinance_{ij} &= \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 X_{ij} \\ &\quad + \beta_4 C_j + \beta_5 StateOwnedBanks + \beta_6 CreditToHH + u_{ij} \\ CostOfFinance_{ij} &= \beta_1 Size_{ij} + \beta_2 ForeignBankParticipation_j + \beta_3 X_{ij} \\ &\quad + \beta_4 C_j + \beta_5 StateOwnedBanks + \beta_6 CreditToHH + u_{ij}, \end{aligned}$$

where the variable *CreditToHH* states for the domestic credit provided to households as a share of GDP.

As we have already shown considerably differences between countries of CEE and CIS we will directly estimate the model for each group of states separately.

Table 24 presents the evidence from CEE. Estimates of models for the access to finance and the cost of finance suggest that our proxy for banking sector efficiency is relevant. Credit to household is significant in both cases at even one percent level. The sign of estimated coefficient is negative which is in compliance with our expectations;

it is also very intuitive that countries providing more credits to households have better overall conditions for obtaining credit.

Table 24: The effect of banking sector efficiency in CEE countries on the access to finance (columns a-c) and the cost of finance (columns d-f), ordered logit estimation

	(a)	*(b)*	*(c)*		*(d)*	*(e)*	*(f)*	
	Coefficient	*Std. Error*	*t-ratio*		*Coefficient*	*Std. Error*	*t-ratio*	
Asset share of foreign-owned banks (in %)	-0,0086899	0,0020393	-4,2611	***	-0,00573234	0,0019886	-2,8826	***
Small (dummy)	0,502219	0,0966501	5,1963	***	0,32036	0,0944929	3,3903	***
Medium (dummy)	0,349484	0,106255	3,2891	***	0,289987	0,104094	2,7858	***
Foreign (% of enterprise that is foreign-owned)	0,355467	0,0900848	3,9459	***	0,399146	0,0889748	4,4861	***
State (% of enterprise that is state-owned)	0,369474	0,127265	2,9032	***	-2,9146e-06	0,124979	-0,0000	
GDP level per capita (natural log)	-0,31247	0,0867919	-3,6002	***	-0,16514	0,087424	-1,8890	*
GDP per capita growth	0,232668	0,0406596	5,7223	***	0,404748	0,0396917	10,1973	***
Change in M2 to GDP	-0,0616505	0,0086533	-7,1244	***	-0,0624071	0,0084079	-7,4224	***
M2 (% of GDP)	0,00610529	0,0038498	1,5859		0,0193008	0,0038277	5,0423	***
Inflation	-0,0701302	0,0122158	-5,7409	***	-0,079437	0,0119975	-6,6211	***
Corruption	-0,0718649	0,0215963	-3,3277	***	-0,0781089	0,0213261	-3,6626	***
Property rights	-0,117079	0,0223081	-5,2483	***	-0,0959759	0,0221784	-4,3275	***
Asset share of state-owned banks (in %)	-0,0245281	0,0082596	-2,9696	***	-0,0306137	0,0077186	-3,9662	***
Credit to HH	-0,0226824	0,0057167	-3,9677	***	-0,027317	0,0057254	-4,7712	***

Notes: dependent variable is the access to finance (a-c) and the cost of finance (d-e), estimation based on 4810 observations from CEE
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

Table 25 summarizes the estimation for the sample of CIS countries. These results do not completely support our hypothesis. It is shown that the volume of credit provided to households should be important for explanation of the accessibility of credit. However, does not matter for the cost of finance.

Table 25: The effect of banking sector efficiency in CIS countries on the access to finance (columns a-c) and the cost of finance (columns d-f), ordered logit estimation

	(a	*(b)*	*(c)*		*(d)*	*(e)*	*(f)*	
	Coefficient	*Std. Error*	*t-ratio*		*Coefficient*	*Std. Error*	*t-ratio*	
Asset share of foreign-owned banks (in %)	0,0174228	0,0037859	4,6020	***	0,012275	0,0035688 3	3,4395	***
Small (dummy)	0,183959	0,122632	1,5001		0,196448	0,119716	1,6410	
Medium (dummy)	0,202051	0,132167	1,5288		0,229369	0,12915	1,7760	*
Foreign (% of enterprise that is foreign-owned)	0,428989	0,110312	3,8889	***	0,280467	0,109858	2,5530	**
State (% of enterprise that is state-owned)	0,369882	0,163638	2,2604	**	0,102655	0,160703	0,6388	

(continued on next page)

Table 25 (*continued*)

GDP level per capita (natural log)	0,415157	0,146553	2,8328	***	0,607855	0,145039	4,1910	***
GDP per capita growth	0,191688	0,0588908	3,2550	***	0,140195	0,0565999	2,4769	**
Change in M2 to GDP	-0,0143491	0,0056291	-2,5491	**	-0,030865	0,0054427	-5,6708	***
M2 (% of GDP)	-0,032114	0,0073342	-4,3786	***	-0,0395031	0,0073051	-5,4076	***
Inflation	-0,0251764	0,0216853	-1,1610		-0,0100203	0,0208379	-0,4809	
Corruption	-0,0346678	0,0280902	-1,2342		-0,0629832	0,027473	-2,2925	**
Property rights	-0,164229	0,0293983	-5,5863	***	-0,186269	0,0288374	-6,4593	***
Asset share of state-owned banks (in %)	-0,00556052	0,0032888	-1,6907	*	-0,0098246	0,0032869	-2,9890	***
Credit to HH	-0,114914	0,065215	-1,7621	*	-0,0829142	0,0642226	-1,2910	

Notes: dependent variable is the access to finance (a-c) and the cost of finance (d-e), estimation based on 2632 observations from CIS
Data Source: BEEPS 2005 database, EBRD country statistics
* Significance at the 10% level.
** Idem. 5%
*** Idem 1%

In this part of the thesis we have shown that the volume of domestic credit provided to households is relevant when explaining the perceptions about credit accessibility. This finding is in line with intuitive consideration that higher volume of credit provided to households is improving the ranking of conditions for obtaining credit. On the other hand the effect of credit to households on cost of financing is not straightforward. In CEE we found evidence that higher volume of credit to households is related to better condition in cost of finance, on the other hand in CIS region this variable seems to be not relevant.

After adding the variable reflecting the efficiency of domestic banking sector, our main conclusions about the effect of foreign banks and state-owned banks remains unchanged.

7.3 Conclusion of the Empirical Part

After estimating various models that might explain the effect of foreign bank presence on perceptions about credit availability and costs, we cannot draw clear conclusion. Most of proposed models found evidence that participation of foreign banks in a country has significant impact on the evaluation of credit conditions. However, the results differ considerably among countries of CEE and CIS region. Managers in CEE countries having higher degree of foreign bank participation tend to rate finance conditions as lesser constraints for development and growth of their businesses than managers of countries having lower foreign bank share. On the other

hand the conclusion for CIS countries is completely different. In these countries higher share of foreign banks indicates worse conditions of financing.

Results of proposed models indicate that enterprise size does matter. Mostly we found evidence that small and medium-sized enterprises consider the access to finance as well as the cost of finance to be bigger obstacle for development of their companies (compared to perceptions of large enterprises). Adding the interactive terms into the model, we examined how is the effect of foreign bank presence distributed among enterprises of different sizes. We concluded that small and medium-sized enterprises tend to be influenced by foreign bank participation less than large ones. However, this result is not such straightforward. The basic model suggests significance of this effect but in separate models for countries of CEE and CIS the significance was rejected.

Further, we showed that sector within which enterprises operate plays an important role for the assessments of credit conditions as well. But in this case the pattern is not very clear. Different models predict significance of sector dummies differently and also the estimated relation to the finance conditions varies; some sectors tend to rate conditions of credit availability worse (e.g. real estates and hotels sector) whereas some industries perceive the same factor as lesser constraint (e.g. mining).

Moreover we found that state- and foreign-owned enterprise generally rate financing conditions as lesser constraints for their businesses. But we should be careful with straightforward interpretation of this result. BEEPS also indicate that these type of institutions rely on bank credit very little comparing to other types of institutions (see section 6.2, table 5) and that might be the crucial explanation why they see credit conditions such a small constraints for their businesses.

Finally, we showed that the share of state-owned banks in the economy has also impact on the perceptions about credit availability. We concluded that countries with higher presence of state banks evaluate conditions for obtaining credit better. On the other hand we did not find any support for the hypothesis that state banks should favor large businesses. The efficiency of domestic bank sector seems to be other determinant of perceptions about financing. Not surprisingly, we mostly found that countries with more efficient banking sectors rate the accessibility of credit better.

Comparing the contribution of this empirical research with existing literature, we note that most related paper is Clarke and others (2006). The study presents the same methodological approach (regression over firm-level data) but dealing with different

data set. The World Business Environment Survey (WBES) is the basis of their analysis, as for content of information the survey is comparable to the BEEPS that was used in this thesis, but covers different sample of countries. The sample is larger, includes 35 developing and transition economies. Conclusions of their study are quite similar to those concluded by us analyzing the sample of CEE countries. In compliance with our findings, they mostly associate the higher foreign bank presence with better conditions for obtaining credit. But our finding in CIS region is considerable different – there we relate higher foreign bank presence to worse finance conditions. As regards to the hypothesis that the effect of foreign banks is not distributed among companies of different sizes equally, neither they found clear conclusions – some estimates indicate that the effect is significant whereas other not. Our study moreover contributes to the effect of foreign banks among different industries.

On the basis of managers' perception is done also the study by de Haas and Naaborg (2005). However, this paper does not include any econometric approach, the authors made conclusions only from interviews with managers. The authors support our main finding that foreign bank presence had positive effects on enterprises of small and medium sizes in the region of Central and Eastern Europe. Compared to this paper, our study contributes to the topic by presenting analysis based on econometric approach that controls for several macroeconomic and institutional variables.

Other evidence on the effect of foreign bank presence regarded to credit availability come mainly from Latin America. Clarke and others (2002), Berger and others (2001), Escudé and others (2001) test whether the foreign banks presence affects enterprises of small and medium size similarly as large enterprises. All studies consistently conclude that small and medium size companies benefit from foreign bank participation less, but at the same time they point out that the effect on companies of this type is still positive. This result is similar to our finding for CEE region.

Finally, we might conclude that we presented original analysis that has not yet been done for the sample of countries from CEE and CIS.

8. Conclusion

The aim of this thesis was to discuss the topic of foreign bank participation in transitions economies and to provide empirical evidence on its effects on domestic economy. The empirical investigation was focused on the relation between the degree of foreign bank presence across countries and the availability of credit.

In the first part of the thesis we presented existing literature on foreign bank participation. We pointed to several features characterizing the countries that are more likely to receive foreign investment in banking sector. Namely, we showed that economic integration between home and host country, the level of development of financial system and restrictions in banking sectors of host countries are the main determinants of foreign bank entry. Further, we discussed that only banks of certain type are willing to expand abroad. The research identifies that banks of large size, bank with better efficiency and banks coming from countries with lesser restriction in banking sector are more likely to invest abroad.

Special attention we dedicated to the topic of the effect of foreign bank presence on domestic economy. Large empirical evidence is focused on the impact of foreign banks on the efficiency of host country banking system, its stability and its supply of credit. The evidence is not uniform in these issues and differs considerably among developed and developing economies. In developing countries the impact of foreign banks is in general considered to be positive. Because of improvements in technologies, benefits from economies of scale and better risk diversification the efficiency is supposed to increase with foreign bank entry. However, this conclusion does not necessarily hold for developed economies since there the space for improvements is limited. As for stability, the effect is in general found to be beneficiary as well. Because of more diversified pool of liquidity foreign banks should be not affected seriously by local crises. Improved efficiency and lowered volatility of banking system should then be associated with the increase of the volume of credit provided to customers. This concern was the central topic of the thesis, further we provided empirical investigation of the impact of foreign bank on access to credit in transitions economies.

The thesis also presented theoretical model that derived testable hypothesis for the impact of foreign bank entry. Foreign banks were in the model presented as institutions having comparative advantage in lending to large businesses whereas domestic banks having the advantage in lending to small- and medium-sized enterprises. Based on this assumption it was derived the proposition that in transition countries having higher degree of foreign bank participation the total volume of credit provided is lower than in countries with higher presence of foreign banks. Second main conclusion of the model was that all benefits from foreign bank presence are appropriated by large businesses. These two hypotheses were further examined empirically.

The empirical investigation was based on the enterprise data from The World Business Environment Survey 2005. It is a dataset that covers firms in 28 transition countries of Central and Eastern Europe (CEE) and the Commonwealth of Independent States (CIS) and among others includes the information on firms' perceptions about conditions for obtaining credit in their country. We examined how the perceptions about the access to finance and the cost of finance are related to the degree of foreign bank participation. To obtain independent impact of foreign banks we also controlled for several macroeconomic and institutional variables.

Our results suggest that the degree of foreign bank participation has a significant impact on the conditions for obtaining credit in transition countries. However, the conclusions differ significantly in countries of CEE and CIS region. In European region we found significant and positive relationship between the assessment of conditions for obtaining credit (both the access to finance and the cost of finance) and the level of foreign bank presence in the country. It means that managers in countries having higher degree of foreign bank presence tend to rate conditions of financing as a lesser constraint for development and growth of their businesses than managers in countries with lower foreign bank participation. The opposite relation is found in countries operating in CIS countries; there higher foreign bank presence indicates worse conditions of financing.

Then we examined whether the enterprise size plays role in evaluation of credit conditions. We concluded that in general small and medium-sized enterprises tend to rate the access to finance as well as the cost of finance as a bigger obstacle for development of their businesses. But whether small and medium-sized firms benefit more/less from foreign presence than large firms is not so obvious. The estimated

models for separate regions of CIS and CEE do not find the interactive terms between enterprise size and foreign bank presence significant and therefore we cannot draw any clear conclusions from the results.

Further, we included into the model sector dummies to control whether the conditions for obtaining credit differ among sectors. We identified some sectors that perceive the access to finance as lesser obstacle; namely manufacturing, real estates and hotels. But at the same time these businesses (real estates and hotels) tend to rate the cost of finance as bigger problem than firms of other sectors. Thus the overall impact on business is difficult to evaluate. As for the effect of foreign banks, our estimates suggest that the impact of foreign banks tend to be magnified in some sectors; concretely in the sector of mining and manufacturing we found significant impact.

Finally, we identified that there are also other characteristics of domestic banking sector that influence the perceptions about credit availability. We found that countries having higher share of state-owned banks and countries with more efficient banking sectors evaluate conditions for financing better.

The presented survey was original, similar analysis has not yet been done for the sample of countries from Central and Eastern Europe and Commonwealth of Independent States (to my best knowledge). The conclusions from CEE region are also applicable in the Czech Republic where the evidence on foreign bank presence is very limited.

9. References

Barajas, Adolfo, Steiner, Roberto, Salazar, Natalia, 2000. "The impact of liberalization and foreign investment in Colombia's financial sector." *Journal of Development Economics* 63, 157–196.

Barth, J. R., G. Caprio, and R. Levine, 2001, "Bank Regulation and Supervision: What Works Best?" World Bank, mimeo.

Berger, A. N., S. D. Bonime, L.G. Goldberg, and L. J. White, 1999, "The Dynamics of Market Entry: The Effects of Mergers and Entry on Entry in the Banking Industry," Board of Governors of the Federal Reserve System, working paper 1999-41.

Berger, A. N., R. DeYoung, H. Genay, and G. F. Udell, 2000, "Globalization of Financial Institutions: Evidence from Cross-Border Banking Performance," *Brookings Papers on Economic Activity*, 2: 23-158.

Berger, Allen N., Klapper, Leora, Udell, Gregory, 2001. "The ability of banks to lend to informationally opaque small businesses." *Journal of Banking and Finance* 25, 2127–2167

Berger, Allen, and Greg Udell. 2005. "A More Complete Conceptual Framework for SME Financing." Policy Research Working Paper 3795. *World Bank, Washington, D.C*.
Bruno, V. and R. Hauswald, 2009. "The Real Effects of Foreign Banks," mimeo, American University

Bonin, J. and I. Abel, 2000, "Retail Banking in Hungary: A Foreign Affair?" Wesleyan University, Processed. Prepared as background paper for, World Bank, *World Development Report 2002: Institutions for Markets*.

Bruno, V. and R. Hauswald, 2009. "The Real Effects of Foreign Banks," mimeo, American University.

Budzeika, G., 1991, "Determinants of the Growth of Foreign Banking Activities in the United States," *Federal Reserve Bank of New York*, Research Paper 9112

Claessens, S., A. Demirgüç-Kunt, and H. Huizinga, 2000, "The Role of Foreign Banks in Domestic Banking Systems" in Claessens, S. and Marion Jansen, (eds.) *The Internationalization of Financial Services: Issues and Lessons for Developing Countries*, Boston, Mass.: Kluwer Academic Press

Claessens, Stijn, Demirgüç-Kunt, Asli, Huizinga, Harry, 2001. "How does foreign entry affect the domestic banking system." *Journal of Banking and Finance* 25, 891–911

Clarke, G. R., Cull, R. and Martinez Peria, M. S., 2006., "Foreign bank participation and access to credit across firms in developing countries", *Journal of Comparative Economics* 34(4), 774-795

Clarke, G., R. Cull, L. D'Amato, and A. Molinari, 2000 "On the Kindness of Strangers? The Impact of Foreign Entry on Domestic Banks in Argentina," in *The Internationalization of Financial Services:Issues and Lessons for Developing Countries*,

Clarke, George, Robert Cull, Maria Soledad Martinez Peria, and Susana M. Sanchez.2002. "Bank Lending to Small Businesses in Latin America: Does Bank Origin Matter?" *Policy Research Working Paper 2760. World Bank, Development Economics Department, Washington DC*

Dages, B. G., L. Goldberg, and D. Kinney, "Foreign and Domestic Bank Participation in Emerging Markets: Lessons from Mexico and Argentina," *Federal Reserve Bank of New York Economic Policy Review*, pp. 17-36, 2000

de Haas, Ralph, and Naaborg, Ilko, 2005. "Does Foreign Bank Entry Reduce Small Firms Access to Credit? Evidence from European Transition Economies." *De Nederlandsche Bank Working Paper* No. 50, August 2005

de Haas, Ralph, van Lelyveld, Iman, 2003. "Foreign banks and credit stability in Central and Eastern Europe: A panel data analysis." Staff report No. 109. *De Nederlandsche Bank, Amsterdam.*

de Haas, Ralph, van Lelyveld, Iman, 2002: "Foreign bank penetration and private sector credit in Central and Eastern Europe", Staff report No. 91. *De Nederlandsche Bank, Amsterdam.*

Dell'Ariccia, Giovanni, Marquez, Roberto, 2004. "Information and bank credit allocation." *Journal of Financial Economics* 72, 185–214.

Demirgüç-Kunt, A. and H. Huizinga, 2000, "Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence," *World Bank Economic Review*, 13(2): 379-408.

Denizer, Cevdet, 2000. "Foreign entry in Turkey's banking sector, 1980–1997. In: Claessens, Stijn, Jansen, Marion (Eds.),The Internationalization of Financial Services: Issues and Lessons for Developing Countries. Kluwer Academic,Boston, pp. 389–406

Detragiache, Enrica, Gupta, Poonam, 2002. "Foreign banks in emerging market crises: Malaysia 1996-98.". *International Monetary Fund, Washington, DC.*

Detragiache, Enrica, Poonam Gupta, and Thierry Tressel, 2006, "Foreign Banks in Poor Countries: Theory and Evidence," *IMF Working Papers* 06/18 (Washington: International Monetary Fund).

DeYoung, R. and D. E. Nolle, 1996 "Foreign-owned banks in the United States: Earning Market Share of Buying it?" *Journal of Money, Credit, and Banking*, 28(4), (Part 1, Nov. 1996), 622-36.

DeYoung, R., L. G. Goldberg, and L. J. White, 1999, "Youth, Adolescence, and Maturity of Banks: Credit availability to Small Business in an Era of Banking Consolidation," *Journal of Banking and Finance*, 23: 463-492.

Escudé Guillermo, Tamara Burdisso, Marcelo Catena, Laura D'Amato, George Mc Candless, and Tomás Murphy, 2001. "Las MIPyMES y el Mercado de Crédito en la Argentina," Documento de Trabajo Nro. 15, *Banco Central de la República Argentina*.

European Bank For Reconstruction and Development, BEEPS 2002 and 2005

European Bank For Reconstruction and Development, Transition Report 2007

Fisher, A. and P. Molyneux, 1996, "A Note on the Determinants of Foreign Bank Activity in London between 1980 and 1989," *Applied Financial Economics*, 6(3): 271-77.

Focarelli, D. and A. Pozzolo, 2000, "The Determinants of Cross-Border Shareholding: An Analysis with Bank-Level Data from OECD Countries." Paper presented at the Federal Reserve Bank of Chicago Bank Structure Conference, May.

Geršl, Adam, 2007, "Foreign Banks, Foreign Lending and Cross-Border Contagion: Evidence from the BIS data", *Czech Journal of Economics and Finance*

Goldberg, L.S. 2001. "When Is U.S. Bank Lending to Emerging Markets Volatile?" *NBER Working Paper 8209*.

Goldberg, L. G., and L. J. White, 1998, "De Novo Banks and Lending to Small Businesses: An Empirical Analysis," *Journal of Banking and Finance*, 22 (6-8): 851-67.

Haber, Stephen, Musacchio, Aldo, 2005. "Foreign banks and the Mexican economy, 1997–2004." *Mimeo. Stanford University*

Jenkins, Hatice, 2000 "Commercial Bank Behavior in Micro and Small Enterprise Finance." Development Discussion Paper No. 741. *Harvard Institute for International Development, Harvard University.*

Lenisk, Robert and Niels Hermes , 2004 "The Short-Term Effects of Foreign Bank Entry on Domestic Bank Behaviour: Does Economic Development Matter?" *Journal of Banking and Finance* 28: 553-568.

Mester, L. J., 1997, "What's the Point of Credit Scoring ?" *Federal Reserve Bank of Philadelphia Business Review*, Sept.-Oct.: 3-16.

Mian, Atif, 2006. "Distance constraints: The limits of foreign lending in poor economies." *Journal of Finance* 61, 1465–1505

Miller, S. R. and A. Parkhe, 1998, "Patterns in the Expansion of U.S. Banks' Foreign Operations," *Journal of International Business Studies*, 29(2), 359-390.

Peek, Joe, Rosengren, Eric, 2000. “Implications of the globalization of the banking sector: The Latin American experience.” *Federal Reserve Bank of Boston New England Economic Review* (Sept.–Oct.), 45–62.

Sapienza, Paola, 2004, "The effects of government ownership on bank lending" *Journal of FinancialEconomics* 72, 357-384.

Unite, A. A., and M. J. Sullivan, 2003, The Effect of Foreign Entry and Ownership Structure on the Philippine Domestic Banking Market, *Journal of Banking and Finance* 27, 2323-2345.

Volz, U. (2004) “European financial integration and the financing of local businesses in the new EU member states.” *European Bank for Reconstruction and Development Working Paper No. 89*, EBRD, London.

Weill, L., 2003. “Banking efficiency in transition economies: The role of foreign ownership.” *Economics of Transition* 11, 569–592

10. Appendix

Table 1: Descriptive statistics of dependent and independent variables

Variable	Description	Mean	Standard deviation	Minimum	Maximum	Source
DEPENDENT VARIABLES						
Access to finance	ordered value 1-4	2,2623	1,1365	1	4	BEEPS
Cost of finance	ordered value 1-4	2,5104	1,1342	1	4	BEEPS
INDEPENDENT VARIABLES						
Foreign banks						
Assets of foreign banks	Percent of total banking system assets in 2009	63,692	30,823	6,6	99,4	EBRD
Enterprise characteristics						
Small enterprise (less than 50 employees)	Dummy	0,70972	0,45392	0	1	BEEPS
Medium enterprises (between 50 and 250 employees)	Dummy	0,19421	0,39561	0	1	BEEPS
Foreign ownership	Percent of state owned	8,9174	26,179	0	100	BEEPS
State ownership	Percent of foreign owned	8,5186	26,884	0	100	BEEPS
Corruption	ordered value 1-6	2,903	1,4637	1	6	BEEPS
Property rights	ordered value 1-6	3,5271	1,3936	1	6	BEEPS
Macroeconomic factors						
Per capita GDP	Natural log (2004)	8,0877	1,0902	5,7945	9,7311	EBRD
Per capita GDP growth	2004	7,1104	2,3815	4,1	12,1	EBRD
M2 (quase-money and money)	Percent of GDP (2004)	23,564	15,344	4,4	68,223	EBRD
Change in M2	Percent of GDP (2004)	36,539	17,378	8,0381	66,3	EBRD
Inflation	2004	5,5782	3,799	-0,4	18,108	EBRD
Regional dummies						
CEE	Dummy	0,62434	0,48432	0	1	BEEPS
Sector dummies						
Mining and quarrying	Dummy	0,0098395	0,09871	0	1	BEEPS
Construction	Dummy	0,095805	0,29434	0	1	BEEPS
Manufacturing	Dummy	0,38799	0,48732	0	1	BEEPS
Transport storage and communication	Dummy	0,065044	0,24662	0	1	BEEPS
Wholesale, retail, repairs	Dummy	0,2464	0,43094	0	1	BEEPS
Real estate, renting and business services	Dummy	0,085759	0,28002	0	1	BEEPS
Hotels and restaurants	Dummy	0,054894	0,22778	0	1	BEEPS
Domestic banking sector						
State-owned banks	Percent of total banking system assets in 2009	8,2254	4,0000	0,00000	70,200	EBRD
Credit to HH	Percent of GDP (2004)	8,5294	7,1000	0,9000	30,400	EBRD

Notes: BEEPS refers to BEEPS2005, EBRD refers to EBRD Transition report 2007, both published by EBRD