STOCKHOLM SCHOOL OF ECONOMICS Master Thesis in Finance

Are Foreign Banks Any Good for Ukrainian Firms?

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Abstract

Ukraine is an emerging economy that has been steadily increasing its foreign banks presence in recent years and is likely to experience a new wave of entries as the world recovers from the financial crisis. To have realistic expectations about the future, it is important to know how foreign banks affected the Ukrainian economy in the past. We use a micro-level panel of 25,160 firm-year observations and the data on the location of over 21,000 bank offices to study foreign banks' effect on firms' credit access and growth in 2002-2007. We also examine whether the impact on firms of an exogenous shock in the form of the Orange Revolution differed depending on foreign banks presence. Our findings suggest that foreign banks presence have on average been associated with a lower cost of capital, an accelerated debt growth and sales growth for all Ukrainian firms. Although foreign banks might favor large firms with a high collateral value, small firms seem to benefit, too, by receiving lower credit rates. Foreign banks' behavior has not been found to differ from domestic banks' behavior under the conditions of a political shock.

Keywords: banking, foreign banks, developing countries, credit access, growth, information asymmetry, cream-skimming, political patronage, Ukraine.

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1 Introduction

Recent years have been marked by an active entry of banks from the developed Western countries into Eastern European emerging economies. The expansion to the East has been a way for these banks to gain greater market shares and to take advantage of *carry trades*, i.e. borrowing at near zero interest rates in the mature markets to re-lend at higher interest rates in the riskier growing markets (Micu (2007)). The strategy of these banks has reportedly been one of an aggressive loan expansion in order to quickly exploit new market opportunities (Duenwald, Gueorguiev, and Schaechter (2005)). After the onset of the financial crisis, however, they found themselves "reaping the benefits" of their expansion in another way – by suffering large credit losses on non-performing loans¹.

Looking at Eastern European countries hosting foreign banks, one can argue that they have also experienced both upsides and downsides of foreign banks entry. On the one hand, foreign banks have provided additional capital that these countries badly need to keep growing. On the other hand, foreign banks entry may have made these countries vulnerable to the financial crisis, by contributing to their credit boom (Åslund (2009)) and by increasing their exposure to the cross-border contagion² (Stokes (2008)).

The awareness of this "two-edged" nature of foreign banks effect is important for policymakers in developing countries with an increasing foreign banks presence in order to make competent decisions. Ukraine is an example of such a country. The presence of foreign banks there has grown substantially during the recent years, from 12 percent in 2002 to 37 percent in 2009 in terms of foreign banks' asset share in the banking industry's total assets (NBU (2009)). In connection with Ukraine's accession to the WTO, a legislative bill came into effect in May 2008 that expands foreign banks' opportunities to establish their presence in Ukraine.³ Its impact has for now been delayed by the financial crisis. However, as the economic situation improves, foreign banks are likely to resume their "invasion" of the Ukrainian market, fueled by the country's favorable growth forecast and the pliancy of domestic banks weakened by the crisis.

One way for the Ukrainian policy-makers to receive an understanding of the implications of the increasing foreign banks presence is by studying the experience of other countries, and, fortunately, there is a considerable body of work, including cross-country research, dedicated to the effects of financial integration and foreign banks entry on their host countries. However, following

¹ As exemplified by the Swedish SEB and Swedbank.

² According to Stokes (2008), cross-border contagion is a risk that an adverse shock to the banking systems of the countries where parent banks are located could spillover on the host economies.

³ This legislative bill removed the ban on opening of foreign banks' branches in Ukraine. More on this in Section 2.2, p 8.

Agénor (2001) it can be argued that "the fact that a conclusion holds "on average" across a large group of countries cannot be construed as supportive evidence for any particular subset of countries or country". Moreover, as is pointed out by Giannetti and Ongena (2009) and discussed further in Section 3 of this work, the evidence across different countries is conflicting. It is important, therefore, that policy-makers' decisions are grounded on the domestic research of foreign banks' impact. Our examination of the publicly available resources has revealed several Ukrainian studies dealing with foreign banks presence.⁴ We have, however, not come across any empirical study of how the credit access or performance of Ukrainian firms has been influenced by foreign banks. There is an urgent need for such a study in order to understand whether foreign banks presence contributes to sustainable economic growth in Ukraine by providing larger and cheaper credits to the most productive Ukrainian firms. In this thesis we make an attempt to bring some clarity into this question.

On the basis of a unique sample which includes financial performance data for thousands of Ukrainian firms and information about the geographical distribution of domestic and foreign banks in this country, we study how foreign banks presence has affected the credit access and growth of Ukrainian firms in the period from 2002 to 2007. We put the micro-level firm data in relation to the presence of foreign banks in the region where firms are located. By examining how a firm's credit, borrowing costs and growth respond to the changes in foreign banks' presence in the region, we make conclusions about the impact of foreign banks on Ukrainian firms' performance. Besides studying foreign banks' general impact, we also look at their effect on different types of firms. We specifically analyze how foreign banks have influenced the credit access and growth of the "engines of economic development" (as expressed by Beck and Demirgüç-Kunt (2006)) – small-size firms. Moreover, we bring to light a new aspect of foreign banks presence that has not been addressed by previous research, namely, the interaction between foreign banks and the host country's politics. We pose the question of whether the influence of a political shock on Ukrainian firms' performance differs depending on foreign banks presence. This brings an additional degree of innovativeness to our thesis.

Our study has advantages from the methodological perspective, too. As distinct from crosscountry studies where countries with very different financial characteristics and institutional environments are pooled together in one sample, we perform a times-series cross-section data research within the same country exploiting the differences between this country's regions. In this way we mitigate the risk of omitted unobserved effects that is associated with multiple countries'

⁴ For example, Serdyuk (2004), Tsaruk (2008), Kushnir (2008).

samples as regions within the same country can safely be assumed to differ less between one another than different countries.

The thesis is structured in the following way. Section 2 contains an overview of the Ukrainian banking system and describes the process of foreign banks entry in Ukraine. Section 3 proceeds with an outline of the views established in theory and empirical research on the foreign banks' effect on host countries. In Section 4 we develop predictions about the effect and behavior of foreign banks in Ukraine with the support of previous research. Sections 5 and 6 are dedicated to the description of the data sources and methodology. The empirical results of our research are reported and commented in Section 7. We summarize our findings and suggest topics for further research in the two final sections.

2 Background

2.1 Banking system in Ukraine

The Ukrainian banking system is a two-tier structure consisting of the National Bank of Ukraine (NBU) and commercial banks of various types and forms of ownership. The NBU is the country's central bank and pursues two goals: ensuring stability of the national currency and supervising the activity of commercial banks (Zelenyuk and Dushkevich (2006)).

The range of commercial banks activities includes: holding deposits of enterprises, institutions and households, lending to companies and households, investments in securities, formation of cash balance and reserves, as well as other assets, cash handling and payment servicing of the economy, foreign exchange operations and other services to individuals and companies (NBU (2009)). Most of the banks are universal and a few are specialized in certain activities (e.g., savings, investment, mortgage, clearing, etc.) banks. About 80 percent of all the banks are joint stock commercial banks and 20 percent are limited liability partnerships (Zelenyuk and Dushkevich (2006)).

As of May 2009, the number of active banks in Ukraine was 185.⁵ The majority of banks are small or very small and function as so-called "pocket banks", i.e. as extended financial departments of enterprise groups.

The environment in the industry is quite competitive: no bank has a dominant position in most spheres of operation and has to compete with many rivals for market share. Herfindahl-

⁵ See Figure 1 in Appendix 11.5.

Hirschman index (HHI)⁶ for the Ukrainian banking industry has consistently been low for many years - about 400 points, which is similar to the level of concentration in the UK, France, and Italy while better than in Spain, Austria, Sweden and many other countries (Zelenyuk and Dushkevich (2006)). At the time of writing there are only two 100 percent state-owned banks – Oshchadbank ("The Savings Bank") and the Ukreximbank ("The Export-Import Bank"). Their combined asset-share in 2007 was 8 percent which is a rather healthy indicator for a transition economy.⁷

The ownership structure of many banks is often difficult to detect because the ownership can often be "layered" or "packaged" through several companies or entities (IMF (2003)).

The evolution of the Ukrainian banking system can be summarized in terms of the index of banking sector reform constructed by the European Bank for Reconstruction and Development – EBRD.⁸ The index started off from the level of 1.0 in 1989 and had been raised 4 times until it reached its current level of $3.0.^9$

The first index improvement took place in 1995 (the index was increased from 1.0 to 2.0) when the Ukrainian government and the NBU introduced a number of measures in order to stabilize the economy and to tighten the bank regulation. Until then, the country suffered from a pronounced recession and a raging hyperinflation reaching as high as 10,000 percent in a year (Barisitz (2006)). The liberalized bank licensing and lenient bank regulation led to the appearance of hundreds of commercial banks.¹⁰ Their primary profit sources were gains from hyperinflation and from currency arbitrage (Barisitz (2006)). In 1994 the NBU and the government embarked on a reform program which included strengthening of banking regulations, improving the operating environment by implementing a fast national electronic payment system, tightening of monetary policy, introducing a national currency, the hryvnia (Zelenyuk and Dushkevich (2006)). These measures reduced the hyperinflation and interest rate spreads which made it unprofitable for banks to speculate on

⁶ HHI is a commonly accepted measure of market concentration. It is calculated by squaring the market share of each firm competing in a market, and then summing the resulting numbers. The HHI number can range from close to zero to 10,000. The U.S. Department of Justice considers a market with a result of less than 1,000 to be a competitive marketplace (http://www.justice.gov/atr/public/testimony/hhi.htm).

⁷ See Figure 2 in Appendix 11.5 for comparison.

⁸ The EBRD index evaluates banking reform progress by the following criteria: the liberalization of interest rates and of the credit allocation process, the volume of lending to the private sector, private ownership in the banking sector, the level of competition between banks, bank solvency, the establishment of a framework for regulation and prudential supervision. The measurement scale for the indicators ranges from 1 to 4+, where 1 represents little or no change from a rigid centrally planned economy and 4+ represents the standards of an industrialized market economy (EBRD). Figure 3 in Appendix 11.5 demonstrates how the index value has developed for Ukraine.

⁹ The index 3.0 implies substantial progress in establishment of bank solvency and of a framework for prudential supervision and regulation, full interest rate liberalization with little preferential access to cheap refinancing, significant lending to private enterprises and significant presence of private banks

¹⁰ The number of credit institutions in Ukraine multiplied from about a dozen in 1990 to 133 in 1992 and 230 in 1995 (Barisitz (2006)).

inflation and currency exchange. Also, the tightened prudential regulations and the increased minimum capital requirements led to leveling off of the number of banks (Barisitz (2006)).

In 2002 the index was raised again to 2.33. This raise could have stimulated by the enactment of the new Law "On Banks and Banking" which became effective in January 2001.¹¹ It served to strengthen the NBU's supervisory powers and to improve the regulatory environment for banks, raised minimum capital requirements, streamlined licensing procedures and defined and extended the NBU's authority in rehabilitating or liquidating banks. The liquidation of the badly performing banks became facilitated by the establishment of the Fund for Guarantee of Deposits of Natural Persons in September 2001 which had an additional effect of increasing depositors' confidence (Barisitz (2006)).

These measures combined with the economic rebound, which happened in 1999 after a decade of contraction, and a further decline of inflation changed the incentives for commercial banks and encouraged them to perform the banking primary function of channeling private deposits into loans. The following years were therefore marked by a strong growth of commercial bank credit which averaged 46 percent until 2005 and reached incredible 72 and 80 percent in 2006 and 2007.¹² The lion's share of the credit expansion has been financed by deposit growth. At the same time, banks have also been acquiring growing foreign liabilities.

The increase in household loans was especially striking. Their share in total loans grew from 4 percent in January 2001 to 34 percent in January 2008. Auto and mortgage loans as well as credit card lending have begun to multiply. As a result of the hryvnia appreciation pressures and lower interest rates on foreign currency loans, a growing proportion of all credits have been denominated in foreign currency (Barisitz (2006)).

The increasing volume of lending to the private sector was probably one of the factors that stimulated the most recent raises of the EBRD banking reform indicator. In 2005 the index reached 2.67 and in 2006 3.0 mark. Another important factor could have been the Orange Revolution in December 2004.¹³ The revolution improved the long-term perspectives for the democratic stability and the reform implementation. President Yuschenko and his government demonstrated the willingness of a deeper integration into European political and economic structures and world economy by applying for membership in the World Trade Organization.¹⁴

¹¹ The original Law "On Banks and Banking" was passed in 1991 (Zelenyuk and Dushkevich (2006)).

¹² Calculated on the basis of the data reported by the NBU.

¹³ The "Orange Revolution" is the name of the events around the Presidential elections in Ukraine in December 2004. Thanks to a massive protest of the Ukrainian public to the electoral fraud, the vote results were revoked and the revote resulted into a victory of Victor Yuschenko. President Victor Yuschenko and his government was at that time perceived as focused on democratic values, reforms and integration with international community.

¹⁴ Transition Report 2005, EBRD.

Although the increase in lending has been proved to have a positive effect on economic growth (Levine (2003)), the credit boom combined with the persisting weaknesses of the Ukrainian banking system have made it vulnerable to macroeconomic shocks and credit risk. The largest problems identified in the Ukrainian banks on the eve of the financial crisis were insufficient buildup of capital and provisions to keep pace with credit expansion, poor asset diversification due to the lack of investment opportunities, credit risk exposure through foreign currency loans extended to unhedged borrowers, widespread connected lending, low profitability in the banking sector, unsatisfactory corporate governance and risk management capacities (Barisitz (2006)).

2.2 Foreign banks presence

The increase in the presence of foreign capital in the Ukrainian banking industry seems to follow a similar pattern to the one exhibited by the EBRD's index¹⁵, i.e. foreign banks have reacted to the improvement of the macroeconomic and regulatory environment in Ukraine when they made their entry decisions.

It can be seen that that there have been two periods in the Ukrainian banking development with a sharp increase of foreign bank entries – first, in 1995 to 1996, and, second, in the years following 2005.

The number of banks with a foreign share¹⁶ increased from 1 to 6 in 1995 and then doubled to 12 in 1996. This entry was most likely stimulated by serious attempts by the government to stabilize the economy and introduce tighter bank regulation.

Despite the progress in the banking sector in 2001 – 2002, the number of foreign entries remained practically unchanged until the surge in 2005. One reason for this standstill is offered by Zelenyuk and Dushkevich (2006). In September 2001 Ukraine was included in the "black list" of the Financial Action Task Force (FATF), as a country that had not cooperated with FATF and failed to enact anti-money laundering legislation that met international standards. According to Zelenyuk and Dushkevich (2006), this event placed a "black spot" on the sector's development and constrained the entrance of foreign banks. Ukraine was removed from this list after enacting a new law on measures against money-laundering in February 2004.

However, foreign banks entry did not pick up until after the uncertainty about the outcome of the Orange Revolution was resolved. Barisitz (2006) speculates that foreign investors were attracted by the expectation of positive long-term effects of this event.

¹⁵ See Figure 3 and Figure 4 in Appendix 11.5 for comparison.

¹⁶ Law "On Banks and Banking" (2000) defines a bank with foreign capital as a bank where a foreign investor owns at least 10 percent of the total share capital.

A hitherto unobserved surge in the foreign bank presence happened in Ukraine beginning with the year 2005. A wave of acquisitions of Ukrainian banks by large foreign banks took place, including the takeover of 93.5 percent of Aval Bank by the Austrian Raiffeisen International in 2005, the sale of 85.42 percent of Ukrsotsbank to Italian investors (Banca Intesa) in 2006, the acquisition of a 51 percent stake in Ukrsibbank by the French-based BNP Paribas in 2006. The Swedish SEB made two acquisitions in Ukraine. In January 2005 it acquired 94 percent of a small bank Agio, ranked 57th by assets in 2005, and increased its share in the bank to 98 percent in July 2006. In December 2007 it also acquired an around 97 percent stake of another small bank – Factorial Bank, ranked 70th by assets in 2007. Swedbank acquired TAS Kommerzbank ranked 23d by assets in July 2007. Overall, the number of banks which are at least partly owned by foreign investors has almost tripled between 2004 and 2008. In May 2009 the share of foreign ownership in the Ukrainian banking sector amounted to about 37.2 percent as compared to 11.3 percent in 2004.¹⁷

Academic research has demonstrated that reform measures as well as political freedom might have a positive effect on foreign bank entry (Lensink and de Haan (2002)). We have made a curious observation that in the year 2005 following the presidential elections foreign banks seemed to have a slight preference for opening their offices in the regions where the majority of voters were in favor of the candidate that was perceived as more democratic and progressive.¹⁸ The correlation between the proportion of voters for the democratic candidate and the growth in foreign banks presence in 2004-2005 in a region is 55.6 percent. This correlation disappears though when it is calculated a longer period such as 2004-2006 or 2004-2007.

Other factors that attracted foreign strategic investors were according to Barisitz (2006) the size and rich expansion potential of the Ukrainian market as well as its proximity to the European Union. Many of the banks' foreign owners are domiciled in less profitable mature markets, so parents have encouraged their subsidiaries to pursue aggressive loan portfolio expansion to gain market share and improve consolidated results (Duenwald, Gueorguiev and Schaechter (2005)). The investors have thus been lured by the relatively low level of competition and the generous profit prospects offered by Ukraine.

Despite the dynamic increase of the foreign asset proportion in Ukrainian banking, it has not reached the asset proportions that are usual in the new EU member-countries.¹⁹

One of the reasons for the relatively modest foreign banks' presence could have been the long-standing ban on opening foreign bank *branches* (also observed in Russia) (Barisitz (2006)). Until

¹⁷ See Figure 5 in Appendix 11.5.

¹⁸ See Figure 6 in Appendix 11.5.

¹⁹ See Figure 7 in Appendix 11.5 for comparison.

May 2008 foreign banks could only conduct business in Ukraine through two types of establishments: *representative offices* and *subsidiaries*.

Representative offices are the most limited form of foreign banks involvement in a host country. Their main scope is to collect data and intelligence. They are not authorized to carry out key banking functions such as deposit taking or lending and are often prohibited from engaging in any profit-making activities (IER (2004)). In contrast to them, subsidiaries and branches are allowed to participate in both retail and wholesale lending and deposit taking. The difference between these forms is that while subsidiaries are stand-alone entities with their own capital and as such can only borrow on the basis of their own capital, branches are integral parts of the parent bank and act as a legal and functional extension of the foreign head office. As a result of their legal incorporation, branches can borrow on the basis of their parent bank's full capital base and not only on the basis of the regulatory capital in the host country (IER (2004)). Setting up branches is therefore an advantageous way for foreign banks to enter a new market as it reduces registration-related paperwork, enables to avoid the excessive insight of the local authorities into a bank's operations and to substantially amplify a bank's deposit-taking and lending activities.

The amendment to the Ukrainian legislation that permits foreign banks to set up their branches in Ukraine was enacted in November 2006 and came into effect in May 2008 (Law "On Amendments to the Law "On Banks and Banking""(2006)). This amendment was much disputed but was finally approved because it was a necessary condition for Ukraine to become a member of WTO (Shpyh (2006)).

3 Theories and empirical evidence on the effects of foreign banks entry

During recent years the question of foreign bank entry has been treated quite extensively in academic literature. Two competing perspectives have been formed. The proponents of foreign banks argue that foreign banks have a positive impact on the economies that they enter. The opposing view is that the effects of foreign banks presence can be the reduction of firms' access to credit. Both perspectives are based on sound theoretical argumentation. Moreover, the empirical studies, that have been performed to test them, produce support for the both standpoints.

The arguments in favor of foreign banks revolve around several considerations. One is that the foreign entry induces competition. In many developing countries inefficient domestic banks and a lack of competition among lenders result in high borrowing costs and limited financial access for many firms (Gormley (2007)). By increasing competition in host countries foreign bank penetration may eliminate "excessive" profits associated with monopolistic or cartelized markets, thereby lowering the cost of investment.

Foreign banks may also help to mitigate problems of crony lending and related lending. *Crony lending* occurs when a firm uses its political connections to have government officials influence lending decisions of financial institutions. Governments can influence banks in several ways, including legislation, regulation, direct subsidies, direct ownership, and selection of banks' managers (directly or indirectly). Firms can also be affiliated with banks by owning their shares, having the firms' employees on banks' boards of directors, etc. They can use this affiliation to pressure banks for loans, the behavior known as *related lending* (Chiu and Joh (2004)). In many developing countries, domestic banks are often engaged in crony and related lending (Laeven (2001), La Porta, Lopez-de-Silanes and Zamarripa (2003)). As a consequence, established companies owned by well-connected individuals receive funding even if they are inefficient, while firms with no connections face credit restrictions even if they are potentially highly-profitable (Giannetti and Ongena (2007)). Foreign banks, with fewer local affiliations, may therefore be more inclined to fund promising projects, rather than only those projects of well-connected or state-owned firms (Giannetti and Ongena (2007)).

Another consideration is the presumed high efficiency of foreign banks in the performance of financial functions such as allocation of resources, mobilization of savings, risk diversification (Levine (1997)). It is believed that as a result of their more advanced competence and technologies in collecting and processing information on a wide array of enterprises, managers, and economic conditions, they can be better than domestic banks at selecting the most promising firms and managers and in this way allocate resources more efficiently. They can also perform better at mobilizing savings because they have better reputations, are larger in size and have larger capital to fall back on than domestic banks. Savers might therefore feel more comfortable with entrusting them their savings. Foreign banks might also provide better risk diversification thanks to a greater geographical outreach and ensure a higher return by investing in riskier high-return innovative projects (Levine (1997)).

A third important consideration is that foreign banks presence may have spillover effects on the domestic banking industry. The latter can benefit by adopting the technologies of foreign banks (Lensink and Hermes (2004)). The presence of foreign banks can also improve the quality and availability of financial services in the host country, stimulate the development of the domestic bank supervisory and legal framework (Agénor (2001)) and encourage the development of better auditing agencies (Levine (1997)). Last but not least, foreign banks have lower cost of capital than domestic banks and access to international capital markets. They can therefore enhance a country's access to international capital, either directly or indirectly through parent banks, and reduce volatility in capital flows thus contributing to the stability of the domestic financial system (Agénor (2001)).

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A number of empirical studies provide support for these analytical arguments. Clarke, Cull, and Soledad Martinez Peria (2001) use a survey of over 4,000 enterprises in 38 developing and transition economies, to study whether borrowers' perceptions regarding interest rates and access to long-term credit are positively associated with the presence of foreign banks. Overall, their empirical results strongly support the assertion that foreign bank penetration improves firms' access to credit. Enterprises in countries with high levels of foreign bank penetration tended to rate interest rates and access to long-term loans as lesser constraints on enterprise operations and growth than enterprises in countries with less foreign penetration. Gianetti and Ongena (2007) confirm this result in their analysis of firms in transition countries. Using a 80-country sample of both developed and developing countries, Claessens, Demirgüç-Kunt, and Huizinga (1998) estimate how foreign bank entry, measured as the change in the percentage of banks operating in a host country that are foreign-owned, affects the operations of domestic banks. They find that foreign banks reduce the profitability of domestic banks, and there is some evidence that the non-interest income and overall expenses of domestic banks are also negatively affected by foreign entry. The authors interpret the results to mean that foreign bank entry leads to greater efficiency in the domestic banking system.

Despite the theoretical arguments and empirical evidence in favor of foreign banks, there exist opposing views as to the effects of foreign banks entry. These views are based on empirical studies that have demonstrated that some firms' access to credit may actually reduce as a result of foreign banks presence, that foreign banks may limit themselves to *cream-skimming*, and that they may adversely affect both domestic banks and the firms that rely upon them.

These adverse effects are often attributed to the presence of information asymmetry between a lender and a borrower. A lender may rely on two types of information when making decision about granting a credit: *hard information* and *soft information*. Hard information is credible and publicly verifiable information, such as a firm's authentically audited balance sheets, or government guarantees. Soft information is information that cannot be easily publicly verified by a third party, for example, a loan officer's subjective evaluation of a small firm's future outlook (Mian (2003)). As is argued by Stein (2002), organizations with more hierarchical structures are more likely to rely on hard information as opposed to flatter organizations. The reason is that flatter organizations have better control and information on their managers, and thus can afford to give them more discretion. This discretion allows the managers to use soft information such as subjective evaluations, which managers in hierarchical organizations are not allowed to use.

Foreign banks are usually large and hierarchical organizations and, in accordance with the above, may rely more on hard information than on soft information in assessing the creditworthiness of firms. The predominant or even exclusive use of hard information may also be prompted by far greater information asymmetry that foreign banks encounter in less developed countries than in

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their home countries. This greater asymmetry stems, on the one hand, from the differences in the market and regulatory environment, culture and language, and, on the other hand, from inadequately enforced accounting standards, unreliable accounting information due to corruption and tax evasion, undeveloped credit rating system which are often typical for developing countries (Clarke, Cull, Soledad Martinez Peria, and Sánchez (2002), Detragiache, Gupta, and Tressel (2006), Gormley (2008)). Under such conditions, foreign banks would lend predominantly to hard information borrowers, i.e. safer and more transparent customers, such as multinational corporations, large domestic firms, or the government (Detragiache, Gupta, and Tressel (2006)). At the same time, the so-called informationally opaque firms that include small firms, young firms and firms with lacking collateral will find it difficult to receive credits from foreign banks, even if they are high-performing firms. Private domestic banks on the other hand can afford to rely more on soft information because of their flatter organizational structure. If foreign competition forces some small domestic banks to exit the market, the supply of credit to informationally opaque small businesses may decline (Clarke, Cull, Soledad Martinez Peria, and Sánchez (2002)).

Gormley (2008) offers a theoretical model that explains how foreign banks entry may lead to the reduction of credit access for high-return firms in the presence of information asymmetry. He assumes that foreign lenders have a higher cost of acquiring information than domestic lenders but at the same time they have a lower cost of funds than domestic lenders. In this arrangement the following can be observed. Before the entry by foreign banks domestic lenders may find it more profitable to pool all firms together rather than invest in the expensive screening technology. Gormley (2008) points out that this pooling equilibrium "over-funds low-return firms and underfunds high-return firms". He also indicates that this lending pattern is typical for emerging economies. The entrance of foreign lenders may upset this pooling equilibrium. As foreign lenders have a lower cost of funds, they can invest into screening costs and lend to high-return firms, able of profitably investing large capital. Assuming that screening costs are fixed, foreign lenders' lower marginal cost of funds enables them to offer a lower lending rate than domestic lenders to these high-return firms, even when foreign lenders have higher screening costs. In this way, foreign banks can attract the best performing firms in the market, the behavior that has been named creamskimming. Cream-skimming reduces the quality of firms being pooled by domestic lenders, which may remove the possibility of a pooling equilibrium for the remaining firms, in which domestic lenders retain a competitive advantage. If it is too costly to differentiate the remaining high-return firms from the low-return firms, domestic lenders may exit the market completely thus reducing the credit access of these high-return firms. The segmentation of the credit market following foreign entry has therefore the potential to reduce credit access for many firms.

Gormley (2007) also produces empirical results in support of his theory. He uses firm-level financial data and the data on the geographical location of new foreign bank entries during the 1990s in India to estimate the effect of foreign bank entry on domestic credit access. He finds that the most profitable 10 percent of firms located near new foreign bank offices received larger loans, but, on average, firms were 7.6 percent points less likely to have a long-term loan of any size following the entry of a foreign bank. He also explores the question of whether the decrease in overall credit for many firms was associated with a decline in sales or an increase in bankruptcy rates for firms located near a new foreign bank. However, he finds little evidence to indicate this. Instead, the negative impact on overall bank credit appears to be mitigated by a switch to other forms of borrowing, for example, financial loans from other firms.

A range of other researchers provide support for Gormley's (2007, 2008) conclusions. In Detragiache, Gupta, and Tressel's model (2006) foreign banks entry leads to a situation when soft information borrowers have to pay such high interest rates that they may no longer borrow. The cross-country study that Detragiache, Gupta, and Tressel (2006) perform shows that credit markets are shallower in countries with a larger foreign bank presence and credit growth is slower in countries with a larger initial foreign bank presence. Berger, Klapper, and Udell (2001) find that small businesses in Argentina are less likely than larger ones to receive any credit from large banks or from foreign banks. According to Brown and Rueda Maurer (2005) large firms have benefited from foreign bank presence while small firms have not. Gianetti and Ongena (2007) report that while foreign lending stimulates growth in firm sales, assets, and use of financial debt, the effect is dampened for small firms.

Berger, Klapper, and Udell (2001) argues, however, that as long as domestic banks continue to lend to more opaque but profitable customers, there should be no welfare loss, and foreign bank entry may simply result in a welfare-improving segmentation of the market. Even if foreign banks focus on serving "high-end customers" customers (large, profitable firms), their entry might still benefit small borrowers if competition for large customers forces some domestic banks to seek new market niches such as providing credit to SMEs. Consistent with this, Bonin and Abel (2000) find that as foreign penetration increased in Hungary some smaller domestic banks sought new market areas. Similarly, in a survey of banks from 78 countries, Jenkins (2000) finds that 44 percent of those banks that lent to small and micro enterprises indicated that changed market conditions and increased competition in lending to large and medium-sized enterprises were the two most important reasons for doing so. The conclusion is, as Detragiache, Gupta, and Tressel (2006) put it, that foreign bank lending becomes a concern only if foreign banks force domestic banks out of the market in which case more opaque firms may become credit constrained, aggregate credit may decline, and profitable investment opportunities may be lost.

4 Hypothesis development

As the theoretical discussion demonstrates, there are no clear-cut predictions as to what effect foreign banks entry would have on the host country. It is not necessarily a drawback of the research but rather an indicator of the complexity and ambiguity of the foreign banks influence.

The first and the most obvious question to pose when studying the effect of foreign banks on Ukrainian firms, is how foreign banks entry have affected firms' credit access and cost of debt. In accordance with the previous research, there are several arguments why a positive effect should be observed. First, foreign banks have to compete with the existing financial services providers (domestic banks and other financial institutions) for local customers. New customers can be attracted with larger loans or better borrowing terms. Secondly, foreign bank's larger capital base and lower cost of funds allows them to offer those (Agénor (2001), Gormley (2007), Clarke, Cull, and Soledad Martinez Peria (2001)). The increased competition in the banking industry forces also domestic banks to reduce their credit rates. This leads us to the formulation of the first hypothesis:

Hypothesis I: A larger presence of foreign banks is expected to be associated with a higher amount of debt and lower credit rates for all firms.

The information asymmetry incorporating theories by Gormley (2008) and Detragiache, Gupta, and Tressel (2006) and the empirical studies by Giannetti and Ongena (2007) and Gormley (2007) have drawn our attention to the fact that foreign banks effect may be not uniformly positive. Foreign banks have been found to avoid lending to informationally opaque firms such as small firms, young firms or firms with little collateral (Berger, Klapper, and Udell (2001), Brown and Rueda Maurer (2005), Detragiache, Gupta, and Tressel (2006), Giannetti and Ongena (2007)). At the same time, their tendency to concentrate on the "high end" of the market (large, multinational, top profitability firms) has been observed (Detragiache, Gupta, and Tressel 2006, Gormley (2007)). With support of these studies we develop our second hypothesis:

Hypothesis II: The top performing firms and large firms in Ukraine are expected to show a larger increase in the amount of debt and lower credit rates with a larger presence of foreign banks. The amount of debt of small firms, young firms and firms with smaller collateral is expected to be negatively related to the foreign bank presence while the opposite is expected to hold for such firms' credit rates. We will, however, bear in mind the point made by Berger, Klapper, and Udell (2001) and Detragiache, Gupta, and Tressel (2006) that the effect of foreign banks entry on lending to informationally opaque firms depends on how smaller domestic banks have been influenced by the competition from foreign banks. If domestic banks were forced out of the market, then the adverse effect on informationally opaque firms is going to be visible. If they stay in the market and just change their focus from large firms to small and young firms, the observed effect can be quite opposite – the credit rates and access to credit of informationally opaque firms could actually improve with a larger foreign bank presence.

If we assume that foreign banks can increase or decrease firms' access to credit, we can further argue that foreign banks can affect firms' ability to invest into positive NPV projects and, therefore, firm's ability to expand and grow. This suggests that the foreign banks' effect on firm growth²⁰ should be consistent with their effect on firms' access to credit. We expect, therefore, that if Hypothesis I holds and foreign banks presence indeed leads to the decreased cost of debt and increased amount of credit for all firms, foreign banks presence should also be associated with a higher growth for all firms. On the other hand, if some firms' access to credit is constrained (expanded) by a higher foreign banks presence, their growth rates should also be negatively (positively) related to an increased foreign banks presence. For example, "high-end" firms should demonstrate a higher growth while informationally opaque firms should demonstrate a lower growth as foreign banks presence increases. Our third and fourth hypotheses can be summarized as:

Hypothesis III: As some firms' access to credit increases (decreases) with a larger foreign bank presence, they should also exhibit a higher (lower) growth.

This straightforward relationship may, however, be influenced by the fact that foreign banks presence and firm growth may be connected in more than a single way. Firstly, as it is argued above, foreign banks may increase credit to local firms and spur their growth in this way. Secondly, foreign banks may increase the efficiency of domestic banks by competing with them and through spillover effects (Levine (1997), Agénor (2001), Claessens, Demirgüç-Kunt, and Huizinga (1998), Lensink and Hermes (2004)). As a result, the growth of a firm can be positively correlated with foreign banks presence not because it receives more loans from foreign banks but because it can borrow more from domestic banks located in the same region. Thirdly, foreign banks might stimulate demand for products of domestic firms by providing consumer loans. For example, a study of

²⁰ Note that in future text the phrases "firm growth" and "sales growth" will be used interchangeably.

Bulgarian banks has found that foreign banks tend to be more active and stable providers of real estate and household loans than domestic banks (Evren Damar (2008)). If foreign banks in Ukraine were more active in consumer lending than domestic banks, we could observe a positive correlation between foreign banks presence and firm growth without the increased access to credit for firms. This assumption is, however, not supported by the available data on Ukrainian banks' corporate and consumer loans for the period of 2005 to 2007²¹. During this period, foreign banks in Ukraine had consistently a higher ratio of corporate loans to total loans than domestic banks. These three ways of interaction between foreign banks presence and firm growth may be overlapping and prevent us from drawing strong conclusions about the observed relation between foreign bank presence and firm growth.

The research on the effects of foreign bank entry also includes studies that examine the foreign banks' influence on the ability of the host country to respond to macroeconomic shocks. Foreign banks are believed to contribute to a smaller volatility of financial flows in times of financial crises and mitigate the problems of lacking liquidity (Agénor (2001)). For example, Goldberg, Dages, and Kinney (2000) concluded that during the 1994 – 1995 Mexican crisis foreign banks exhibited stronger loan growth than all domestic-owned banks, with lower associated volatility, and hereby contributed to greater stability in the amount of credit allocated by the overall financial system. We believe that foreign banks' behavior can be different from the behavior of domestic banks also in times of a substantial political shock. In this thesis we attempt to study whether the presence of foreign banks has affected the response of Ukrainian firms to the political shock in the form of the tumultuous presidential election in October – December 2004. Our belief about the existence of such an effect is based on the studies of *political patronage* and crony lending²².

Political patronage can take many forms. Examples of it can be the protection and assistance by a politician to a selected firm or the distribution of public funds by the ruling politicians and political parties in such a way so that to win votes in the ensuing elections or to reward their supporters in the previous elections (Fraser, Zhang and Derashid (2005), Miguel and Zaidi (2003)). Miguel and Zaidi (2003) analyze the presence of patronage in the distribution of public educational spending in Ghana and find that administrative districts that the ruling party "swept" in the 1996 elections receive significantly more public school funding. Political patronage can also be observed in banking (Baum et al (2008)). Banks and politicians may render mutual favors to each other. Banks seek political connections because they can help them overcome many obstacles and improve the conditions for doing business. In return for their services politicians seek political rents which might

²¹ The amounts of consumer and corporate lending are reported starting with the year 2005 and are available on the NBU's website.

²² The concept of *crony lending* has been described in Section 3 pp 8-9.

take the form of below-market-rate loans for the firms owned or patronized by politicians (Baum et al (2008)). The problem of crony lending is especially acute in *relationship based capitalisms*²³ which Ukraine is a good example of due to a huge overlapping of business and politics in this country (Baum et al (2008)).

With support of these arguments and evidence it is not totally unreasonable to suggest that the Ukrainian regions that had a majority vote in favor of the elected president (*allied regions*²⁴) in the 2004 Presidential elections could have received a larger allotment of public funds than the regions that supported the elected president's opponent, i.e. had a minority vote for the elected president. The political allies of the elected president may have channeled these funds through politically-connected banks. It could further be suggested that the firms located in these regions may have obtained larger loans or better lending terms through crony lending. Banks may have provided more loans or better terms to politically-connected firms located in these regions in pursuit of political favors. The fourth hypothesis that we put forward is the following:

Hypothesis IV: Firms in allied regions are likely to exhibit higher growth, larger levels of debt and lower credit costs than firms in non-allied regions.

Many domestic banks in Ukraine are part of business groups that are influential not only in business but also in politics (Baum et al (2008)). This fact leads us to speculate that domestic banks in Ukraine may be more afflicted with problems of crony lending and political patronage than foreign banks. Because of this presumably greater involvement into Ukraine's politics, domestic banks might have exhibited a tendency to allocate comparatively more funds to firms in allied regions than to firms in non-allied regions after the 2004 Presidential elections. This might, in its turn, have resulted into an outflow of funds from non-allied regions in favor of allied regions and, hence, might have affected negatively the credit access and growth of firms in non-allied regions.

It is logical to assume that foreign banks might have counteracted this trend because they were more likely to keep on allocating credit based on rational expectations of firm performance as opposed to the political affiliation of the region where a firm is located. We suggest, therefore, that the outflow of funds and the negative effect on firms' credit access and growth should have been less noticeable in the non-allied regions with a larger foreign banks presence. This brings us to our fifth and final hypothesis:

²³ A term borrowed from Fraser, Zhang and Derashid (2005) where it was used in relation to Malaysia. The term is used for countries where there exist strong links between politics and business and political patronage is wide spread.

²⁴ A term borrowed from Carvalho (2009).

Hypothesis V: Firms that are located in the non-allied regions with a larger presence of foreign banks should receive more credit and lower credit rates than firms in the non-allied regions with a smaller foreign banks presence.

5 Data sources and sample characteristics

The data that we have used in our analysis can be divided into four groups: the firm-level annual data on the performance of Ukrainian firms, the bank-level annual data on the geographical distribution of bank offices, the bank-level annual data on bank ownership and the annual data on the development and demographics in Ukrainian regions. All the four groups include observations from 2002 to 2007. This period has been chosen based on a number of considerations. One reason has been to ensure data comparability. The years before 2002 had to be excluded because of the accounting reform that took place in Ukraine in 2000 and made the corporate financial reports produced before 2000 hard to compare to those produced after 2000 (Law "On Accounting and Financial Reporting in Ukraine" (1999)). Another consideration has been the ambition to employ the most recent available data. With respect to the banking industry, this period was characterized by the structural stability untypical for the Ukrainian banking industry with no bankruptcies of large banks or big changes in banks' market shares. The consideration of the structural stability has made this period suitable for other studies with a focus on banking (Baum et al (2008)). The prolific entry of foreign strategic investors makes it interesting for us from the perspective of studying the dynamic changes in the banking industry and the economy at large that might be related to this event.

5.1 Firm specific data

The firm specific data has been extracted from the database *Ruslana* which is part of the larger database *Orbis* available from *Bureau van Dijk Publishing*. The data on Ukrainian firms is provided to *Bureau van Dijk* by Creditreform Ukraine, a subsidiary of an international credit risk management firm which offers credit reports, debt ratings and market research. The use of a single source in respect of the firm-level data ensures a homogenous standard for information gathering and presentation. The use of Ukrainian information resources, for example, the online resources of the State Statistics Committee of Ukraine has been precluded by the fact that corporate tax and financial reports are not public information in Ukraine (Law "On State Statistics" (1992), Law "On Information" (1992)).

A firm that has been selected for the sample should have corresponded to a number of criteria: (1) it should have been active, (2) its date of incorporation and location should have been identified; (3) it should have been classified as an industry company (not a banking or insurance company), (4) it should not have been classified as a "state company" or a "municipal company", neither should its owner have been identified as "the state of Ukraine", (5) its financial reports should have been available for at least two consecutive years, (6) it should have employed at least 5 people, (7) its revenue should have been at least \$ 5 thousand for the most recent reported year and different from zero for the year preceding the most recent reported year, (8) it should have had a positive equity capital in all reported years.

By employing these criteria we have attempted to achieve several objectives. First, while trying to include the greatest possible number of firms into our sample, we have decided to set downward limits on their size of minimum 5 employees and on their revenues of minimum \$ 5 thousand. This has been done to exclude the firms that would be too small to qualify for a bank loan and, also, to diminish the number of the so-called "one-day" firms in our sample, i.e. the firms that are set up to perform a single transaction and are liquidated or just kept dormant afterwards. Secondly, we have only selected the firms that have made interest payments in order to focus on firms that already have a relation with a bank or a financial company. Thirdly, we have excluded all firms that we have identified as run by the state or regional government. These firms finance their operations, expansion and capital expenditure mostly with government subsidies and are much less dependent on the access to or the cost of bank loans than private firms. Their presence can, therefore, introduce the irregularities in the relation between the firm performance and the access and cost of finance that can be hard to explain.

Firms that match our criteria represent roughly 1.67 percent of the firm population available in *Orbis* and 0.44 percent of the total number of firms registered in Ukraine according to official statistics.²⁵ The most important reason to why so few firms have been selected has been the absence of the date of incorporation. The fact that the number of observations included in the sample varies results into an unbalanced panel. Some of the firm observations could have dropped from the sample due to various reasons. One of the reasons is that *Orbis* deletes the information about a firm if this firm has not been operational for the latest five years. The survivorship bias that could have resulted from this is, however, limited because our sample includes firm data for the most recent 5-year period.

²⁵ See Table I in the Appendix 11.2.

In general, it should be noted that the financial data on Ukrainian firms should be regarded with caution, especially the reported profits, the value of fixed assets on the balance sheet and the number of employees. The most reliable data is, to our opinion, firm sales and firm age.

5.2 Regional data

We have acquired the region-level data from the statistical reports published by the State Statistics Committee of Ukraine *Regions of Ukraine* (State Statistics Committee of Ukraine (2005) and (2008)). The Committee started to issue these reports in the year 2004. They are not available online and can only be purchased directly in the State Statistics Committee's office in Kiev. The periods for which statistics is reported are not consistent for all types of data. Some statistics goes as far back as 1990 while other is available only starting with the most recent years. The information that we have obtained from these reports included regions' population, average population income, proportion of population employed in industry to total working population in the region and proportion of fixed assets in industry to total fixed assets in the region.

5.3 Bank data

To achieve the objectives of our research we have required information of two kinds: information about bank offices in Ukrainian regions and information about bank ownership.

The information about bank offices has been collected from the website of the NBU. The website provides access to a database where information can be found about offices of each currently active Ukrainian bank. All in all, the database contains information about 26,320 bank offices. Their great quantity is explained by the great number of banks in Ukraine and by the inclusion of offices of different types into the database: head offices, branches, local offices, foreign exchange offices, foreign banks' representations in Ukraine and Ukrainian banks' representations abroad.

Although the information provided by the database is rather detailed, it gives very few opportunities for sorting, systematization and aggregation of the data. For example, there is no way of retrieving the aggregate number of bank offices in a specific region or the number of offices of a specific bank in the whole country. To enable these features, we had to perform additional processing of the data. It included the conversion of the data into Excel format and the breakdown of the bank offices unique identification numbers into parts in order to enable the systematization of the data. We have namely made an observation that the so-called "internal" bank office

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identification numbers consist of a range of identification numbers. The first six to eight digits stand for the bank number. Then, there are two digits standing for the geographical location of a bank office and one digit more for the type of a bank office. The coding of the data according to these identification numbers has enabled us to handle it with greater ease and to perform operations such as sorting, systematization, aggregation and search according to different criteria that were impossible to perform earlier. The data on bank offices was also translated from the Ukrainian language into the English language. The final stage of the data processing was the exclusion of some types of bank offices from the sample (foreign exchange offices, foreign banks' representations in Ukraine and Ukrainian banks' representations in foreign countries) as these types of offices do not extend loans to Ukrainian companies and are, thus, irrelevant in the estimation of the effect of foreign banks presence on lending to Ukrainian firms and their growth. The aggregated figures on the number of offices of banks in Ukraine, calculated on the basis of the sample we have collected, are shown in Table II in Appendix 11.2.

The information on ownership in Ukraine is very obscure and is hard to rely on even if it originates from registration and licensing authorities.²⁶ To obtain as complete information as possible and to increase its reliability we have resorted to multiple sources. We have also cross-checked the information provided by the different sources.

We have mostly relied upon two resources: an Acrobat Reader-file on the NBU website containing information on owners of some selected banks and *Bureau van Dijk*'s database *Zephyr* providing information on mergers and acquisitions. The reason for the need to complement the information from the NBU has been that the file only covered the currently active banks and the most recent owners of banks without specifying the previous owners and left out the information on some of the banks. As it has been mentioned above in Section 2, the Ukrainian banking industry was marked by a broad wave of acquisitions in 2005 to 2007. Many of the deals where the acquiring companies were foreign were reported in the *Zephyr* database.

If no information about bank ownership was found in either of these resources, we have searched for information on the respective banks' websites, Ukrainian and international media and studies by other researchers.²⁷ Some of very small banks had to be excluded from the sample due to the absence of information about them in any form. This should not have influenced our results because these banks had extremely low capitalizations and were unlikely to lend actively to companies.

²⁶A concern over the unavailability of bank ownership information was expressed, for example, by Krylova (2009).

²⁷ For example, Baum et al (2008).

The further processing of the bank data included the matching of the data on bank offices with the data on bank ownership. Because the NBU's database gives access to the information on bank offices of only currently active banks, the banks that have been liquidated before the present date were not included in the sample. This introduces a certain degree of survivorship bias in our sample. On the other hand, there is a valid reason to disregard this problem, namely, that there was no bankruptcies of large banks in the studied period which would substantially affect the figures in our sample if they were not accounted for. The number of banks was actually constantly growing in this period (from 157 to 175 of active banks as reported by the NBU). This period has actually been used in other studies of the Ukrainian banking system on the same grounds (Baum et al (2008)). It should be noted, however, that the banks that have been acquired by other banks and changed their names have been accounted for in our data.

The examination of numbers in Table III in Appendix 11.2 shows that there are discrepancies between the figures that we have obtained as a result of our research and the figures reported by the NBU and the EBRD. It is also noticeable that the figures reported by the EBRD, for example, on the number of foreign-owned banks in the country also differ from the ones reported by the NBU. These discrepancies of our data with the information reported by the authorities are natural because the underlying data used for the estimation of the aggregated figures reported by the EBRD demonstrate that even international organization with far greater resources than ours do not have the information corresponding to the NBU's data.

After we completed the collection of the data on bank offices and bank ownership, we matched this data in order to calculate the regional foreign bank presence indicators.

6 Methodology

6.1 Variables Description

6.1.1 Firm level variables

Dependent variables

In this study we estimate the effect of foreign bank presence on firms' access to credit and firm performance. Firms' access to credit is expressed by two variables: *Debt Growth* and *Interest Rate Change*, while firm performance is defined in terms of *Sales Growth*.

We define *Debt Growth* similar to Giannetti and Ongena (2007).²⁸ As inputs for this equation we have been using a firm's non-current liabilities and a firm's total assets reported in *Orbis*. The average *Debt Growth* across regions and time is 6.6 percent which means that holding a firm's assets constant the firm's leverage rises on average by 6.6 percent a year. Here we can observe an obvious rising trend during the study period. To limit the impact of outliers all observations below 1 and above 99 percentiles were excluded from the sample. The observations with a debt growth of zero were also excluded. This has left us with a total of 17,230 observations in the sample.²⁹

To approximate firms' interest rate, we have made an assumption that the average credit rate paid by a firm during a certain year equals to the ratio of this firm's financial expenses reported on its P/L statement for the current year to the non-current liabilities reported on its balance sheet for the previous year. The *Interest Rate Change* is calculated as an absolute change in the credit rates.³⁰

The average *Interest Rate Change* during 2002 to 2007 was 1.67 percent with a falling trend over time.³¹ Similar to the other reported averages, this average is equally weighted across firms. Our mode of estimation of the credit rates has produced a high quantity of extreme observations. In order to eliminate them we have implemented a cut-off on observations that have over 100 percent interest rate change over one year.

As in Giannetti and Ongena (2007), we calculate *Sales Growth* as a natural logarithm of firm sales reported by a firm for the current year divided by firms sales reported for the previous year. ³² The average sales growth in the sample is 22 percent across firms and time.³³ There is also an obvious increasing, though volatile, trend. To limit the impact of outliers, all observations below 1 and above 99 percentiles were excluded which have produced a sample of 25,160 observations.³⁴

Independent variables

The firm characteristics like size, age, collateral and profitability that we control for in our analysis are typically used in empirical studies trying to explain firms' capital structure choice. Examples of such studies are Michaelas, Francis, and Panikkos (1999), Booth et al (2001) to name only a few. They have also been widely used in studying the micro-level effect of the foreign bank entry (Giannetti and

²⁸ See Appendix 11.1.

²⁹ See Table IV in Appendix 11.2.

³⁰ See Appendix 11.1.

³¹ See Table IV in Appendix 11.2.

³² See Appendix 11.1.

³³ See Table IV in Appendix 11.2.

³⁴ Ibid.

Ongena (2007), Brown and Rueda Maurer (2005), Gormley (2007)). The rationale for using these characteristics is grounded in capital structure theories.

In capital structure theories firm size and age are proxies for the informational opaqueness of firms and thus influence their ability to borrow. We use a natural logarithm of a firm's number of employees to express firm size (the variable *Firm Size*). The logarithmic form is used to adjust for the positive skewness of data. The variable *Age* is used as a control variable in both its actual, i.e. as an absolute number of years that a firm has been in operation, and quadratic form. The quadratic form is employed to control for the second derivative effect of diminishing growth over time. As we want to specifically examine the effect of foreign banks on small firms, we have also created a dummy variable *Small Size* that equals 1 if a firm has fewer than 50 employees³⁵.

Capital structure theories also assume that collateral helps overcome the problems of adverse selection and moral hazard. Firms that possess fixed assets with a high collateral value are therefore expected to have easier access to external finance and a higher level of debt in their capital structure relative to firms with lower levels of collateralizable assets (Michaelas, Francis, and Panikkos (1999)). We evaluate firms' ability to offer collateral by estimating their fixed assets to total assets ratio and naming this variable *Collateral*. The average *Collateral* is 0.48 across firms and years.³⁶ The average annual value of *Collateral* across firms falls over the study period which might be explained by the increase in the number of firms operating in sectors where low fixed assets are required such as some kinds of service industries.

Profitability is another firm characteristic that is relevant for a firm's capital structure choice, as is implied by the pecking order hypothesis (Michaelas, Francis, and Panikkos (1999), Booth et al (2001)). In general, it holds that highly profitable firms will be more inclined to finance their growth by using retained earnings while less profitable firms will be forced to resort to debt financing or external equity. For all the firms where the relevant data is available we calculate *ROA* which is a ratio of a firm's EBIT to its total assets and use it as a measure of profitability. We use EBIT instead of profit after tax because we want to estimate a firm's profitability regardless of its capital structure. The average *ROA* is 7.75 percent across firms and years. *ROA* that is so low does not seem reasonable considering the fact that the average interest rate is 30.6 percent.³⁷ The explanation might lie in Eastern European firms' tendency to understate their profits. Firms with a high profitability can therefore be also viewed as firms with high transparency since they actually report the profit they earn.

³⁵ According to international convention a firm is classified as small if it has fewer than 50 employees (Brown and Rueda Maurer (2005)).

³⁶ See Table IV in Appendix 11.2.

³⁷ Ibid.

To check for the presence of cream-skimming we have also created a specific dummy variable *High ROA* which takes the value of 1 if a firm has been among the top 10 percent of firms in its subsector in terms of profitability. We have selected high profitability firms separately in each sector to avoid the prevalence of observations from one particular highly profitable sector in our sample. Banks are likely to evaluate firms' ability to borrow based on their profitability over several years. That's why it would probably be logical to classify firms as highly profitable if they have had high profitability consistently over the sample period. This option has, however, been discarded because there are few firms in our sample with financial reports available for the whole study period. We have instead selected firms based on the next best option – their profitability with a one year lag.

6.1.2 Regional variables

Financial system variables

Our study will examine if the variation in firm performance or financial indicators can to some extent depend on the varying presence of foreign banks in the regions where the firms are located. This implies that we need an indicator of foreign banks presence for every region in Ukraine for the whole study period. As such indicator we have chosen to use a measure which we have constructed ourselves and called *Foreign Bank Index (FB Index)*. This index is calculated as a ratio of the number of foreign bank offices in a region to the total number of bank offices in a region weighted by the average assets per office of individual banks. The average asset weight of a bank office is calculated by taking the total assets of an individual bank and dividing them by this bank's total number of bank offices. We assume, therefore, an equal share of the total assets for every bank office. The following equation was used in the calculation:

Foreign Bank Index_{rt} =
$$\frac{\sum_{i=1}^{n} Foreign Bank Offices_{irt} \times Foreign Bank Assets_{it} / Foreign Bank Offices_{it}}{\sum_{i=1}^{n} Bank Offices_{irt} \times Assets Bank_{it} / Bank offices_{it}}$$
 (1)

where Foreign Bank Index_{rt} is an indicator of foreign banks presence in a specific region at time t, Foreign Bank Offices_{irt} is the number of offices of a foreign bank in this region at time t, Foreign Assets Bank_{it} is the total assets of a foreign bank at time t, Bank Offices_{irt} is the number of offices of a bank (either foreign or domestic) in a specific region at time t, Assets Bank_{it} is the total assets of a bank (either foreign or domestic) at time t and Bank Offices_{it} is the total number of offices of a bank (either foreign or domestic) at time t and Bank Offices_{it} is the total number of offices of a bank (either foreign or domestic) at time t.

FB Index can take any value between zero and 100 percent. Zero represents no foreign bank offices in a region and 100 percent represents no domestic bank offices in a region. The average

FB Index across regions and years is 9.40 percent with a standard deviation of 13.19 percent.³⁸ As the numbers in Table VII in Appendix 11.2 demonstrate, there is a clear rising trend of the variable *FB Index* across all regions during the study period.

This measure of foreign banks presence has been chosen on the basis of considerations of data availability and validity. Previous studies that have estimated the effect of foreign banks presence on economies of host countries have been predominantly cross-country. As an indicator of foreign banks presence in a given country many of them have used the share of banking sector assets controlled by banks with foreign ownership (Clarke, Cull, Soledad Martinez Peria (2001), Brown and Rueda Maurer (2005), Detragiache, Gupta, and Tressel (2006)) alternatively the ratio of loans extended by foreign banks to total bank loans (Giannetti and Ongena (2007)). Considering that we are studying the foreign banks effect on corporate borrowing, it would certainly be most rewarding to follow the example of Giannetti and Ongena (2007) and construct a measure similar to theirs but on a regional level. However, the available data does not give us this opportunity. The FB Index that we have constructed is similar to the ratio of foreign banks assets to total banking assets where the office of every bank (either foreign or domestic) is assumed to be an individual bank. A real bank's total assets divided by the total number of this bank's offices is the assets that one bank office is assumed to have at its disposal. The FB Index does not substantially deviate from a simple unweighted proportion of foreign bank offices to total bank offices. The correlation between these two measures is 97.36 percent.³⁹

To control for the overall development of the banking sector on the regional level we use a measure which is calculated as the number of bank offices per 1000 people populating a region (*Banks on 1000 Population*).⁴⁰ *Banks on 1000 Population* has an average of 0.46⁴¹ and exhibits a rising trend from 2002 to 2007.⁴² As it could be expected, *Banks on 1000 Population* and *FB Index* are positively correlated at 17.47 percent.⁴³ The increase of foreign bank presence in a region can lead to the increase in the number of bank offices, given that this increase is achieved by opening of new foreign bank offices and not by acquiring of existing domestic banks.

Political alliance

As a proxy for the degree of political alliance of a region we use the proportion of voters who were in favor of the elected president in the 2004 Presidential elections and name this variable *Election*

³⁸ See Table VI in Appendix 11.2.

³⁹ See Table X in Appendix 11.2.

⁴⁰ See Appendix 11.1.

⁴¹ See Table IV in Appendix 11.2.

⁴² See Table V in Appendix 11.2.

⁴³ See Table X in Appendix 11.2.

Results. The data for the construction of the variable has been retrieved from the Ukrainian National Information Agency's website (Ukrinform (2004)).

Control variables

A firm access to credit and especially performance may depend to a varying degree on its geographical location. The characteristics of a firm's location that might be significant for its operation are numerous and include, for example, political, legal and institutional environment, macroeconomic climate, infrastructural development, demographics etc. The influence of these factors is often hard to observe directly and is therefore difficult to control for. The fact that we perform our study within the same country eliminates the need to control for some variables such as political, legal and institutional environment because it is uniform nationwide. However, Ukrainian regions differ from each other in other respects such as infrastructure development, prevailing sectors, demographics and political preferences, which means that these differences must be accounted for in the analysis. Though we primarily do it by employing regional dummy variables in our regressions we have felt the need to include a number of additional region-level variables for various reasons.

One variable that we include is regional population's *Income per Capita*. This is done considering the effect this factor might have on *FB Index* and *Sales Growth*. A comparatively high income per capita can stimulate foreign banks to enter a region. The correlation between *Income per Capita* and *FB Index* is in fact 39.69 percent.⁴⁴ This is a classical hen and egg problem when we cannot establish which way the causality effect goes, or even if it is present. However, what we can do in order to avoid that *FB Index* would act as a proxy for *Income per Capita*, is to include *Income per Capita* as a separate variable in our regressions.

This variable can also have a positive effect on firm performance. We use income per capita instead of gross regional product because the population of a region does not enjoy all the benefits from the goods and services produced in this region. For example, the shareholders and creditors of firms in a region can be located outside this region or even outside the country.

Different regions have also developed differently in terms of industrialization. The regions such as Donetska, Zaporizka and Dnipropetrovska have historically a higher proportion of industrial production and a higher proportion of people employed in industry than other regions. To control for these disparities we use two variables - proportion of employees employed in industry to total employed population of the region and proportion of fixed assets in industry to total fixed assets of

⁴⁴ See Table X in Appendix 11.2.

the region. We use these variables in combination with regional dummy variables to capture a time changing effect that might be present due to the rapid development of economy in Ukraine.

6.1.3 Dummy control variables

We employ two sets of dummy control variables in our tests.

First, there are 24 dummy variables representing different Ukrainian regions (25 regions all in all). Ukrainian regional statistics is usually reported for 27 regions because Kiev city is reported separately from Kievska region and Sevastopol city is reported separately from Krymska region.⁴⁵ We have merged the data for Kiev city and Kievska region as well as the data for Sevastopol and Krymska region since any company in Kievska region can have access to banking services in Kiev while the same holds for Sevastopol city and Krymska region.

We have also created 53 dummy variables for different sectors (54 sectors all in all). The sectors are classified according to the UK standard industrial classification of economic activities or UK SIC codes. We have combined firms that have the same first two digits in the SIC four-digits code to create larger subclasses.

6.2. Method

In our regression analysis we make an assumption that the variation in the dependent variables (*Debt Growth, Interest Rate Change* and *Sales Growth*) can be explained by means of a range of firmlevel variables, region-level variables and the general country-wide time trend. Our assumed basic population model is therefore the following:

$$y_{i,r,t} = \beta_0 + \beta_1 Foreign Bank Index_{r,t} + \beta_2 \mathbf{X}_{i,t} + \beta_3 \mathbf{Z}_{r,t} + \beta_4 \boldsymbol{\delta}_t + u_{i,r,t}$$
(2)

where y is a firm characteristic for a firm *i* located in region *r* in time *t*, *Foreign Bank Index* is our measure for foreign banks presence in region *r* in year *t*, $X_{i,t}$ is a matrix of control variables on firm level, $Z_{r,t}$ is a matrix of control variable on regional level, and δ_t are country-wide time effects.

Since we cannot observe the whole population of Ukrainian firms and do not know the whole range of control variables in the real population model, we have to choose an estimation method that will help us correct for the estimation bias and unobserved effects that we are likely to encounter.

⁴⁵ See Table VIII in the Appendix 11.2

The problem of omitted variables can be solved by using a fixed-effects (FE) model if the effect of these omitted variables is time-invariant. We have constructed two groups of FE models.

In the first group of models we make an assumption that the performance of firms is affected by an unobserved effect on region-sector level which we can control for by creating a fixed effects model with interaction terms between region and sector dummy variables. As we proceed, we call this model region-sector FE model. We assume that the firms belonging to the same regionsector group have no unobserved omitted difference between them. The firm's performance after accounting for region-sector affiliation can depend on different factors which we assume are randomly distributed among firms within each region-sector group. In this model we approach our data as pooled on region-sector level that gives us an advantage of having more observations per group. This approach also rimes well with the work by Rajan and Zingales (1998) where they view firms belonging to each sector as members of the same group.

In the second group of models we relax the assumption of random performance of individual firms after accounting for the region-sector unobserved effect and control for a fixed effect on firm level instead. This other group of models is called the firm FE models. Except for the level of controlling for the fixed effect, these models are completely identical. The purpose of creating two different fixed effects models is to see if the results that we get from using both of them will be consistent with each other. If both the models produce similar results, they will be viewed as especially strong. An F-test for the significance of the fixed effects dummy variables and interaction terms has shown that FE estimation is indeed preferred to OLS. The Hausman test points also in favour of using an FE model⁴⁶.

There are a number of other problems that our data and method of estimation poses for us which we have tried to resolve by employing different econometric techniques.

One problem is that in regression models like ours, where firm-level dependent variables are regressed on region-level explanatory variables, regression errors within groups (in our case, within groups of firms sharing the same location) can be correlated (Moulton (1986)). We adjust for this correlation by employing a cluster procedure on region level available in STATA which is similar to the procedure suggested by Moulton (1986).

Another problem is posed by the fact that our measure of foreign banks presence – *FB Index* - is most probably not *strictly exogenous*. The past firm growth in a region may have affected the past and current presence of foreign banks in this region, which in its turn may have influenced the current firm growth. This situation is generally referred to as *endogeneity* problem and implies a circular or mutual influence between the dependant variable and explanatory variables (Wooldridge

⁴⁶ The test results are not reported and available on request from authors.

(2003)). The endogeneity problem can be solved by adding a lagged dependent variable as an explanatory variable to the regression. However, the estimates of an FE model with a lagged dependent variable are not consistent (Nickel (1981), Angrist and Pischke (2009)) which means that we cannot use lagged dependent variables in our FE models. Following the work of Detragiache, Gupta, and Tressel (2006), we will try to reduce endogeneity problem by using lagged *explanatory* variables instead. The fact that the dependent variable is regressed on lagged explanatory variables also brings a higher degree of causality to our study.

Another problem that we correct for is heteroscedasticity by running regressions using the robust option. We also make sure that the time series of all our dependent variables are stationary by checking them for unit root. To be precise, however, we have to admit that, given that a firm is a going concern, firm growth, debt growth in proportion to assets and real interest rate are mean reverting processes and as such should be considered trend stationary.

To summarize, we will analyze our unbalanced pooled sample by using two groups of models: region-sector FE model and firm FE model. Both groups of models include lagged explanatory variables and dummy variables for years. They are robust and error terms are clustered on the region level. The base estimation model is both cases is the following:

$$y_{i,r,t} = \hat{\beta}_{r\&s} + \hat{\beta}_{1}Foreign Bank Index_{r,t} + \hat{\beta}_{2}Age_{i,t} + \hat{\beta}_{3}Age_{i,t}^{2} + \hat{\beta}_{4}\ln(Employees)_{i,t} + \hat{\beta}_{5}\frac{Fixed Assets}{Total Assets}_{i,t} + \hat{\beta}_{6}\frac{EBIT}{Total Assets}_{i,t} + \hat{\beta}_{7}\frac{Income}{Population}_{r,t} + \hat{\beta}_{8}\frac{Bank Offices}{1000 population}_{r,t} + \hat{\beta}_{9}\frac{Bank Offices}{Total Employed}_{r,t} + \hat{\beta}_{10}\frac{Fixed Assets Industry Sector}{Total Fixed Assets}_{r,t} + \hat{\beta}_{11}Election Results_{r,t} + \delta_{t} + u_{i,r,t}$$
(3)

In order to achieve our objective of observing the effect of foreign banks presence on firms with different characteristics, we have created a complementary model which, besides the base model, includes interaction terms between the variable *FB Index* and *Small Size* dummy, *High ROA* dummy as well as the variables *Collateral, Age* and *Election Results*. The *Small Size* dummy and *High ROA* dummy have also been added as separate variables in order to examine how firm performance and credit access are generally affected by the fact that a firm belongs to the category of small firms or high profitability firms. On the basis of this first complementary model, we have also created a second complementary model where we have added the interaction terms between the variable *Banks on 1000 Population* and *Small Size* dummy, *High ROA* dummy as well as the variables *Collateral, Age* and *Election Results*. The second complementary model has been constructed in

order to check if the effect of *FB Index* is significant after accounting for the general trend of bank infrastructure development in a region.

It should be noted that the value of the variable *Election Results* has been set at zero for all observations of firm performance before the year 2005. In this way, we have ensured that the effect of this variable on firm performance is only measured in the period after the Orange Revolution had taken place.

We have, therefore, three estimation models for each type of FE regression: the base model and two complementary models with fixed effects on region-sector level, and the base model and two complementary models with fixed effects on firm level. All these six models have been used on our sample in respect of all three dependent variables: *Debt Growth*, *Interest Rate Change* and *Sales Growth*.

7 Empirical findings

7.1 Explanatory power of firm-level variables

The relation between firms' capital structure and growth, on the one hand, and firm characteristics such as age, size, profitability and the value of collateral, on the other hand, is not the focus of this study. We have nevertheless examined the coefficients of our firm-level variables in order to see how Ukrainian firms' behavior differs depending on these firms' attributes.

The regressions with *Debt Growth* as the dependent variable have produced several interesting results⁴⁷. The coefficient in front of the variable *Age* is significant and negative. A firm that is one year younger than another firm increases its debt in proportion to assets by, on average, 1.2 percentage points more, holding all the other factors constant. We suggest that this relationship can be explained by older firms' tendency to grow slower in terms of assets. If the book equity-to-debt ratio stays constant, then a firm's debt should also grow at a slower pace with age. The second derivative impact of *Age* on *Debt Growth* expressed in terms of *Squared Age*, is positive and significant, leading us to the conclusion that even if age has a negative impact on debt growth, the negative impact is diminishing as the firm gets older. *Firm Size* has a negative and significant coefficient. This indicates that larger firms do not grow their debt as fast in proportionate terms as smaller firms. *Collateral* has also been found to have a negative relationship with *Debt Growth*. This result is opposite to what capital structure theory predicts. It is also difficult to explain without exploring it further.

⁴⁷ See Table XIV in Appendix 11.3, regressions (1) and (4).

These firm-level variables have also been used in regressions with *Sales Growth* as the dependent variable⁴⁸. The coefficient of *Age* is negative and significant. This is in line with the general theory of diminishing growth as firm grows older. *Squared Age* is positive and significant. *Firm Size* has a negative and significant coefficient which implies quite reasonably that the larger a firm, the slower it grows. This coefficient is highly significant in both region-sector and firm FE regressions. Surprisingly enough, profitability seems to have a negative impact on firm growth. One would expect that profitable firms would grow faster than less profitabile. The reason could be the untrue profits reported by some firms. The firms that have low profitability could be both low profitable firms and high profitable firms that are successfully hiding their profits. From Table V in the Appendix reporting averages for Ukrainian firms' different performance indicators, we can see that while firm sales exhibit massive growth consistently from 2002 until 2007, there is no such consistency in the profitability averages. The low quality of profitability figures could thus have produced this unusual result.

To summarize, the effect of the firm age and size on the increase in debt and the firm growth is quite logical and predictable. The older and larger a firm is, the slower it grows its debt in proportion to assets and its turnover. It is surprising, on the other hand, that Ukrainian firms exhibit a smaller increase in debt in proportionate terms, the larger their collateral ratio is. This result is quite difficult to explain as is the detected negative relationship between Ukrainian firms' profitability and sales growth.

7.2 Discussion of results with respect to our hypotheses

Hypothesis I

In Hypothesis I we have stated our expectation about the positive impact of foreign banks presence on corporate borrowing in terms of the lower credit rates and the possibility for firms to receive larger loans.

The regressions with *Debt Growth* as the dependent variable do not give us evidence either in support or against of this statement⁴⁹. The coefficient of the variable *FB Index* is not significant in both the region-sector and the firm FE regression. On the other hand, the negative and significant coefficient in front of *FB Index* in the FE regressions with the dependent variable *Interest Rate Change* demonstrates that foreign banks are associated with lower credit rates for all firms⁵⁰. An increase in FB Index by 0.1 would lead to, on average, a decrease of the borrowing rate by

⁴⁸ See Table XIII in Appendix 11.3, regressions (1) and (4).

⁴⁹ See Table XIV in Appendix 11.3, regressions (1) and (4).

⁵⁰ See Table XV in Appendix 11.3, regressions (1) and (4).

approximately 0.9 percentage points according to the region-sector FE regression results. The interest rate change estimated by the firm FE regression is rather close to the region-sector regression result and amounts to approximately 0.6 percentage points. For a firm doing business in a region with no foreign banks versus a firm where FB Index is 0.3, the difference in borrowing costs could be as high as 1.8 percentage points. These results are in line with the assumption that foreign banks have lower cost of capital and can thus afford to compete with domestic banks by providing cheaper loans which drives down the overall cost of capital in the region where they are present.

The regression results raise, however, the question of why we do not observe an increase of debt in the regions with a higher foreign banks presence while there is a decrease in firms' borrowing costs. An explanation can be that Ukraine has experienced a situation that Berger, Klapper, and Udell (2001) and Detragiache, Gupta, and Tressel (2006) warn about when smaller domestic banks are driven out of the market by competition from foreign banks. Domestic banks are considered to be less efficient in terms of overhead costs and, moreover, are also assumed to have a higher cost of capital. These factors might have made it difficult for them to survive the competition with foreign banks in the corporate credit market. The lower credit rates thanks to a larger foreign banks presence and domestic banks' exit could have produced two overlapping effects. On the one hand, domestic banks' clients could have seen their credit diminished. On the other hand, some firms could have increased their borrowing thanks to lower interest rates. Because these two effects could have negated each other, our results have failed to show any impact of foreign banks presence on the availability of credit.

Hypothesis II

Our second hypothesis suggests that foreign banks exhibit a tendency to cream-skimming and to avoid lending to informationally opaque firms.

The presence of cream-skimming behavior on the part of foreign banks is likely to be demonstrated by an increased access to credit for high-profitability and large firms as the presence of foreign banks increases.

Contrary to what is expected, the region-sector FE regression shows a negative and significant relationship between debt growth of high-profitability firms and foreign banks presence⁵¹. The debt growth for 10 percent of the Ukrainian highest profitability firms is, according to our results, positive with, on average, 3 to 5 percent of their assets. However, this increase is reduced by 1.5 - 1.7 percent relative to a firm's assets as *FB Index* increases by 0.1. In the more demanding firm FE model the coefficient of the interaction term between high-profitability firms and *FB Index* is,

⁵¹ See Table XIV in Appendix 11.3, regressions (2) and (3).

although still negative, no longer significant⁵². There is no evidence either that foreign banks influence high-profitability firms' cost of debt⁵³. It is, therefore, not possible to argue based on our data that foreign banks have any effect on the availability of credit to high-profitability firms.

The coefficient in front of the interaction term between the variable *Large Size* dummy and *FB Index* is positive and significant in the region-sector FE regression with *Debt Growth* as dependent variable, meaning that large firms increase their loans, on average, more than smaller firms with the increase in foreign banks presence. The associated increase is rather low, 0.56 - 0.65 percent of a firm's assets with an increase in *FB Index* by 0.1^{54} . One should remember, however, that because this increase is in proportion of a firm's assets, it can be rather substantial in absolute terms. This coefficient also loses its significance in the firm FE regression⁵⁵. The regressions with *Interest Rate* as the dependent variable do not show either that there is some effect of foreign banks presence on large firms' cost of debt⁵⁶. Thus, although we suggest tentatively that foreign banks might treat preferentially Ukrainian large firms, our tests do not give consistent support for this conclusion.

While we have expected that some groups of firms will benefit from foreign banks presence, we have also set forth a proposition that informationally opaque firms' access to credit will either stay the same or diminish with a larger foreign banks presence.

Our regressions with *Debt Growth* as the dependent variable have not shown that foreign banks have any effect on the credit of small firms. The coefficient estimating the interaction between *FB Index* and *Small Size* dummy variable is not significant⁵⁷. It should be noted, however, that foreign banks presence seems to have benefited small firms in terms of their borrowing costs⁵⁸. With an increase in *FB Index* of 0.1 the credit rate of small firms has been estimated to drop on average by 1.96 - 2.2 percentage points holding all the other variables constant. The decrease estimated by the firm FE regression is even larger and more significant – 3.11 to 3.27 percentage points. The regionsector and firm FE regressions reinforce each other's results in respect of small firms. This situation is the opposite from what we have expected. Two possible explanations can be given. One is straightforward – it might be that foreign banks lend to small firms at more attractive rates than domestic banks. Another explanation is that foreign banks crowd out domestic banks from lending to more transparent larger companies, forcing them to focus more on the small firm segment. This creates more competition in the small firm loans segment and drives down the cost of capital for small firms. The reason why we do not observe the same situation in the large firm segment might be

⁵² See Table XIV in Appendix 11.3, regressions (5) and (6).

⁵³ See Table XV in Appendix 11.3, regressions (2), (3), (5) and (6).

⁵⁴ See Table XIV in Appendix 11.3, regressions (2) and (3).

⁵⁵ See Table XIV in Appendix 11.3, regressions (5) and (6).

⁵⁶ See Table XV in Appendix 11.3, regressions (2), (3), (5) and (6).

⁵⁷ See Table XIV in Appendix 11.3, regressions (2), (3), (5) and (6).

⁵⁸ See Table XV in Appendix 11.3, regressions (2), (3), (5) and (6).

that domestic banks find it harder to compete there because of foreign banks' larger capital base and thus a greater ability to extend large loans, and large firms' greater access to other sources of capital like financial markets.

To check whether foreign banks affect firms' credit differently depending on firm age, we have used the interaction term between *FB Index* and the variable *Age*. The coefficients in front of this interaction term are not significant in either *Debt Growth* or *Interest Rate Change* regressions. We therefore make the conclusion that foreign banks presence has no effect on credit access for young firms.

The situation is different for the interaction term between *FB Index* and another firm characteristic – *Collateral*. Its coefficient is significant in the firm FE model with *Interest Rate Change* as the dependent variable⁵⁹. Ukrainian firms that can pledge collateral, have a lower cost of capital as the number of foreign offices increases in the region. For example, with an increase of *FB Index* by 0.1 a firm with a collateral ratio of 70 percent has, on average, had an interest rate decrease that was 0.78 - 1.14 percentage points larger than the interest rate decrease of a firm with a collateral ratio of 30 percent. This implies that foreign banks might have tried to attract high collateral firms with lower credit rates. Similar to the situation with small firms, however, the cheapening of borrowing costs seems not to be associated with an increase in the amount of borrowing as the coefficient for the respective interaction term in *Debt Growth* regression is not significant⁶⁰.

The results of our regressions do not allow us to argue that foreign banks in Ukraine engage in cream-skimming behavior. There is a hint of evidence that foreign banks might find large firms and firms with a high collateral value attractive. It is also interesting that instead of the expected discrimination against small firms, what we observe is actually that foreign banks presence seems to contribute to small firms' access to cheaper loans.

Hypothesis III

In our third hypothesis we set forth that firms' growth should be related to foreign banks presence in the same way as their access to credit. As foreign banks presence improves some firms' access to credit through lower credit rates and/or larger loans, these firms should exhibit higher growth than firms with the same characteristics in other regions where foreign banks presence is not as high. The opposite should be true for firms that experience a deterioration of their access to credit as foreign banks presence increases. The regression models with *Sales Growth* as the dependent variable have been used to test these predictions.

⁵⁹ See Table XV in Appendix 11.3, regressions (5) and (6).

⁶⁰ See Table XIV in Appendix 11.3, regressions (2), (3), (5) and (6).
Foreign banks presence has indeed been associated with a higher growth of firms during the study period⁶¹. A 0.1 change in *FB Index* implies an average difference of 2.27 percentage points in the firm growth. It means that a firm located in a region with FB Index of 0.1 would on average outperform by 2.27 percentage points a firm with the same characteristics located in a region with no foreign banks. It is quite a substantial difference. The explanation of this effect could lie in the fact that foreign banks presence drives down the cost of capital for all firms⁶². It means that more projects with positive NPV are available for firms in regions with higher foreign banks presence which enables them to achieve higher growth.

Similar to the foreign banks effect on firms' access to credit, they also seem to have varying effect on growth of different groups of firms. The firm growth of top-performing firms seems to be boosted by larger foreign banks presence⁶³. An increase in *FB Index* of 0.1 leads to an average increase in firm growth of around 1.8 percentage points for such firms. As our regression results demonstrate⁶⁴, the debt growth of high-performing firms might be dampened or at least not affected by larger foreign banks presence. The observed increase in firm growth for top-performing firms seems, therefore, not to depend on the increased lending. We have also noticed that the significance of the coefficients follows the same pattern in *Sales Growth* regressions, they are not significant in the region-sector FE regressions, they are not significant in the more demanding firm FE regressions. This makes us, as in the case with high-profitability firms' debt growth, incapable of drawing strong conclusions in respect of foreign banks effect on these firms' sales growth.

The situation is also intriguing with the effect of foreign banks on small firms. The interaction term between *Small Size* dummy variable and *FB Index* has a negative and significant coefficient in the firm FE model while it is not significant but still negative in the region-sector FE model⁶⁵. The coefficient in the firm FE model implies that as *FB Index* increases by 0.1, the growth of a small firm would decrease on average by 2 percentage points. It has previously been shown that foreign bank presence is associated with a decrease in the cost of capital for small firms. Logically, a lower cost of debt would expand the universe of positive NPV projects for the population of small firms, enhancing their growth potential. This is not what we observe here. A possible explanation could be a larger number of small firms in the regions with higher foreign banks presence and, hence, higher competition among them. So even if we see correlation, it does not prove causality.

⁶¹ See Table XIII in Appendix 11.3, regressions (1) and (4).

⁶² See Table XV in Appendix 11.3, regressions (1) and (4).

⁶³ See Table XIII in Appendix 11.3, regressions (2) and (3).

⁶⁴ See Table XIV in Appendix 11.3, regressions (2) and (3).

⁶⁵ See Table XIII in Appendix 11.3, regressions (2), (3), (5) and (6).

We have previously reported that a higher collateral ratio is associated with a lower cost of debt⁶⁶. In our regressions with *Sales Growth* as the dependent variable we observe that firms with a higher collateral ratio also demonstrate a higher growth with an increase of the number of foreign bank offices⁶⁷. The coefficients in front of the interaction term between *Collateral* and *FB Index* are highly significant and positive in both types of FE models we employ. We observe that a firm with a collateral ratio of 70 percent exhibits, on average, a growth rate which is 0.7 percentage points higher than a firm with a collateral ratio of 30 percent as *FB Index* in the region increases by 0.1. This positive effect of foreign banks on growth corresponds to our expectations.

We do not observe any particular effect of foreign banks on sales growth of large firms, although we have found before that foreign banks might contribute to higher borrowing by large firms⁶⁸. The absence of a relationship between an increase in large firms' debt and their sales growth is not strange in this case. Because of many alternative sources and uses of funds in a large firm, the effect of foreign banks' financing on firm growth is not as straightforward here as it could be in small and medium firms.

To sum up, our expectation that foreign banks presence would be related to firms' growth in the same way as it is related to firms' changes in access to credit has found partial support in the Ukrainian data. The firms in the regions with higher foreign banks presence have been found to decrease their borrowing costs and, at the same time, grow more. This could be an indication of a connection between foreign banks presence and firm growth. The results in respect of different groups of firms such as high-profitable firms, large firms and small firms are not consistent with our hypothesis. On the other hand, additional evidence in support of our belief is provided by the relationship between foreign banks presence, firm collateral ratio and growth. Foreign banks seem to increase credit access of firms with higher collateral by offering them cheaper loans and, in this way, contribute to their growth.

Hypothesis IV and V

Our fourth hypothesis predicts that the allied status of the region where a firm is located has a positive effect on this firm's growth, debt growth and cost of capital. The fifth hypothesis suggests that a higher presence of foreign banks will dampen the negative effect of the non-allied status of a region on the performance of firms in this region.

⁶⁶ See Table XIV in Appendix 11.3, regression (5) and (6).

⁶⁷ See Table XIII in Appendix 11.3, regressions (2), (3), (4) and (5).

⁶⁸ See Table XIV in Appendix 11.3, regressions (2) and (3), for results related to debt and Table XIII, regressions (2), (3), (5) and (6), for results related to sales growth.

What we have found is that there is indeed a positive relation between firms' *Debt Growth* and a region's allied status following the Presidential elections⁶⁹. If we assume a 50 percentage points difference between the voting majority and the voting minority in a region (for example, the voting majority is 70 percent of votes and the voting minority is 20 percent of votes), then the firms that are located in regions with a voting majority increased their debt after the Orange Revolution by, on average, 1.4 percentage points in proportion to their assets more than the firms in regions with a voting minority. Our tests have not detected any relationship between the degree of political alliance and the growth of firms or the cost of debt⁷⁰.

We do not observe either, that firms' credit access or growth rates within a group of regions sharing the same degree of political alliance would differ, depending on foreign banks presence in these regions⁷¹. We cannot, therefore, argue with support of our data and tests that domestic banks have a higher propensity than foreign banks to adjust their credit allocation after the political status of a region.

7.3 Robustness check

As we have mentioned in Section 6.2, our method of measuring the effect of financial development in terms of foreign banks presence on firms' growth can be exposed to the problem of endogeneity. Following the example of Detragiache, Gupta, and Tressel (2006), we have used lagged explanatory variables in our regressions to remedy this problem. A more effective and acknowledged tool for eliminating the endogeneity problem in the analysis of the effect of finance on growth has been suggested by Rajan and Zingales (1998). In their article they make a proposition that if financial development indeed has effect on growth than firms in industries that are more dependent on external finance should grow more than firms less dependent on external finance if the level of financial development increases. They test this proposition empirically by looking at the growth of firms in industry sectors that have different sensitivity to availability of external finance across countries that have different levels of financial development. The results of their empirical test allow them to arrive to the conclusion that financial development may be one of the necessary conditions to enable growth. Thus, their research builds causality between growth and development of financial system.

While our primary methodology has shown that the growth of firms in Ukraine and foreign banks presence are correlated, we apply Rajan and Zingales (1998)'s methodology to our sample to

⁶⁹ See Table XIV in Appendix 11.3, regressions (1) and (3).

⁷⁰ See Table XIII and XV in Appendix 11.3, regressions (1) and (3).

⁷¹ See Table XIII, XIV, XV in Appendix 11.3, regressions (2), (3), (5) and (6).

verify that there is a causal relation between foreign banks presence and firm growth. We expect that our proxy for financial development (*FB Index*) will still be positive and significant after adjusting for external finance sensitivity (or, as it is called by Rajan and Zingales (1998), financial dependence) in which case we can argue that foreign banks presence indeed contributes to the growth we observe.

We measure sectors' relative dependence on finance as it is done in Giannetti and Ongena (2007).⁷² Similar to their work, we also demean all the variables in the *Sales Growth* regression using sector-year and region-sector variable interactions. This is done in order to mitigate the specific time trends within each sector and region. The estimation method of simple OLS regression with robust standard errors and clustering on region level is used.

We find that firms in finance dependent sectors grow more than firms in less finance dependent sectors with an increase in foreign bank presence.⁷³ This means that after controlling for financial dependence of the industry sector that a firm belongs to, financial development in the form of foreign bank presence might been one of the causes of firm growth. The results we observe here correspond to the conclusions made by Rajan and Zingales (1998) and Giannetti and Ongena (2007), and validate the results of our previous *Sales Growth* regression. Our findings should nevertheless be viewed with caution, keeping in mind that the *FB Index* that we see as a proxy for financial development in a region could be a proxy for another dynamic process present in regional economies at that time.

Another test that we perform is based on the presumption that our results can be sensitive to the data from the Ukrainian capital city Kyiv. Kyiv is a kind of outlier because the presence of foreign banks there is much greater than in all the other regions. We remove the data on Kyiv from the sample to check how our results would change. With respect to the dependent variables *Sales Growth* and *Interest Rate Change* the results are largely unaffected. The coefficients of *FB Index* retain their significance in line with our initial results. However, in regressions with the dependent variable *Debt Growth*, *FB Index* becomes positive and significant.⁷⁴ Foreign banks presence could have had a stronger effect on firms' debt growth in regions other than Kyiv because firms in Kyiv were less credit constrained while firms in other regions were in greater need of funds and their finance needs were better met with foreign banks entry. To explore if this interpretation is correct, further research with more detailed data is required.

Similar to Gormley (2007), we also examine how our results are affected if we lag our main variable of interest, *FB Index*, two years from the original date instead of one like in our initial

⁷² The data on sector financial dependence has been graciously provided by Mariassunta Giannetti.

⁷³ See Table XVI in Appendix 11.4, regression (1).

⁷⁴ See Table XVIII in Appendix 11.4, regression (4).

regressions.⁷⁵ The two years lagged *FB Index* loses significance in regressions with the dependent variables *Sales Growth, Interest Rate Change, Debt Growth exclusive Kyiv region*. This test reinforces our view that *FB Index* carries in itself important information for the period we examine, and the significant results in regressions with *Sales Growth, Interest Rate Change,* and *Debt Growth* exclusive *Kyiv region* are not likely to be a product of unintended data mining.

We further check how our results are influenced if we remove the data on foreign banks presence for the year 2007 from our sample.⁷⁶ In this year the most noticeable "jump" in *FB Index* occurred. When the 2007 data is excluded, the coefficients of *FB Index* become not significant. This implies that the variation in *FB Index* between 2006 and 2007 and during 2007 between different regions is the most important for the explanatory power of FB Index.

The robustness tests that we have performed provide an additional support for our hypothesis that increasing foreign banks presence has been one of the causes of Ukrainian firms' higher growth. However, these tests have also made us aware that a more detailed study is required to eliminate the risk that foreign banks presence can be a proxy for some other dynamic process influencing Ukrainian firms' performance and that our conclusions are based on the results produced without accounting for extreme observations.

8 Conclusions

The primary purpose of this thesis has been to study what effect the growing presence of foreign banks in Ukraine has had on this country's economy on the level of firms. This purpose formulation has required collecting and processing of a substantial data sample combining financial reports of Ukrainian firms, geographical distribution of bank offices, bank ownership, and regional economic and demographic indicators in the period from 2002 to 2007. The analysis of this data sample has been performed by means of regressions that have been designed to give adequate answers to the questions we have posed and to eliminate the pitfalls of econometric estimations that could have distorted our results.

The general conclusion of our analysis is that the increasing foreign banks presence has been beneficial for Ukrainian firms. We have observed that higher foreign banks presence is associated with a lower cost of capital for all firms. In regressions where we have excluded the extreme observations from Kyiv region, foreign bank presence has also been shown to lead to an accelerated debt growth for all firms. Our tests have also demonstrated a positive correlation

⁷⁵ The regression results are not reported and are available on request from authors.

⁷⁶ The regression results are not reported and are available on request from authors.

between foreign bank presence and growth of firms. By using an estimation technique based on the concept of financial dependence, we have also proved that this correlation is likely to imply causality.

Our predictions about the effect of foreign banks presence on different types of firms have mostly been developed on the basis of information asymmetry theories. In line with these theories, we have expected that foreign banks would treat preferentially top-performing, large and highcollateral firms, and shun small and young firms. The evidence we have received has been somewhat mixed. The most consistent observations have been made about firms' collateral ratio. Foreign banks seem to increase credit access to firms with a higher proportion of fixed assets to total assets by offering them cheaper loans. There is also weak evidence that foreign banks might offer access to larger loans for large firms. These results support the proposition that foreign banks would focus on lending to the least risky firms in Ukraine, i.e. large firms with a high collateral value. At the same time, the results with regard to top-performing firms have been confusing. The debt growth of these firms has been found to decrease or at least not to be affected by higher foreign banks presence, which directly contradicts our expectation. At the same time, a higher foreign bank presence has been demonstrated to contribute to a higher sales growth of these firms. A surprising finding has been made in respect of small firms where our analysis has shown that foreign banks presence leads to these firms' improved access to cheaper loans. The lower cost of capital of these firms is, on the other hand, not associated with higher growth. The conclusion here is that our results essentially give very weak support to the information asymmetry based theories, and in the case of small firms even directly contradict them. Although we have suggested some possible explanations of these results, there is a need of more in-depth analysis in order to uncover the reasons underlying these findings.

A few recent studies dedicated to political patronage, and the apparent overlapping of business and politics in Ukraine have also prompted us to pose the question of how political events influence firms' performance and whether this influence would differ depending on the degree of foreign banks' participation in the banking industry. On the basis of such concepts as political patronage and crony lending we have developed propositions about the effect of a political shock on credit access and growth of firms in allied regions and foreign banks' behavior under the conditions of such a shock. We have exploited the fact that a major political event, the Orange Revolution, took place in Ukraine within our sample period to test these propositions. Our tests have shown some support for the expectation that allied regions might receive more benefits than non-allied regions from the ruling elite. At the same time, they have failed to demonstrate that foreign banks' behavior was different from domestic banks behavior under the conditions of this event. We believe, however, that a more adequate and detailed data sample and additional tests could have uncovered more interesting results in this respect.

Our findings about the generally positive impact of foreign banks presence on Ukrainian firms' performance suggest that Ukrainian economy will benefit from the renewed intensity of foreign entries to Ukraine in connection with Ukraine's WTO accession, as the world economy recovers from the financial crisis. We want to stress, however, that in order to understand the implications of an extensive foreign banks entry, our study should be complemented with more specific micro-level research within our study area, i.e. the interaction between foreign banks and firms, and within adjacent areas such as foreign banks' influence on Ukraine's exposure to the financial crisis.

9 Future research topics

Future research can continue on the path of examining micro-level data to analyze the impact of foreign banks presence. In particular, it would be interesting to have more specific firm-level information on the debt composition, maturities, interest rates and debt originators. In this way the channels through which foreign banks affect firms can be tracked more accurately. A study with a more detailed data sample could also clarify the peculiar results that we have observed in respect of foreign banks effect on the credit access and growth of top-performing firms and small firms.

Another question that could be of interest is to analyze whether our results hold true during the period of the financial crisis. Since our sample could be viewed as part of the "boom" period in the economy, other research that would analyze the relations in the "bust" period would give a more balanced view on foreign banks role across macroeconomic cycles.

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Interviews

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11 Appendix

11.1 Variable definition

Variable Groups	
Variable Names	Definition

Dependent firm variables

Firm sales	$Sales_t$
Sales Growth	$ln(Sales_t / Sales_{t-1})$
Debt / Assets	(Non current liabilities _t /Assets _t)
Dobt Growth	(Non curr. liabilities _t – Non current liabilities _{t-1})
Debt Growth	(Assets _{t-1} $)$
Interest rate	(Interest payments _t /Non current liabilities _t)
Interest Rate Change	$(Interest \ rate_t - Interest \ rate_{t-1})$

Independent firm variables

Firm employees	Firm Employees _t
Firm Size	$ln(Firm Employees_t)$
Age	Firm age_t
Squared Age	$(Firm \ age_t)^2$
Collateral	(Fixed $assets_{t-1}/Assets_{t-1}$)
Return on Assets (ROA)	$(EBIT_{t-1} / Assets_{t-1})$

Independent region financial variables

Vullubics	
Total Bank offices	Total bank offices _t
Foreign bank offices	Foreign bank offices _t
Proportion of foreign offices to total bank offices in the region	(Foreign bank offices $_t$ /Total bank offices $_t$)
FB Index	See formula (2)
Bank offices per 1000 population in the region	(Total bank of fices _t /Population _t) \times 1000

Independent region control

variables	
Income per capita	$(Income_t/Population_t)$
Proportion of population employed in	(Working population in production industry _t)
production industry	(Total working population _t)
Proportion of fixed assets in the	$(Fixed assets in production industry_t)$
industry	Total fixed assets _t
Density of rail track of general use on 1000 km ²	Variable taken from Regions of Ukraine statistical yearbook
Density of motor roads of general use on 1000 km ²	Variable taken from Regions of Ukraine statistical yearbook

11.2 Data description

Table I. Comparison of our sample of firm observations to figures reported by Ukrainian State Statistics Committee and Orbis.

							lotal nr
Number of firms	2002	2003	2004	2005	2006	2007	of firm obs
Total registered firms in Ukraine as reported by							
State Statistics Committee	889 330	935 578	981 054	1 023 396	1 070 705	1 133 200	6 033 263
Orbis	225 302	232 128	265 592	290 476	297 916	274 235	1 585 649
Sample	3 293	3 846	4 363	4 769	5 057	5 187	26 515
Sample prop. to Orbis Sample prop. to total	1.46%	1.66%	1.64%	1.64%	1.70%	1.89%	1.67%
registered firms	0.37%	0.41%	0.44%	0.47%	0.47%	0.46%	0.44%
Source: State Statistics Committe	o of Ukrain	and Orbic					

Source: State Statistics Committee of Ukraine and Orbis.

Table II. Aggregated figures on bank offices in Ukraine.

	2002	2003	2004	2005	2006	2007
Nr of domestic bank offices	10 065	11 381	13 127	14 863	14 488	16 850
Nr of Russian bank offices Nr of foreign bank offices (except for	18	28	34	36	199	289
Russian bank offices)	210	334	464	623	3 176	4 341
Total nr of bank offices	10 293	11 743	13 625	15 522	17 863	21 480

Source: combined data sample collected by authors.

Table III. Summary of the data on banks in Ukraine from 2002 to 2007.

	2002	2003	2004	2005	2006	2007
Nr of domestic banks*	115	120	125	131	127	127
Nr of Russian banks*	5	5	5	6	10	11
Nr of foreign banks (except for Russian banks)*	9	9	9	10	15	28
Total nr of banks*	129	134	139	147	152	166
Nr of registered banks as reported by the NBU	182	179	181	186	193	198
Nr of active banks as reported by the NBU	157	158	160	165	170	175
Nr of banks in the process of liquidation as reported by						
the NBU	24	20	20	20	19	19
Nr of banks with foreign capital as reported by the NBU	20	19	19	23	35	47
Nr of banks with 100 percent foreign capital as						
reported by the NBU	7	7	7	9	13	17
Nr of foreign owned banks reported by EBRD	15	19	19	23	27	40

* stands for the numbers obtained by the authors

Table IV. Descriptive statistics.

S stands for sources, which include, Orbis/Bureau van Dijk(O), Central Bank of Ukraine (B) and Regional Statistics published by Statistical Central Bureau of Ukraine(S). **U** stands for units, where (m\$) stands for Million US dollars, (\$) US dollars, (%) percentage. **Mean (SD)** stands for the arithmetic average (standard deviation). **Obs** is the maximum available observation in the period 2002 to 2007 used in the regression.

Variable Groups								
Variable Names	S	U	Mean	SD	25%	50%	75%	Obs
Dependent firm variables								
Sales t	0	m\$	108.00	678.86	5.65	15.22	48.77	25 160
Sales Growth	0	%	21.99%	38.59%	0.37%	19.12%	39.46%	25 160
Debt / Assets	0	%	12.08%	16.66%	0.47%	4.43%	17.59%	17 230
Debt Growth	0	%	6.58%	19.03%	-1.10%	0.23%	7.64%	17 230
Interest rate	0	%	30.60%	64.87%	7.10%	14.68%	30.83%	9 988
Interest Rate Change	0	%	1.67%	26.00%	-5.06%	0.82%	8.70%	9 988
Independent firm variables								
Firm Employees	0	-	478	1724	115	213	402	25 160
Firm Size	0	-	5.37	1.12	4.74	5.36	6.00	25 160
Age	0	-	7.32	3.32	4.86	7.36	9.73	25 160
Squared Age	0	-	64.61	71.64	23.62	54.17	94.67	25 160
Collateral	0	%	0.48	0.24	0.29	0.49	0.66	25 157
Return on Assets (ROA)	0	%	7.75%	11.39%	0.92%	5.59%	12.81%	25 157
Independent region financial variables								
Bank offices	В	-	1018.64	873.92	387.00	651.00	1381.00	25 160
Foreign bank offices	В	-	112.19	204.30	14.00	47.00	100.00	25 160
Proportion of foreign offices to total bank offices in the region	В	%	8.96%	9.93%	2.70%	4.80%	13.25%	25 160
FB Index	в	%	9.40%	13.19%	1.11%	2.02%	16.81%	25 160
Bank offices per 1000 population	B/S	-	0.46	0.37	0.24	0.32	0.49	25 160
Independent region control variables								
Income per capita	S	\$	1 666	1 003	894	1 538	2 097	25 160
Proportion of population employed in production industry	S	%	19.46%	6.82%	14.17%	17.51%	22.02%	25 160
Proportion of fixed assets in the industry	S	%	32.92%	12.30%	22.27%	31.09%	44.15%	25 160
Density of rail track of general use on 1000 km ²	S	-	38.26	11.42	29.00	36.00	48.00	25 160
Density of motor roads of general use on 1000 km ²	S	-	284.51	42.50	250.00	291.00	301.00	25 160

Table V. Country trends in the dependent variables and region-level explanatory variables.

Level stands for over which level variable varies. **U** stands for units, where (m\$) stands for million US dollars, (\$) US dollars, (%) percentage. **Mean (SD)** stands for the arithmetic average (standard deviation). **Obs** stands for number of observations used in the regressions each year.

Variable		U	2002		2003		2004		2005		2006		2007	
			Mean (SD)	Obs	Mean (SD)	Obs	Mean (SD)	Obs	Mean (SD)	Obs	Mean (SD)	Obs	Mean (SD)	Obs
Sales	Firm	m\$	56.55 (299.42)	3089	71.43 (386.92)	3603	99.63 (671.66)	4141	103.72 (633.00)	4508	121.48 (724.51)	4851	164.20 (954.90)	4968
Sales Growth	Firm	%	11.46 (40.15)	3089	22.71 (39.95)	3603	29 (37.75)	4141	21.02 (37.19)	4508	19.87 (37.28)	4851	25.24 (38.20)	4968
Debt / Assets	Firm	%	9.21 (14.93)	2073	9.85 (15.53)	2371	10.85 (15.69)	2762	11.74 (16.21)	3088	13.34 (17.01)	3377	15.30 (18.42)	3559
Debt Growth	Firm	%	3.2 (14.52)	2073	4.78 (16.11)	2371	4.71 (16.21)	2762	6.75 (19.06)	3088	8.33 (20.46)	3377	9.42 (22.77)	3559
Interest rate	Firm	%	35.44 (67.00)	1052	35.00 (94.52)	1204	32.33 (66.14)	1486	29.15 (49.18)	1771	30.33 (73.52)	2132	26.41 (42.18)	2343
Interest Rate Change	Firm	%	3.11 (27.91)	1052	1.51 (27.39)	1204	1.96 (27.20)	1486	1.54 (26.24)	1771	1.30 (25.35)	2132	1.36 (23.90)	2343
Firm Employees	Firm	-	565 (1942)	3089	521 (1869)	3603	483 (1813)	4141	457 (1614)	4508	454 (1726)	4851	437 (1496)	4968
Age	Firm	-	5.34 (2.41)	3089	6.12 (2.58)	3603	6.78 (2.91)	4141	7.47 (3.14)	4508	8.15 (3.4)	4851	8.94 (3.54)	4968
Collateral	Firm	%	51.87 (22.98)	3089	49.53 (23.48)	3603	47.76 (23.54)	4141	46.11 (23.91)	4508	45.36 (23.71)	4851	44.06 (24)	4968
Return on Assets (ROA)	Firm	%	8.25 (11.92)	3089	5.94 (11.33)	3603	7.15 (11.69)	4141	8.54 (11.56)	4508	8.63 (11.30)	4851	7.64 (10.53)	4968
Bank branches per 1000 population	Region	-	0.28 (0.19)	3089	0.33 (0.22)	3603	0.39 (0.27)	4141	0.45 (0.31)	4508	0.53 (0.38)	4851	0.65 (0.50)	4968
Population Income per capita (unweighted)	Region	\$	713 (197)	3089	873 (261)	3603	1116 (356)	4141	1725 (581)	4508	2095 (783)	4851	2822 (1107)	4968
Propr. of population employed in production industry	Region	%	20.33 (6.91)	3089	19.89 (6.7)	3603	20.12 (6.93)	4141	19.58 (6.8)	4508	18.88 (6.65)	4851	18.5 (6.71)	4968
Proportion of fixed assets in the industry	Region	%	33.25 (11.8)	3089	33.27 (12.15)	3603	34.78 (12.55)	4141	33.82 (12.26)	4508	31.78 (11.81)	4851	31.13 (12.65)	4968

Region		2002			2003			2004		Ĩ	2005			2006			2007	
	F/T	Foff	Boff	F/T	Foff	Boff	F/T	Foff	Boff	F/T	Foff	Boff	F/T	Foff	Boff	F/T	Foff	Boff
Cherkaska	0.00%	0	559	0.68%	4	586	1.15%	7	611	2.07%	13	627	9.56%	63	659	11.84%	85	718
Chernigivska	0.26%	1	383	0.73%	3	409	1.39%	6	433	3.36%	16	476	10.22%	52	509	10.55%	61	578
Chernivitska	0.00%	0	239	0.78%	2	255	2.23%	6	269	3.79%	11	290	15.53%	50	322	16.71%	60	359
Dnipropetrovska	4.06%	23	566	5.07%	33	651	5.24%	46	878	5.41%	53	980	17.43%	201	1153	19.99%	276	1381
Donetska	1.95%	20	1026	3.02%	34	1127	3.53%	44	1247	2.56%	35	1369	9.65%	147	1523	11.74%	205	1746
Ivano-Frankivska	1.15%	3	261	1.82%	5	275	3.10%	10	323	3.92%	14	357	20.00%	84	420	29.41%	145	493
Kharkivska	3.56%	25	703	3.26%	28	860	3.16%	34	1076	3.57%	53	1485	56.40%	1062	1883	53.34%	1126	2111
Khersonska	1.44%	3	208	4.33%	10	231	4.80%	13	271	6.56%	20	305	19.06%	69	362	21.71%	94	433
Khmelnitska	0.00%	0	250	0.70%	2	286	2.53%	8	316	3.65%	12	329	16.02%	62	387	16.09%	70	435
Kirovogradska	3.86%	8	207	8.81%	20	227	8.55%	20	234	8.49%	22	259	20.85%	59	283	19.40%	65	335
Krymska+Sevastopol	0.57%	3	528	1.02%	6	590	0.75%	7	931	1.83%	19	1036	10.53%	118	1121	13.51%	192	1421
Kyivska+Kyiv	2.45%	37	1509	3.35%	61	1820	4.71%	100	2125	5.17%	126	2435	12.59%	365	2899	19.84%	752	3790
Luganska	1.96%	8	409	2.29%	10	437	2.74%	13	474	2.29%	12	523	10.26%	60	585	13.67%	98	717
Lvivska	3.12%	18	577	4.56%	29	636	5.29%	38	718	6.52%	51	782	19.18%	168	876	23.94%	248	1036
Mikolaivska	1.97%	7	355	2.72%	11	404	3.24%	14	432	3.41%	16	469	15.34%	79	515	18.84%	110	584
Odeska	4.43%	23	519	5.06%	29	573	5.39%	34	631	4.56%	36	789	12.64%	114	902	19.19%	226	1178
Poltavska	0.25%	1	404	1.77%	8	451	1.97%	10	507	1.98%	11	555	12.46%	80	642	14.61%	110	753
Rivnenska	0.48%	1	207	1.78%	4	225	2.81%	7	249	4.10%	11	268	17.26%	53	307	17.63%	61	346
Sumska	6.49%	17	262	6.57%	19	289	6.36%	21	330	7.69%	28	364	16.46%	66	401	17.94%	82	457
Ternopilska	6.57%	9	137	8.16%	12	147	10.49%	17	162	11.80%	21	178	30.35%	61	201	31.25%	75	240
Vinnitska	6.92%	9	130	4.53%	14	309	4.97%	17	342	7.16%	27	377	20.83%	90	432	22.20%	115	518
Volynska	2.18%	5	229	2.53%	6	237	3.80%	10	263	5.88%	17	289	23.66%	75	317	26.01%	97	373
Zakarpatska	1.80%	5	278	2.77%	8	289	2.83%	9	318	3.75%	14	373	13.33%	58	435	17.97%	92	512
Zaporiska	0.62%	2	325	0.81%	3	370	1.49%	6	404	3.16%	15	475	12.14%	68	560	13.90%	99	712
Zhitomirska	0.00%	0	206	0.45%	1	221	0.40%	1	251	2.08%	6	288	22.47%	71	316	23.82%	86	361
Total	2.18%	228	10477	3.04%	362	11905	3.61%	498	13795	4.20%	659	15678	18.74%	3375	18010	21.45%	4630	21587

Table VI. Foreign bank offices and total bank offices per region.

F/T stands for the proportion of foreign offices in the region. Foff stands for the number of foreign offices, Boff stands for the total number of bank offices in the region.

Region	2002	2003	2004	2005	2006	2007
Cherkaska	0.00%	0.29%	0.50%	1.12%	13.11%	12.35%
Chernigivska	0.10%	0.34%	0.71%	2.02%	17.41%	15.74%
Chernivitska	0.00%	0.30%	0.87%	1.79%	20.10%	18.56%
Dnipropetrovska	1.09%	1.68%	1.64%	2.01%	18.73%	17.55%
Donetska	0.65%	0.98%	1.16%	1.02%	10.97%	11.41%
Ivano-Frankivska	0.38%	0.74%	1.25%	1.93%	22.90%	22.39%
Kharkivska	1.72%	1.90%	1.78%	1.43%	72.97%	70.12%
Khersonska	0.31%	1.50%	1.60%	2.66%	22.41%	20.97%
Khmelnitska	0.00%	0.27%	0.95%	1.63%	18.28%	17.16%
Kirovogradska	0.00%	0.08%	0.13%	0.91%	16.80%	15.69%
Krymska+Sevastopol	0.00%	0.30%	0.87%	1.79%	20.10%	18.56%
Kyivska+Kyiv	0.78%	1.22%	1.68%	2.21%	16.19%	16.81%
Luganska	0.80%	1.02%	1.23%	1.32%	16.09%	16.49%
Lvivska	1.11%	1.97%	2.35%	3.61%	20.70%	20.15%
Mikolaivska	0.65%	1.02%	1.25%	1.70%	19.52%	19.50%
Odeska	0.96%	1.47%	1.86%	2.23%	20.49%	19.17%
Poltavska	0.10%	0.86%	0.90%	1.08%	21.40%	19.45%
Rivnenska	0.15%	0.69%	1.05%	1.83%	20.93%	19.89%
Sumska	2.24%	2.83%	2.72%	3.84%	21.33%	20.87%
Ternopilska	1.86%	2.99%	3.62%	4.99%	33.31%	30.46%
Vinnitska	2.04%	1.90%	2.04%	3.32%	23.29%	22.37%
Volynska	0.60%	0.88%	1.41%	2.41%	24.83%	23.76%
Zakarpatska	0.22%	0.27%	0.54%	1.46%	17.06%	14.85%
Zaporiska	0.60%	1.12%	1.10%	1.83%	17.18%	16.58%
Zhitomirska	0.00%	0.22%	0.17%	0.81%	26.34%	24.25%

Table VII. Foreign Bank Index per region.

Table VIII. Number of firm observations per region.

Region	2002	2003	2004	2005	2006	2007
Cherkaska	96	109	124	136	144	146
Chernihivska	100	118	115	124	127	130
Chernivetska	33	41	44	53	64	60
Crimea, Autonomous Republic *	101	114	126	137	146	140
Dnipropetrovska	220	270	209	342	376	394
Donetska	244	280	336	353	364	390
Ivano-Frankivska	43	45	61	76	80	82
Kharkivska	193	235	285	305	324	326
Khersonska	45	54	69	78	87	92
Khmelnytska	74	94	108	125	131	129
Kirovohradska	69	78	95	103	113	109
Kyivska *	154	181	212	219	232	240
Luhanska	108	127	135	133	143	155
Lvivska	167	185	217	238	270	269
Mykolayivska	80	79	104	113	116	110
Odeska	137	169	193	220	240	256
Poltavska	158	183	201	216	214	214
Rivnenska	63	77	86	93	100	101
Sumska	84	93	104	112	118	116
Ternopilska	51	67	72	87	91	90
Vinnytska	133	152	174	171	193	210
Volynska	85	103	111	123	127	126
Zakarpatska	34	44	53	57	64	69
Zaporizka	147	171	181	191	197	196
Zhytomyrska	102	119	109	113	123	123
Kyiv *	348	392	492	559	634	659
Sevastopol *	20	23	25	31	33	36
Total	3089	3603	4041	4508	4851	4968

*Do note that the data on bank offices for Kiev and Kievska oblast, as well as for Sevastopol and Crimea, Autonomous Republic, are merged in all our regressions.

Table IX. Number of firm observations per Standard Industrial Classification (SIC) division code.

Age is the average age of the companies in an industry class. Emp is the average number of employees in a firm within an industry class. N is the number of companies in an industry class.

Division	Industry class		2002			2003			2004			2005			2006			2007	
		Age	Emp	Ν															
А	Agriculture, Forestry, Fishing	4.76	952	952	5.73	323	1064	6.41	285	1178	7.18	263	1247	7.89	255	1292	8.72	226	1284
В	Mining	5.09	53	53	5.95	2092	57	6.72	1993	60	7.54	2090	59	8.20	1732	73	9.47	1654	75
С	Construction	5.80	164	164	6.65	367	183	7.46	381	226	8.06	378	255	8.46	359	295	9.37	362	339
E	Manufactoring	5.48	1194	1194	6.22	768	1365	6.88	722	1533	7.55	667	1654	8.33	657	1778	9.16	623	1799
E	Transportation & Utility	5.14	85	151	6.20	279	183	6.82	302	207	7.62	314	230	8.41	307	250	9.29	299	252
	Electricity, gas, steam*	5.68	35	35	6.30	3218	39	7.03	3240	42	7.79	3128	44	8.32	3063	43	9.25	2816	44
F&G	Wholesale Trade & Retail Trade	5.35	456	456	5.97	158	547	6.57	157	657	7.20	189	740	7.74	223	801	8.57	260	852
Н	Finance, Insurance, And Real Estate	5.14	30	57	5.93	233	63	6.68	202	73	7.71	232	82	8.16	272	84	8.90	322	85
1	Services	5.65	26	108	6.53	328	129	7.51	290	153	7.75	350	184	8.30	360	187	9.35	345	206
	Total			3170			3630			4129			4495			4803			4936
	Total Average	5.24	823		6.06	523		6.74	487		7.44	464		8.12	460		8.97	441	

Source: SIC codes, Orbis database.

* The subgroup Electricity, Gas, Steam is listed separately because it deviates substantially in terms of the average number of employees per firm from the whole group E, Transportation and Utility.

		1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)
1)	Sales Growth	1											
2)	Age	-0.1076 ***	1										
3)	Squared Age	-0.0358 ***	0.8111 ***	1									
4)	Lagged Firm Size	-0.1260 ***	0.1358 ***	0.0592 ***	1								
5)	Lagged Income per Capita	0.0178 ***	0.1854 ***	0.1374 ***	-0.0661 ***	1							
6)	Lagged Banks on 1000 population	0.0246 ***	0.0704 ***	0.0626 ***	-0.0654 ***	0.5579 ***	1						
7)	Lagged Collateral	-0.0682 ***	0.1065 ***	0.0550 ***	0.2956 ***	-0.1231 ***	-0.0504 ***	1					
8)	Lagged ROA	-0.0337 ***	-0.0524 ***	-0.0377 ***	-0.0843 ***	0.0728 ***	0.0631 **	-0.2229 ***	1				
9)	Lagged proportion of foreign banks in the region	0.0539 ***	0.1520 ***	0.1378 ***	-0.0438 ***	0.3485 ***	0.1218 ***	-0.0849 ***	0.01	1			
10)	Lagged FB Index	0.0585 ***	0.1701 ***	0.1535 ***	-0.0438 ***	0.3969 ***	0.1747 ***	-0.0701 ***	0.0053	0.9736 ***	1		
11)	Proportion of employed in industry in the region	0.0236 ***	-0.0370 ***	-0.0334 ***	0.0750 ***	-0.1076 ***	-0.2019 ***	-0.0611 ***	0.0096	-0.0684 ***	-0.0836 ***	1	
12)	Proportion of fixed assets in industry in the region	-0.0014	0.0104 **	0.0026	0.1163 ***	-0.3070 ***	-0.4213 ***	0.0122 *	-0.0153	-0.1081 ***	-0.1095 ***	0.7670 ***	1

Table X. Correlation table for the sample used in the regressions with *Sales Growth* as the dependent variable.

		1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)
1)	Debt Growth	1											
2)	Age	-0.0406 ***	1										
3)	Squared Age	-0.0267 ***	0.9069 ***	1									
4)	Lagged Firm Size	-0.0791 ***	0.1315 ***	0.0871 ***	1								
5)	Lagged Income per Capita	0.0992 ***	0.1938 ***	0.1857 ***	-0.0667 ***	1							
6)	Lagged Banks on 1000 population	0.0470 ***	0.0755 ***	0.0768 ***	-0.0834 ***	0.5515 ***	1						
7)	Lagged Collateral	-0.0702 ***	0.0986 ***	0.0727 ***	0.2277 ***	-0.1098 ***	-0.0347 ***	1					
8)	Lagged ROA	0.0244 ***	-0.0686 ***	-0.0610 ***	-0.0789 ***	0.0709 ***	0.0482 ***	-0.2337 ***	1				
9)	Lagged proportion of foreign banks in the region	0.0489 ***	0.1446 ***	0.1681 ***	-0.0575 ***	0.3233 ***	0.1251 ***	-0.0854 ***	0.0139	1			
10)	Lagged FB Index	0.0475 ***	0.1651 ***	0.1905 ***	-0.0537 ***	0.3920 ***	0.1750 ***	-0.0749 ***	0.0098	0.9745 ***	1		
11)	Proportion of employed in industry in the region	-0.0186	-0.0328 ***	-0.0318 ***	0.1103 ***	-0.1135 ***	-0.2072 ***	-0.0552 ***	0.0148	-0.0730 ***	-0.0876 ***	1	
12)	Proportion of fixed assets in industry in the region	-0.0489 ***	0.0205 ***	0.0186	0.1432 ***	-0.3083 ***	-0.4250 ***	0.0026	-0.0083	-0.1164 ***	-0.1150 ***	0.7693 ***	1

Table XI. Correlation table for the sample used in the regressions with *Debt Growth* as the dependent variable.

		1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)
1)	Interest Rate Change	1											
2)	Age	-0.0229	1										
3)	Squared Age	-0.0193	0.9709 ***	1									
4)	Lagged Firm Size	-0.0173	0.0992 ***	0.0724 ***	1								
5)	Lagged Income per Capita	-0.0095	0.1900 ***	0.2023 ***	-0.0558 ***	1							
6)	Lagged Banks on 1000 population	-0.0048	0.0663 ***	0.0670 ***	-0.0657 ***	0.5519 ***	1						
7)	Lagged Collateral	0.0015	0.0609 ***	0.0442 ***	0.1557 ***	-0.0982 ***	-0.0115	1					
8)	Lagged ROA	-0.0058	-0.0698 ***	-0.0596 ***	-0.0647 ***	0.0621 ***	0.0403 ***	-0.2268 ***	1				
9)	Lagged proportion of foreign banks in the region	-0.0077	0.1419 ***	0.1622 ***	-0.0612 ***	0.3325 ***	0.1161 ***	-0.0910 ***	0.0108	1			
10)	Lagged FB Index	-0.006	0.1620 ***	0.1843 ***	-0.0586 ***	0.3855 ***	0.1712 ***	-0.0810 ***	0.0046	0.9742 ***	1		
11)	Proportion of employed in industry in the region	-0.0025	-0.0313 ***	-0.0309 ***	0.1462 ***	-0.1109 ***	-0.2034 ***	-0.0503 ***	0.0293 ***	-0.0744 ***	-0.0888 ***	1	
12)	Proportion of fixed assets in industry in the region	-0.0061	0.02	0.0227	0.1551 ***	-0.3122 ***	-0.4288 ***	-0.0085	0.004	-0.1126 ***	-0.1121 ***	0.7608 ***	1

Table XII. Correlation table for the sample used in the regressions with *Interest Rate Change* as the dependent variable.

11.3 Regression results

Table XIII. Regression results for the dependent variable Sales Growth.

		Region-secto	or	Firm				
	(1)	(2)	(3)	(4)	(5)	(6)		
Δσε	-0.019	-0.02	-0.017	1.99	2.04	2.02		
	(-6.94)***	(-6.88)***	(-5.97)***	(1.17)	(1.18)	(1.17)		
Squared Age	0.0006	0.0006	0.0007	0.0006	0.0002	0.0006		
	(6.45)***	(7.21)***	(9.33)***	(1.80)*	(0.72)	(1.23)		
Lagged Firm Size	-0.017	-0.026	-0.026	-0.16	-0.163	-0.155		
	(-5.42)****	(-0.32)****	(-5.27)****	(-9.04)****	(-8.24)	(-7.19)***		
Lagged Income per Capita	0.006	0.007	0.008	0.021	0.024	0.028		
	(0.57)	(0.51)	(0.47)	(1.00)	(1.80)	(1.00)		
Lagged Banks on 1000 population	-0.064 (_2.18)**	-0.063 (_2.21)**	-0.048 (_0.58)	-0.061 (_1.51)	-0.066 (_1 50)	0.07		
	0.014	0.006	0.024	0.065	0.051	0.027		
Lagged Collateral	(0.92)	-0.000	-0.024 (_0.99)	(1 95)*	(1 59)	(0.037)		
	-0.085	-0.116	_0 110	-0.6	-0.643	-0.64		
Lagged ROA	(-3 26)***	(-2 95)***	(-3 02)***	-0.0 (-9 5)***	-0.043 (-8 46)***	-0.04 (-8 43)***		
	0.23	0.148	0.141	0.224	0.090	0.062		
Lagged FB Index	(8.35)***	(2.08)**	(2.01)*	(6.82)***	(0.89)	(0.55)		
	0.013	0.026	0.010	0.004	0.020	0.012		
Election Results	(0.51)	(0.93)	(0.28)	(0.14)	(0.72)	(0.30)		
Proportion of employed in production	0.345	0.40	0.43	0.54	0.60	0.58		
industry	(0.74)	(0.83)	(0.84)	(1.12)	(1.26)	(1.15)		
Proportion of fixed assets in production	-0.036	-0.042	-0.050	-0.048	-0.059	-0.055		
industry	(-0.19)	(-0.24)	(-0.29)	(-0.32)	(-0.39)	(-0.36)		
Laggod Small Size dummy		-0.047	-0.043		-0.035	-0.016		
		(-3.46)***	(-2.30)**		(-1.03)	(-0.33)		
Lagged High BOA dummy		0.005	-0.002		0.015	0.0012		
		(0.39)	(-0.13)		(0.96)	(0.06)		
Lagged Small Size dummy * Lagged FB		-0.15	-0.145		-0.21	-0.19		
Index		(-1.55)	(-1.54)		(-1.95)*	(-1.73)*		
Lagged Large Size dummy * Lagged FB		0.05	0.054		-0.015	0.025		
Index		(1.13)	(1.00)		(-0.33)	(0.42)		
Lagged High ROA dummy * Lagged FB		0.183	0.175		0.07	0.049		
Index		(2./2)**	(2.58)**		(0.73)	(0.50)		
Lagged Collateral * Lagged FB Index		0.229	0.207 (2.0)***		0.24 (2 70)***	0.22 (2 44)**		
		(5.07)***	(2.0)		(2.70)	(2.44)		
Age * Lagged FB Index		0.002	0.005		(1.26)	0.014		
		_0.18	_0.18		_0.21	_0.20		
Election Results*Lagged FB Index		(-0.88)	(-0.89)		(-0.94)	-0.20		
Small Size dummy * Lagged Banks on		(= ===)	-0.009		(· · · /	-0.030		
1000 population			(-0.40)			(-0.58)		
Large Cize dummu * Lagged Dealte cr			0.0000			-0.05		
Large Size dummy * Lagged Banks ON			-0.000b (_0.04)			(-		
			(-0.04)			1.95)*		

High ROA dummy * Lagged Banks on 1000 population			0.018 (1.70)			0.04 (1.59)
Collateral * Lagged Banks on 1000 population			0.043 (1.69)			0.038 (0.51)
Age * Lagged Banks on 1000 population			-0.008 (-3.43)***			-0.014 (-1.17)
Elections Results* Lagged number of bank offices per 1000 of population			0.040 (0.83)			0.024 (0.49)
Sector dummies	No	No	No	No	No	No
Region dummies	No	No	No	No	No	No
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	18295	18295	18295	18295	18295	18295
R-squared	0.080	0.0822	0.0827	0.4126	0.4136	0.4138
Region-sector fixed effects	Yes	Yes	Yes			
Firm fixed effects				Yes	Yes	Yes

Robust t statistics in brackets

Table XIV. Regression results for the dependant variable *Debt Growth*.

		Region-secto	r	Firm				
	(1)	(2)	(3)	(4)	(5)	(6)		
Age	-0.012	-0.012	-0.009	0.799	0.81	0.785		
Squared Age	0.0005	0.0005	0.0005	0.0005	0.0003	0.0002		
	(2.31)**	(2.17)**	(2.26)**	(1.97)*	(1.11)	(0.65)		
Lagged Firm Size	-0.0005 (-0.78)	-0.002 (-0.84)	-0.004 (-1.19)	-0.01 (-1.88)*	-0.013 (-2.05)*	-0.01 (-1.64)*		
Lagged Income per Canita	0.001	0.0004	0.004	-0.0016	-0.003	-0.002		
	(0.23)	(0.10)	(1.33)	(-0.34)	(-0.57)	(-0.45)		
Lagged Banks on 1000 population	-0.008	-0.009	0.076	-0.044	-0.044	-0.13		
	(-0.65)	(-0. 71)	(2.94)***	(-1.82)**	(-1.84)*	(-2.41)		
Lagged Collateral	-0.027 (-1.95)*	-0.021 (-1.45)	-0.033 (-2.08)**	-0.132 (-5.18)***	-0.13 (-4.91)***	-0.16 (-5.28)***		
Lagged POA	0.004	-0.04	-0.041	0.084	0.033	0.032		
	(0.13)	(-1.11)	(-1.16)	(2.45)**	(0.92)	(0.90)		
Lagged FB Index	-0.015	0.032	-0.004	0.01	-0.046	-0.025		
	(-0.14)	(0.71)	(-0.09)	(0.79)	(-0.90)	(-0.44)		
Election Results	0.020	0.021	0.026	0.030	0.029	0.027		
	(2.56)**	(2.10)**	(2.11)**	(4.54)***	(3.67)***	(2.67)**		
Proportion of employed in production	0.094	0.081	0.04	0.01	0.002	0.011		
	(0.66)	(0.58)	(0.29)	(0.08)	(0.02)	(0.08)		
Proportion of fixed assets in production	-0.097	-0.096	-0.098 (2.05)*	-0.1	-0.1	-0.11		
	(-2.00)	0.002	0.009	(-2.02)	(-1.90)	0.012		
Lagged Small Size dummy		(-0.27)	(0.43)		-0.02 (-0.94)	(-0.37)		
Lagged High ROA dummy		0.031	0.051		0.028	0.032		
Laggod Small Size dummy * Laggod EP		0.004	(4.11)		(3.22)	0.005		
Index		-0.004 (-0.09)	(0.05)		(0.98)	(0.99)		
Lagged Large Size dummy * Lagged FB		0.065	0.056		0.05	0.06		
Index		(1.97)*	(2.01)*		(1.25)	(1.33)		
Lagged High ROA dummy * Lagged FB Index		-0.166 (-4.17)***	-0.145 (-3.56)***		-0.085 (-1.19)	-0.081 (-1.17)		
		-0.102	-0.116		-0.017	-0.055		
Lagged Collateral * Lagged FB Index		(-1.56)	(-1.58)		(-0.23)	(-0.58)		
Ass * Lessed ED ladeu		-0.0007	0.003		0.004	0.004		
Age · Lagged FB Index		(-0.18)	(0.7)		(0.87)	(0.76)		
Election Results*Lagged FB Index		-0.001 (-0.02)	-0.003 (-0.04)		0.019 (0.29)	0.019 (0.28)		
Small size dummy * Lagged Banks on			-0.028			-0.013		
1000 population			(-1.33)			(-0.42)		
Large size dummy * Lagged Banks on			0.008			-0.016		
1000 population			(1.13)			(-1.74)		
High ROA dummy * Lagged Banks on			-0.047			-0.009		
1000 population			(-3.60)***			(-0.42)		
Collateral * Lagged Banks on 1000			0.027			0.081		
population			(0.99)			(1.42)		

Age * Lagged Banks on 1000 population			-0.009 (-6.32)***			0.004 (0.98)
Elections Results* Lagged Banks on 1000 population			-0.004 (-0.32)			0.002 (0.19)
Sector dummies	Yes	Yes	Yes	No	No	No
Region dummies	Yes	Yes	Yes	No	No	No
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12945	12945	12945	12945	12945	12945
R-squared	0.1057	0.1075	0.1097	0.4880	0.4888	0.4890
Region-sector fixed effects	Yes	Yes	Yes			
Firm fixed effects				Yes	Yes	Yes

Robust t statistics in brackets * significant at 10%; ** significant at 5%; *** significant at 1%

Table XV. Regression results for	the dependant variable	Interest Rate Change.
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	F	Region-secto	r	Firm				
	(1)	(2)	(3)	(4)	(5)	(6)		
Age	-0.002 (-0.46)	-0.001 (-0.32)	-0.001 (-0.32)	0.176 (0.2)	0.196 (0.20)	0.279 (0.29)		
Squared Age	0.0001 (0.23)	-0.00001 (-0.03)	-0.00001 (-0.06)	-0.0002 (-0.32)	-0.0004 (-0.62)	-0.0006 (-0.93)		
Lagged Firm Size	-0.008 (-2.24)**	-0.007 (-1.47)	-0.004 (-0.77)	0.0002 (0.02)	0.0042 (0.36)	-0.0008 (-0.06)		
Lagged Income per Capita	0.004 (0.46)	0.004 (0.48)	0.016 (1.13)	-0.019 (-1.53)	-0.019 (-1.56)	-0.021 (-1.8)*		
Lagged Banks on 1000 population	0.035 (1.15)	0.037 (1.19)	0.19 (4.97)***	0.099 (2.29)**	0.102 (2.35)**	0.233 (1.09)		
Lagged collateral	0.006 (0.58)	0.014 (0.91)	0.035 (2.16)**	0.014 (0.36)	0.033 (0.76)	0.109 (1.88)*		
Lagged ROA	-0.024 (-0.86)	-0.073 (-1.81)*	-0.073 (-1.77)*	-0.062 (-1.23)	-0.094 (-1.64)	-0.09 (-1.57)		
Lagged FB Index	-0.086 (-6.67)***	-0.057 (-0.67)	-0.11 (-1.22)	-0.059 (-3.43)***	0.035 (0.26)	-0.019 (-0.015)		
Election Results	-0.023 (-1.04)	-0.024 (-0.90)	0.029 (1.39)	-0.034 (-1.43)	-0.038 (-1.39)	0.029 (0.11)		
Proportion of employed in production industry	-0.34 (-0.97)	-0.35 (-0.99)	-0.486 (-1.3)	-0.26 (-0.56)	-0.29 (-0.61)	-0.332 (-0.70)		
Proportion of fixed assets in production industry	0.1 (1.16)	0.095 (1.09)	0.11 (1.25)	0.194 (1.77)	0.195 (1.73)	0.21 (1.85)*		
Lagged Small Size dummy		0.016 (0.87)	0.04 (1.68)		0.034 (1.48)	0.011 (0.31)		
Lagged High ROA dummy		0.02 (1.36)	0.01 (0.56)		0.017 (0.79)	0.006 (0.21)		
Lagged Small Size dummy * Lagged FB Index		-0.22 (-3.42)***	-0.196 (-3.13)***		-0.31 (-3.43)***	-0.327 (-3.97)***		
Lagged Large Size dummy * Lagged FB Index		-0.042 (-0.75)	-0.024 (-0.36)		-0.077 (-0.76)	-0.094 (-0.9)		
Lagged High ROA dummy * Lagged FB Index		0.076 (0.88)	0.066 (0.74)		0.006 (0.05)	-0.0001 (-0.00)		
Lagged Collateral * Lagged FB Index		-0.117 (-1.60)	-0.090 (-1.14)		-0.285 (-3.39)***	-0.194 (-2.09)**		
Age * Lagged FB Index		0.005 (0.81)	0.005		0.008 (0.83)	0.007		
Election Results*Lagged FB Index		0.012 (0.13)	0.028 (0.29)		0.049 (0.51)	0.060 (0.64)		
Small Size dummy * Lagged Banks on 1000 population		<u> </u>	-0.048 (-2.08)**		. ,	0.052 (1.09)		
Large Size dummy * Lagged Banks on 1000 population			-0.015 (-0.92)			0.024 (0.96)		
High ROA dummy * Lagged Banks on 1000 population			0.025 (1.27)			0.028 (0.86)		
Collateral * Lagged Banks on 1000 population			-0.049 (-2.42)**			-0.197 (-3.70)***		

Age * Lagged Banks on 1000 population			0.0004 (0.26)			0.08 (0.58)
Elections Results* Lagged Banks on 1000 population			-0.12 (-5.49)***			-0.10 (-2.32)**
Sector dummies	Yes	Yes	Yes	No	No	No
Region dummies	Yes	Yes	Yes	No	No	No
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8578	8578	8578	8578	8578	8578
R-squared	0.0722	0.0732	0.0745	0.4136	0.4146	0.4153
Region-sector fixed effects	Yes	Yes	Yes			
Firm fixed effects				Yes	Yes	Yes

. Robust t statistics in brackets * significant at 10%; ** significant at 5%; *** significant at 1%

11.4 Robustness check

Table XVI. Regression results for the dependent *Sales Growth*, while controlling for financial dependence.

All the variables are demeaned using sector-year and region-sector averages of the variable.

	(1)	(2)	(3)
Age	-0.001	-0.0021	-0.0004
	(-1.25)	(-2.02)**	(-0.23)**
Squared Age	0.0006	0.0006	0.0006
	(9.89)***	(8.41)***	(10.66)***
Lagged Firm Size	-0.0146	-0.0236	-0.021
	(-5.85)***	(-8.11)***	(-6.60)***
Lagged Income per Capita	0.034	0.022	-0,0014
	(1.26)	(0.91)	(-0.06)
Lagged Banks on 1000 population	-0.055	-0.099	-0.059
	(-1.24)	(-2.31)**	(-0.75)**
Lagged Collateral	0.007	0.0022	0.0024
	(0.36)	(0.12)	(0.13)
Lagged ROA	-0.078	-0.077	-0.078
	(-2.77)***	(-2.02)**	(-2.01)*
Lagged FB Index *Financial Dependence	1.12	-1.173	-1.53
	(1.89)*	(-3.00)***	(-3.58)***
Election Results	0.047	0.045	0.051
	(5.08)***	(5.05)***	(7.26)***
Proportion of employed in production industry	0.388	0.275	0.745
	(0.36)	(0.24)	(0.59)
Proportion of fixed assets in production industry	0.512	-0.125	-0.83
	(0.28)	(-0.01)	(-0.37)
Lagged Small Size dummy		-0.064 (-4.29)***	-0.080 (-4.74)***
Lagged High ROA dummy		-0.007 (-0.57)	-0.0066 (-0.60)
Lagged Small Size dummy * Lagged FB Index *Financial Dependence		-0.139 (-0.55)	-0.295 (-1.11)
Lagged Large Size dummy * Lagged FB Index *Financial Dependence		0.145 (1.08)	0.167 (1.02)
Lagged High ROA dummy * Lagged FB Index *Financial Dependence		0.415 (1.97)*	0.41 (1.86)*
Lagged Collateral * Lagged FB Index *Financial Dependence		0.315 (2.46)**	0.196 (1.11)
Age * Lagged FB Index *Financial Dependence		0.066 (2.93)***	0.071 (3.16)***
Small Size dummy * Lagged Banks on 1000 population *Financial Dependence			0.172 (2.22)

Large Size dummy * Lagged Banks on 1000 population *Financial Dependence			-0.0257 (-0.92)
High ROA dummy * Lagged Banks on 1000 population *Financial Dependence			0.006 (0.14)
Collateral * Lagged Banks on 1000 population *Financial Dependence			-0.066 (-0.52)
Age * Lagged Banks on 1000 population *Financial Dependence			-0.011 (-1.90)
Region and sector trends	Yes	Yes	Yes
Cluster	Region	Region	Region
Observations	17576	17576	17576
R-squared	0.0156	0.0185	0.0192

Robust t statistics in brackets

Table XVII. Regression results for the dependent variable *Debt Growth* with no observations for Kyiv region.

	Region-sector			Firm		
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-0.008 (-2.97)***	-0.007 (-2.88)***	-0.007 (-2.26)**	0.521 (1.01)	0.53 (1.03)	0.585 (1.13)
Squared Age	0.0003 (1.91)*	0.0003 (1.81)*	0.0003 (2.03)*	0.0005 (1.68)	0.0003 (0.79)	0.0003 (0.95)
Lagged Firm Size	-0.002 (-0.65)	-0.003 (-1.03)	-0.002 (-0.71)	-0.006 (-0.97)	-0.009 (-1.22)	-0.009 (-1.17)
Lagged Income per Capita	-0.01 (-0.46)	-0.03 (-0.86)	-0.042 (-1.72)	-0.032 (-1.70)	-0.04 (-2.02)*	-0.048 (-2.58)
Lagged Banks on 1000 population	-0.02 (-0.37)	-0.02 (-0.36)	0.176 (2.63)**	-0.116 (-7.21)***	-0.12 (-7.75)***	0.02 (0.15)
Lagged Collateral	-0.039 (-2.83)***	-0.034 (-2.58)**	0.006 (0.27)	-0.15 (-6.07)***	-0.152 (-6.73)***	-0.12 (-2.25)**
Lagged ROA	0.026 (0.91)	-0.013 (-0.39)	-0.02 (-0.4)	0.078 (1.94)*	0.034 (0.81)	0.036 (0.88)
Lagged FB Index	0.005 (0.21)	0.003 (0.65)	-0.046 (-0.85)	0.037 (2.87)***	-0.04 (-0.74)	-0.075 (-1.27)
Election Results	0.021 (2.01)*	0.022 (1.91)*	0.053 (3.04)***	0.024 (2.89)***	0.025 (2.77)**	0.040 (2.40)**
Proportion of employed in production industry	-0.023 (-0.16)	0.038 (0.28)	0.01 (0.08)	-0.016 (-0.12)	-0.04 (-0.03)	-0.020 (-0.16)
Proportion of fixed assets in production industry	-0.11 (-2.08)*	-0.108 (-1.98)*	-0.1 (-2.04)*	-0.122 (-2.24)*	-0.121 (-2.23)*	-0.111 (-2.30)**
Lagged Small Size dummy		-0.002 (-0.1)	0.023 (0.99)		-0.022 (-0.81)	-0.015 (-0.31)
Lagged High ROA dummy		0.029 (3.09)***	0.051 (3.59)***		0.025 (2.52)**	0.062 (3.12)***
Lagged Small size dummy * Lagged FB Index		0.012 (0.23)	0.057 (1.00)		0.119 (1.28)	0.13 (1.42)
Lagged Large size dummy * Lagged FB Index		0.042 (2.30)**	0.052 (2.10)**		0.036 (1.03)	0.034 (0.90)
Lagged High ROA dummy * Lagged FB Index		-0.146 (-3.87)***	-0.108 (-2.37)***		-0.08 (-1.05)	-0.024 (-0.33)
Lagged Collateral * Lagged FB Index		-0.075 (-1.23)	-0.01 (-0.12)		0.17 (0.27)	0.057 (0.61)
Firm age * Lagged FB Index		0.001 (0.31)	0.003 (0.76)		0.006 (1.38)	0.006 (1.17)
Election Results*Lagged FB Index		-0.037 (-0.51)	-0.035 (-0.52)		-0.029 (-0.38)	-0.026 (-0.36)
Small Size dummy * Lagged Banks on 1000 population			-0.09 (-1.38)			-0.03 (-0.22)
Large Size dummy * Lagged Banks on 1000 population			-0.01 (-0.77)			0.003 (0.11)
High ROA dummy * Lagged Banks on 1000 population			-0.085 (-1.96)*			-0.142 (-2.66)**
Collateral * Lagged Banks on 1000 population			-0.153 (-1.98)*			-0.111 (-0.61)

Age* Lagged Banks on 1000 population			-0.006 (-0.97)			-0.003 (0.39)
Elections Results* Lagged Banks on 1000 population			-0.11 (-3.17)***			-0.059 (-1.33)
Sector dummies	Yes	Yes	Yes	No	No	No
Region dummies	Yes	Yes	Yes	No	No	No
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10831	10831	10831	10831	10831	10831
R-squared	0.1116	0.1130	0.1143	0.4710	0.4718	0.4723
Region-sector fixed effects	Yes	Yes	Yes			
Firm fixed effects				Yes	Yes	Yes

. Robust t statistics in brackets

11.5 Figures and graphs



Figure 1. The number of banks in Ukraine from 1992 to 2009.

Source: constructed by authors based on the data from the NBU and the EBRD.





Source: constructed by authors based on the data from the EBRD.

Figure 3. EBRD Banking Reform and Interest Rate Liberalization Indicator for Ukraine in 1989 to 2008.



Source: constructed by authors based on the data from the EBRD.





Source: constructed by authors based on the data from the EBRD and the NBU.





The proportion of votes for the elected president and the growth of foreign

Source: constructed by authors based on the data on elections results from Ukrinform and the bank data sample collected by authors.

Figure 6. The asset share of foreign-owned banks from 1997 to 2007.

Asset share of foreign-owned banks 45% 40% 35% 30% 25% 20% 15% 10% 5% 0% 2006 2001

Source: constructed by authors based on the data from the EBRD.

Figure 7. Asset share of foreign-owned banks in Eastern European countries in 2007.



Source: constructed by authors based on the data from the EBRD.