CORPORATE FINANCING IN TRANSITION: IMPLICATIONS FOR INSTITUTIONS AND OWNERSHIP

A thesis submitted for the degree of Doctor of Philosophy

by

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ABSTRACT

The present thesis examines the implications of ownership and institutions for corporate financing in Central and Eastern Europe. There are three empirical chapters (chapters 2, 3 and 4). Chapter two examines the role of business networks for firm external financing. Our central hypothesis here is that firms' affiliation to business association is likely to be beneficial in securing external finance (especially bank finance) in countries with weak legal and judicial institutions, as it helps banks and financial institutions to minimize the underlying agency costs of lending. Using recent EBRD-World Bank BEEPS data, we find some support to this central hypothesis in our sample.

Importance of foreign banks for economic development of CEE countries has been emphasized in the literature though there is wide dispersion in foreign investment in the region. In this context, chapter three (i.e., the second empirical chapter) focuses on the implications of corruption for foreign bank entry and ownership structure in Central and Eastern European countries. The chapter argues that the presence and persistence of corruption (both absolute and relative) may adversely affect costs of setting up as well as running day-to-day operations of foreign banks in host emerging economies. Using primarily Bankscope bank-level data we find that greater absolute and relative corruption may lower foreign bank entry, greater relative corruption may encourage foreign greenfield entry in our sample; while relative corruption is not significant for foreign takeover. The latter highlights the importance of encouraging foreign investors from countries with similar institutions.

Finally, considering the implications of ownership for bank capital and performance in chapter four (the final empirical chapter) in light of the focus on bank capital and capital regulation in discussions after the recent banking crisis, we argue that the relationship between bank capital and bank performance crucially depends on bank ownership structure. Using Osiris data we examine foreign greenfield and other joint venture (JV) differential effect of high bank capital on bank performance. A significant positive effect of foreign Greenfield (as opposed to JV) bank capital on bank performance, after controlling for all other factors is found. We attribute this to better governance compared to varied ownership arrangement in other joint venture banks.

Thus wide dispersion in the quality of institutions and ownership explains a great deal of variation in the economic performance of countries in the region. We hope findings of this thesis would inform policies and will also influence future research.

DEDICATION

To my Niece Kelechukwu Amanze, and Nephew, Chinomso Amanze

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LIST OF ABBREVIATIONS

1. Central and Eastern Europe (CEE)
2. Business Environment and Enterprise Performance Survey (BEEPS)
3. Ordinary Least Squares (OLS)
4. Small and Medium Enterprises (SMEs)
5. European Bank for Reconstruction and Development (EBRD).
6. Business Association (BA)
7. Research and Development (R&D)
8. Foreign direct investment (FDI)
9. International country risk guide (ICRG)
10. Bureau van Dijk Electronic Publishing (BvDEP)
11. Gross Domestic Product (GDP)
12. Joint Venture (JV)
13. Organization for Economic Cooperation and Development (OECD)
14. United States (US)

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CHAPTER 1

Introduction

1.0. **Background**

Just over two decades ago, transition countries which were till then socialist economies, began a process of radical transformation of their political and economic systems. Failure of the socialist system was evident in their economic performance and slow economic growth (see Gomulka, 1990). State-owned enterprises were inefficient as they failed to invest or produce rationally and wasted scarce resources in the process (See Bergson, 1991,; Estrin, 1993). Privatization thus appeared the natural way forward to addressing the ills of the socialist system and also to ensure a successful transition to a market economy. However, privatization in transition countries, especially Eastern Europe contrasts to those in other countries and as such cannot be compared to the privatization experiences of other countries. Privatization in the transitional economies goes far beyond a simple transfer of ownership from the state to private individuals. It entails a process by which the institution of property is re-introduced to Eastern European societies, as efficient use of socially available resources is promoted (Frydman et al, 1994). This will enable the removal of the erstwhile systematic incentive to under produce and over consume scarce social resources. This meant that structural reform of the economies needed to proceed on a microeconomic level.

The process of privatisation provided the opportunity for the emergence of private banks and non-financial enterprises, including foreign multinational companies. An important feature of the privatization process in Central and Eastern Europe (CEE) has been the break-up of large state-owned enterprises, which in turn had led to the growth of small and medium enterprises (SMEs) in the region. A challenge facing these SMEs has been to ensure sufficient finance required for their expansion activities and future growth. However despite extensive bank reforms there has been a feeling that these reforms have failed to spur the external financing opportunities for the newly privatised domestic firms, especially the SMEs. In this context, the first paper examines the possible role of firm's affiliation of various business associations in securing external financing opportunities.

There has been some consensus that privatization has contributed to improved efficiency, which can primarily be attributable to the sale of erstwhile state banks to foreign individuals (Megginson (2005), Clarke, Cull and Shirley (2003), Bonin, Hassan and Wachtel (2004), Berger et al (2003).[1] However there is a pronounced inter-country variation in the share of foreign banks in the CEE region; the latter can perhaps be explained by differential institutional development. Recent literature (e.g., La porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997) has highlighted the importance of legal and judicial institutions in enforcing contracts and safeguarding shareholders' and creditors' rights, thus promoting financial and economic development even in market oriented economies. Shleifer (1997) argues that there has to be a transition of government for a transition to a market economy to take place. This was described as de-politicization of the economy, whereby control over resource use and ownership is transferred exclusively to the private sector. Government role will then be to provide the necessary institutions to support the market economy. This will necessitate the creation of laws and legal institutions that protect private property, enforce contracts between private parties, but also limit the ability of officials to prey on private property. Clearly, CEE countries are at different levels of institutional development, which in turn influences the pace and the success of their market reforms. In this context we examine the role of corruption on mode of entry and ownership of foreign banks. Spectacular growth of foreign banks has been a major feature of post-privatisation period in the CEE region.

While financial liberalization and privatization have dominated the financial policy debate over the past few decades, the current financial crisis (since late 2007) has highlighted the risks of unregulated privatization. During the sustained period of high growth over the past decade or so, unfettered risk-taking by banks had contributed to the outbreak of the financial crisis of 2007 around the globe (e.g., see Coricelli et al, 2009; De Haas and Van Horen, 2009), necessitating huge government bail-out of banks. Accordingly, capital management of banks has come under increasing scrutiny in recent time, hence necessitating a re-evaluation of bank regulations. In this context, we highlight

[1] Performance of private banks may vary depending on whether they are de novo (newly created) or privatised. De novo private banks perform better than privatized banks in general and this may be attributed to the difficulty experienced in transforming the pre-privatization fortunes of the privatized banks (Clarke et al, 2003).

the impact of ownership structure on the relationship between bank capital and bank performance.

Despite their importance, the aforementioned issues remain unexplored. We hope results of this study would provide further understanding of the issues and would also yield some implications for policy.

1.1. Aims and objectives

The structure of the thesis is as follows:

- The second chapter examines the role of business networking on firms' external financing choices. We particularly focus on firms' access to bank finance and examine the role of networking on firm's access to loans from various bank ownership types - state, domestic private commercial, and foreign banks in light of the potential for firm-bank ownership matching post-reform. The analysis is based on 2002 and 2005 rounds of European Bank for Reconstruction and Development (EBRD) - World Bank BEEPS data available from EBRD.
- The third chapter explores the role of corruption in general and relative corruption, i.e., the corruption in host countries relative to that in home countries, on foreign bank entry and foreign ownership in the CEE region. The analysis is based on Bankscope and data from De Haas et al (2011).
- The fourth chapter examines the role of ownership on the relationship between bank capital and bank performance, given that bank capital is an essential component of bank regulation. The analysis is primarily based on Bureau van Dijk Electronic Publishing **(**BvDEP**)** Osiris database.
- The final chapter summarises the main findings of the paper and also derives policy implications, where possible; in the process, we also highlight the limitations of our study and scope for further research.

1.2. An Overview

The present study consists of three main empirical chapters. Chapter 2 examines the role of firms' business association membership on access to external financing including bank and equity finance, and also non-bank credit in the Central and Eastern European country region. The paper argues that networked firms are likely to have an advantage in securing external finance in countries with weak legal and judicial institutions since it helps financial institutions to minimize the underlying agency costs of lending. An analysis of recent European Bank for Reconstruction and Development (EBRD) –World Bank Business Environment and Enterprise performance Survey (BEEPS) data from fifteen Central and Eastern European (CEE) countries lends some support to this hypothesis. Even after controlling for other factors, firms affiliated to business associations are more likely to secure bank finance. Importance of being associated with business networks is particularly evident among firms who borrow from domestic private commercial and foreign banks, as these new banks attempt to hedge risk in uncertain environment during the process of transition. Networking however discriminates against the small and medium sized firms' access to bank loans in the CEE regions. Results are robust in both single cross-section and panel data analyzes.

While growth of foreign banks has been pronounced in some of the transition countries, there is a great deal of heterogeneity in the growth of foreign banks across the CEE region, which remains little understood. In this context, Chapter 3 examines the role of corruption on foreign bank entry and share of foreign ownership in fourteen CEE countries. The paper not only considers the role of host country corruption, but also the distance in the corruption between home and host countries. It is argued that the latter measures the degree of (un) familiarity in running a business in the foreign country and has been labelled relative corruption. The paper uses Bankscope and some related data on mode of foreign entry employed by De Haas et al (2011). There are three sets of results that confirm the significance of both corruption measures on foreign bank entry and ownership pattern. (i) Greater host corruption and relative corruption are found to both discourage foreign bank entry in our sample; (ii) Next we distinguish between foreign greenfield and foreign takeover and find that while greater absolute corruption reduces the likelihood of foreign greenfield, greater relative corruption may increase the

likelihood of foreign greenfield (as opposed to takeover) so as to reduce the direct and indirect costs of joint venture especially in an unfamiliar environment. (iii) Finally controlling for foreign bank entry, we consider the share of foreign ownership in our sample. These estimates strengthen estimates (ii) cited above in that foreign ownership responds to host country absolute corruption. Greater host corruption reduces the controlling stake of foreign banks in countries with weak institutions. In other words, holding a controlling stake emerges to be attractive in an environment where the costs of operation of foreign banks are rising as a result of weak institutions in CEE countries.

The final paper highlights the role of ownership on the relationship between bank capital and bank performance in the Central and Eastern European region. Much of the discussion in Europe after the recent banking crisis has focused on bank capital and capital regulation. We however argue that the relationship between bank capital and return on assets crucially depends on bank ownership. Results using cross-country panel data from emerging Europe for the period 2000-2007 confirm this. Ceteris paribus there is suggestion that foreign greenfield banks operate more efficiently than other banks in our sample. We find that foreign greenfield banks tend to have significantly lower liabilities and also that they enjoy about 7% higher differential return despite having higher liability on average. We argue that the later highlights the potential conflict of interests between domestic and foreign owners in joint venture bank subsidiaries.

1.3. Significance of the Study

Despite more than two decades of the reforms in Central and Eastern European (CEE) countries, wide cross-country variation in economic performance cannot be ignored. This disparity has generally been attributed to the dissimilar initial conditions at the start of reforms (Earle et al, 1993). In addition, some countries experienced more hurdles than others in implementing newly formulated reform-oriented policies, thus having differential progress with the reform.

This research integrates the literature on social capital, institutions (in particular, corruption) as well as ownership for an understanding of the barriers to the corporate financial development in the CEE transition region. In doing so, we not only consider the issue from the point of view of non-financial firms, but also from those of the banks and financial institutions. The questions that we raise are rather unexplored in the literature and as such there is important value added of our analysis (see each chapter for further discussion).

In particular, our study attempts to shed light on three unanswered questions regarding corporate financing in the CEE region. (i) Why are some firms less able to access credit to finance their activities compared to others? The first paper argues that networked firms are likely to have an advantage in securing external finance in countries with weak legal and judicial institutions since it helps financial institutions to minimize the underlying agency costs of lending. (ii) How do foreign banks choose their destination countries? The second paper argues that in addition to corruption in the host country, corruption in the host country relative to that in the home country, which measures the degree of (un)familiarity in running a business in the foreign country labelled as relative corruption, could influence a foreign bank's decision to enter a host country in the transition region. (iii) Why are some foreign banks more efficient than others? We argue that one hundred percent foreign owned bank subsidiaries –which are equivalent to foreign greenfield bank subsidiaries could perform better than joint venture banks –which are equivalent to foreign takeover banks, because the latter suffers from the potential conflict of interests between domestic and foreign partners in joint venture banks.

We hope findings of this research will help formulate policies to encourage growth of corporate financing opportunities in the region. First, forming networks to secure bank loans and other business facilities may not necessarily be an efficient arrangement for the broader economy, as it may promote the interests of those networked firms who are successful to belong to good networks through family/political connections or otherwise, but are not necessarily more efficient firms. Second, our results highlight that greater absolute and relative corruption may discourage foreign bank entry in a host CEE country, and that while absolute host corruption is important for foreign bank entry,

relative corruption must also be taken into account. As such there is scope for attracting foreign investment from countries with similar institutional framework so that the degree of unfamiliarity of running a business in a host country is minimized. The latter may give rise to investment from various emerging countries. The quality of host country institutions however needs to be improved to attract foreign investment from home countries of significantly higher institutional quality. Finally, following the recent financial crisis of 2007, and its focus on capital regulation and its effects on the size of the bank capital, results from our study suggests that the relationship between bank capital and bank performance crucially depends on bank ownership. Efforts therefore need to be directed towards encouraging bank ownership that results in a significant boost to bank performance, even as it also affects bank capital.

CHAPTER 2

The Value of Business Networks In Emerging Economies: An Analysis of Firms' External Financing Opportunities

2.0. Introduction

Problems of contract enforcement are common in countries with weak institutions because there is no guarantee that contractual obligations will be upheld by the local institutions. Networks and informal relationships may thus emerge to facilitate functioning of many organisations in transition and emerging economies with weak legal and judicial institutions (e.g., Kandori, 1992; Boisot and Child, 1996; Guiso et al. 2004; Grief 2006; Ayyagari et al. 2008). In this context the present paper examines the role of firms' affiliation to business networks on external corporate financing opportunities.

Recent empirical studies in the organizational behaviour literature (e.g., Boisot and Child, 1996) suggest that informal networks are often a response to inadequate institutional support. In particular, lack of legal/judicial structure that guarantees written contracts and private property may render credit enforcement difficult. One can argue that a firm's membership of a business network or association may help in minimising the underlying costs of lending arising from the uncertainty of credit enforcement (see further discussion in section 2.1). The latter may be particularly important for subsidiaries of foreign banks operating in emerging economies where the problem of contract enforcement is worse.

Our analysis focuses on a group of Central and Eastern European (CEE) countries, who are an important case in point. Even after a decade of reform, there is a growing feeling that the reforms have failed to spur adequately the development of banking in the CEE countries. Despite widespread reforms, use of external finance remains rather limited (only 26% of our sample firms had access to some bank finance), even by the standard of other developing and emerging economies. Further, among those firms with outstanding bank loans, many tend to have very high, potentially excessive, leverage (see Coricelli et al. 2011). This necessitates a further investigation of firms' external financing opportunities in the region. In this respect, the present paper highlights

the role of firms' affiliations to business networks.

The analysis is developed in two steps. First, we examine the effect of business networking on firms' financing choices distinguishing between internal finance, bank finance, non-bank finance and equity finance. Second, we focus on firms' access to bank finance and, in this respect, examine the role of networking on firm's access to loans from state, domestic (local) private and foreign banks. The latter also allows us to explore evidence of firm-bank ownership matching, if any. Note however that a firm's affiliation to a business network is unlikely to be exogenous as networked firms are unlikely to be a random sample of all sample firms. Hence one needs to correct for the underlying endogeneity bias arising out of this selection issue. We adopt two possible approaches: first, we obtain the predicted value of business association membership using a first stage regression (with some exclusion restrictions; see further discussion in section 2.2.3) and use this as a potentially exogenous instrument for firm's access to any external financing as well as access to bank loans (by bank ownership). Second, BEEPS data has a small panel element where a small fraction of sample firms were interviewed in both 2002 and 2005 (see further discussion in section 2.2). This allows us to use 2002 and 2005 BEEPS panel data[2] to obtain OLS fixed effects estimates. In other words, we use variation in access to external finance over time (2002-2005) for a given firm to identify the effect of networking on firm financing opportunities.

There is evidence from our analysis that, ceteris paribus, business networking plays a significant role on the probability of securing external corporate financing from both domestic private and foreign banks. The latter can be attributed to these new banks' attempts to trade cautiously in an uncertain business environment in countries with weak institutions. Further, younger small and medium sized enterprises are less likely to be networked and are also less likely to have access to various external finances in our sample. In other words, lack of business networking may force SMEs to rely more on internal finance, thus hindering the process of corporate growth in the region.

The paper contributes to a limited but growing literature on corporate financing in emerging economies. There is generally a consensus in the literature that business

[2] Our attempt to include recently released 2009 BEEPS data in the panel analysis failed as 2009 round does not provide information on firm's affiliation to business associations.

networks are a feature of the organizational landscape of many countries though their nature and effects may vary across the world. Kali (1999) argued that these networks absorb honest individuals and raise the density of dishonest individuals engaged in anonymous market exchange, which in turn may harm public interest. Consequently, the payoff from market exchange may diminish. Along similar lines Khawaja and Mian (2005) examining the link between political connection of firms and bank lending in Pakistan from 1996-2002, found that political firms borrow 45% more and also have 50% higher default rates and this preferential treatment of political firms largely occur in states banks in the country. In contrast, cross-country studies on social capital and economic growth (e.g., see Knack and Keefer, 1997; Whiteley 2000) have generally highlighted the positive impact of active membership in social organization to economic growth, thus motivating our analysis for the emerging economies of Central and Eastern Europe. While there is a growing literature on corporate financing in CEE region (for example, see Fries and Taci (2002); Klapper, Sarria-Allende, and Sulla (2002); De Haas et al. (2007)) and also some literature highlighting the effect of lack of social capital in transition region (e.g., see Raiser (1999), Paldam and Svedsen (2000, 2001)) on economic development and growth in the region, we are not aware of any study that analyzes the role of business networks on firm external financing opportunities in the transition region. We thus integrate two strands of the literature, one on corporate finance and, the second one on social capital and economic development, to examine the effect of business networks on corporate financing opportunities in the CEE region.

It is an important exercise because it would allow us to identify a possible micro-economic mechanism through which business networking can influence corporate financial opportunities in the region. Further results from our analysis highlight the inefficiency business networking may cause, distinguishing it from the advantages of social networking highlighted in the literature. Given that these countries are undergoing radical institutional restructuring, it is important that the informal institutions (e.g., some business networks) remain compatible with the formal institutions so as to minimize the possible costs of corruption and tax evasion and boost economic growth in the region. We thus hope that this research will inform policy makers to take steps to ease SME's

access to external corporate financing opportunities from newly privatised banks (domestic or foreign).

The chapter is developed as follows. Section 2.1 explains the data and hypotheses while section 2.2 develops the empirical methodology. Sections 2.3 analyzes the results and the final section concludes.

2.1. Data & Hypotheses

Our analysis is primarily based on the EBRD – World Bank Business Environment and Enterprise Performance Survey (BEEPS) 2005 data.[3] BEEPS is a joint initiative of the European Bank for Reconstruction and Development (EBRD) and the World Bank Group. The survey, was administered to a random sample of 11814 enterprises in 28 countries of Central and Eastern Europe (CEE) including Turkey and the Commonwealth of Independent States (CIS), to examine the quality of the business environment (as determined by a wide range of interactions between firms and the state), to assess the environment for private enterprise and business development. For further details of the data, see EBRD (2005). For one particular section of our analysis we also make use of the panel element of 2002 and 2005 BEEPS data (see footnote 2 and also section 2.2.3)

2.1.1. Data Description

For the purpose of our study we create a sub-sample comprising only of firms in the Central and Eastern European (CEE) countries – Macedonia, Serbia and Montenegro, Albania, Croatia, Bosnia and Herzegovina, Slovenia, Poland, Hungary, Czech Republic, Slovakia, Romania, Bulgaria, Latvia, Lithuania, and Estonia. This gave rise to a sample of 5040 firms, representing about 43% of all firms that participated in the 2005 BEEPS

[3] Later we shall make use of 2002 and 2005 BEEPS data to check the robustness of our cross-section estimates using 2005 BEEPS data.

survey. The country distribution of our sample of firms is shown in Table 2.1, which suggests that Polish firms represent the largest share, 19.35% of the total sample, followed by Hungary, Romania and Czech Republic.

BEEPS data provides information on whether a firm is affiliated to any business association, which plays a significant role in our analysis. Table 2.1 shows the proportion of firms affiliated to business association in the sample countries, which clearly highlights the pronounced inter-country variation. While Czech Republic has only 21% affiliated firms in our sample, the proportion rises to as high as 91% in Slovenia closely followed by 88% in Albania. Note that the nature of most business associations in the Balkan countries like Slovenia, Albania, Croatia, Serbia and Montenegro are likely to be different from those in most other countries in the CEE region.[4] The model of business representation in the Balkan countries was adapted from the "continental" chamber systems in the sense of being based on compulsory membership. Note however that business association membership is compulsory only for certain sectors and these sectors may vary from one Balkan country to another. Membership is usually automatic upon the official incorporation of an enterprise or the licensing of entrepreneurial activity (Duvanova, 2008). This would explain why business association membership would in general be much higher in the Balkan region in our sample.[5] In an attempt to capture this regional variation in the business association membership, we create a Balkan dummy that takes a value 1 for the subsample Balkan countries, namely, Albania, Bosnia-Herzegovina, Croatia, Macedonia, Serbia and Montenegro and Slovenia and is zero otherwise. In other words, inclusion of the Balkan dummy allows us to distinguish the effect of compulsory membership from voluntary membership.

Networked firms may benefit in a number of ways from their affiliation to the business association including lobbying the government (82.5% of networked firms), resolving disputes (83.5% of networked firms), information on domestic/international product and input markets (about 90% firms), accrediting quality standards of the product (89% of networked firms) and getting information on government regulation (about 91%

[4] Our empirical analysis attempts to control for this.
[5] This explains why despite compulsory business association membership in the Balkan countries, our sample does not show 100% membership of business association in the region.

of networked firms). The latter in turn suggests that the business association membership variable is likely to be endogenous to firm financing, especially when the firms whose associations provide networking-type services (e.g., "information or contacts on domestic …markets") tend to be the ones having access to external finance.

Using the identity of the largest owner, we can also classify firms by ownership structure: (a) state, when the largest shareholder is government or government agency; (b) domestic private, when the largest shareholder is individual/family, general public, and domestic company; (c) foreign, when the largest shareholder is a foreign company. In a similar fashion, we classify the banks' lending to the sample firms as state, domestic private commercial and foreign. Table 2.2 cross-tabulates ownership structure of firms and banks providing loans to the sample firms. Of the firms that borrow from banks, borrowing from domestic private commercial banks is most common, irrespective of firm ownership type (state-owned, foreign-owned or private domestically owned). There also seems to be some firm-bank ownership matching, as private domestic firms are more likely to use domestic private commercial banks. Note that the borrowing from state-banks is not so common in 2005; but again, relatively higher proportion of state-owned firms borrows from state banks. It can be argued that one possible way to reduce costs related to adverse selection in bank lending would be to adhere to ownership matching between firms and banks (e.g., see Berger et al. 2006), especially in the presence of market imperfections in countries with weak institutions. EBRD report (2006) suggests a form of bank-firm matching between large firms and foreign banks in a selected number of transition countries. Later we would explore if firm-bank ownership matching holds, after controlling for all other factors.

Our analysis solely considers firm finance for new investment, which funds future growth opportunities. In the BEEPS survey, firm managers were requested to provide information on sources of finance including internal funds/retained earnings, equity, domestic private commercial bank borrowing, foreign bank borrowing, state-owned bank borrowing (including state development banks), loans from family/friends, money lenders or other informal sources, trade credit from suppliers, trade credit from customers, credit cards, leasing arrangement, the Government (other than state-owned banks) and other, for their establishment's new fixed investments (i.e., new land,

buildings, machinery, equipment, etc). We aggregate the available information to create four categories of financing sources: internal finance, bank finance (when firm obtains loans from any bank, domestic private commercial, state or foreign), equity finance and any non-bank finance; the latter refers to trade credit from suppliers or customers, credit cards, and leasing arrangement. Thus, non-bank finance in our study is simply finance that are not formal bank loans, and which firms can access as an additional source of finance for business activity. Such finance tends to be generally short term in nature, but may be long term (in the case of lease arrangements)[6]. Thus external sources of financing in our sample refer to bank loans, equity financing or any type of non-bank financing.

Table 2.3 summarizes the sources of firm financing for new investment in the selected countries in 2005. Note however that some firms tend to obtain financing from more than one source (internal, external or both). Accordingly, Table 2.4 shows the proportion of firms relying solely on any type of internal or external financing. Clearly reliance on external financing is rather limited in our sample as a significant proportion of firms rely solely on internal finance. In fact about 39% sample firms relied only on internal finance for new investment in 2005 in all countries taken together, though there is some inter-country variation as highlighted in Table 2.3. Reliance on equity funding is rather limited as equity markets continue to be rather under-developed in these countries. A small proportion (1% - 12%) of firms relied solely on bank or equity financing or trade credit.

Following the introduction of the transition process in the early 1990s, there has been a significant increase in the share of small and medium enterprises (SMEs) in CEE countries; the latter could be attributed to the break-up of large state-owned enterprises during the transition. Using the labour force size information contained in the BEEPS data, we classify firms into three categories, namely, 'small', 'medium' and 'large'.[7] We merge small and medium sized firms together and label them as small and medium enterprises or SME in short. About 91% of sample firms are small and medium sized

[6] Nonbank finance has grown in popularity as a result of financial liberalization reforms in developed as well as developing countries.

[7] Other studies notably, Bevan and Danbolt (2004) have used log of sales to proxy for this and Gonzalez et al (2007) used natural log of firm total assets.

enterprises (see Table 2.1); in other words only about 9% sample firms could be classified as 'large' according to their employment size.

It is also important to identify the newly established firms from the rest. Following Klapper et al (2002), firms with an age of 10 years or less, i.e, those that came into existence after the year 1995, were defined as 'young'. 49% of small firms in our sample fall into the category of young firms. It also means that large firms are not necessarily old firms. The average proportion of SMEs and young firms for each of the sample countries are also shown in Table 2.1.

Using firms' business association membership, we could classify firms into networked and other non-networked firms. Table 2.5 compares selected characteristics of networked firms with other firms and highlights some important characteristics of networked firms.[8] In general, older state firms and also foreign firms are significantly more likely to be networked, while young SMEs in the domestic private sector are significantly less likely to be networked. In addition, compared to non-networked firms, networked firms are more likely to be involved in the export sector. Thus, networked firms appear to be in a more advantageous position than other non-networked firms.

2.1.2 The Choice Between Internal Finance And External Finance

Firms choose between internal and external finance sources to finance firm activity; in doing so, firms need to consider a number of factors including the cost of capital. In general, specific considerations of firms depend on the particular theory of firm financing under consideration. Starting with the seminal paper of Modigliani and Miller (1958) leverage irrelevance framework, there are a number of extensions including the pecking order, asymmetric information signaling framework, agency theory, asymmetric information signaling framework, static trade-off, and legal environment framework (e.g.. see Harris and Raviv (1991) and Kumar (2008)).

[8] Note that it is not possible to calculate firm-level profits using EBRD data

The Modligliani and Miller (1958) leverage irrelevance framework argues firm value to be independent of the mix of debt and equity financing and as such firm value can not be increased by using debt. Thus, the firm may opt against increasing its leverage in financing firm activity as it does not add to the value of the firm. What matters however is the shareholders hold a well-diversified portfolio of financial assets. The static trade-off framework argues that firms balance debt and equity positions by making trade-offs between the value of tax shields on interest, and the cost of bankruptcy or financial distress. Therefore the firm despite the benefits of favourable tax treatment of interest payment on debt, must weigh this benefit against the potential costs it faces in the event that it goes bankrupt as a result of incurring the debt. Thus, the firm uses less debt where the costs of bankruptcy are high and vice versa. This contrasts with the arguments of the agency cost theory as developed based on the argument of Jensen and Meckling (1976) that debt serves as a monitoring mechanism for shareholders who desire to monitor managers to discipline the manager from engaging in self servicing objectives at the expense of shareholders interests (e.g, see Grossman and Hart (1982). This will result in increased firm value, and as such a firm may trade-off the agency cost of different types of capital, to influence firm value. Debt therefore becomes valuable as a source of financing for firms to the extent that management monitoring and firm value are important. The determinants of leverage under the agency cost theory include firm ownership concentration, free cash flow, growth opportunities, e.t.c.

The pecking order theory of firm financing on the other hand, argues that, the firm based on a hierarchy of financing choices ranks internal financing highest when available, and where external financing is required, debt is preferred to equity. This theory is based on the notion that financing by internal funds is least costly as the firm does not need to pay interest on internal funds, while equity financing is the most costly due to the cost of issuing equity.

According to the asymmetric information signaling framework, the existence of information asymmetry between the firm and the likely finance providers causes the relative cost of finance to vary between the different sources of finance. The cost of financing is highest where low levels of information regarding the firms activity is revealed to potential lenders, as compared to other sources of finance where more

information is provided to potential lenders. Therefore according to the theory there exists a hierarchy of firm preference with respect to the financing of investments (Myers and Majluf, 1984) and the firm will reveal information based on its preferred source of financing. The role of the legal environment in determining a firm's source of financing remains important. La Porta et al (1997) argues that the legal system is the primary determinant of the availability of external financing in a country. Better quality legal systems will give rise to larger and more developed markets thus reducing the cost of external financing and possibly resulting in firms' choice of external financing. Lower quality legal systems on the other hand give rise to smaller capital markets and higher costs of external financing. In the presence of smaller capital markets therefore, firms may rely on internal financing as a result of increased costs of external financing. Thus, protection of minority shareholders, and protection by antitakeover laws substantially reduce the costs of firm external financing.

The determinants of firms source of financing in the literature and based on the aforementioned theories include: ownership concentration (See, Suto, 2003), free cash flow (Fama and French, 2002), growth opportunities (Rajan and Zingales, 1995) and Fama and French, 2002)), growth (Hall et al, 2004), asset structure (Hall et al, 2004), no growth opportunity (Jung et al, 1996), collateral value of assets (Rajan and Zingales, 1995), Percentage of shares held by management (Short et al, 2002), profitability (See, Rajan and Zingales, 1995), and Fama and French, 2002), level of intangible assets (See, Frank and Goyal, 2003), firm age (Hall et al, 2004; & Bhaduri, 2002), potential good news (Ooi, 1999), firm size (Frank and Goyal, 2003), interest rate and firm's valuation in the equity market (Bancel and Mittoo, 2004), probability of bankruptcy (Marsh, 1982), top management experience (Noe et al, 2003), exchange rate risk (Allayamis et al, 2003), political risk (Burgman, 2006), knowledge intensity (Thornhill et al, 2004), Volatility (Kester,1986; & Kim and Sorensen, 1986)), non-debt tax shields (Bradley, et al. 1984; & Chaplinsky and Niehaus, 1990), advertising (Bradley, et al. 1984; & Long and Malitz, 1985), research and development expenditure (Bradley, et al., 1984; & Long and Malitz, 1985), and various measures of corporate governance as board size, board composition, etc (See, Williamson, 1988),

We contribute to the literature by highlighting the important role of business networks, which remains rather unexplored in the literature. Our central hypotheses in this regard are explained below.

2.1.3. Central Hypotheses

There are often problems of information and incentives, especially in the emerging CEE region with weak legal and judicial framework. The borrowers approach financial institutions with a view to borrowing funds to invest, but the financial institutions (lenders) cannot be sure as to who the best borrower is. Furthermore, even after loans are issued, there are risks of strategic default. The financial institutions (lenders) thus have the three-fold task of selecting the best borrower, ensuring efficient use of the loan, and also ensuring re-payment of the loan. The task is particularly difficult when legal and judicial institutions are weak, giving rise to contract enforcement problems. Thus alternative non-market mechanism(s) may surface in an attempt to minimize the possible agency costs.

Presence/predominance of informal networks is observed in different kinds of exchanges in countries with weak institutions. These networks usually involve an exchange of favors, making businesses easier for the members. While exchange within the networks does not rely on explicit written contracts, relationships between the members are guided by norms/conventions. Norms are nothing but the desirable behaviour subject to sanctions in a community (Kandori, 1992). It is now well-established that the rationale for pervasive family businesses in east Asia is closely linked to the role of trust and family ties in an environment of weak (legal) enforceability of contracts and social norms concerning altruism and bequest (Yoshikawa & McGuire, 2008). Granovetter (1994) among others recognizes the role of social mechanism in the form of the common family bond in family owned businesses that helps to reduce the likelihood of reneging on contracts. Guiso et al (2004) demonstrate the effect of social capital on financial development in Italy, while Ayyagari et al (2008) suggest the value of the informal sector in a society lacking in quality institutional infrastructure.

In this context, our analysis focuses on the effect of business association membership on firm's access to external financing. Affiliation to a business association may influence economic activities in different ways (see Pyle, 2006). Doner and Schneider (2000) highlight the market complementary role of business associations in attempting to overcome various types of market imperfections.[9] Membership of a business association with some repute may provide a platform for networking and thus building social capital by linking to member banks and other financial institutions. There is also a parallel need to enforce commitments among members to business association. Thus, with a strong business association enforcement, banking agreements are more enforceable as the business network may ensure that loans of its members with banks are re-paid; otherwise the network may suffer from lack of access to loans in future because of bad reputation. Business association with weaker enforcement may also exist side by side, involving exchange of favours, which make doing businesses easier for those within the network. Kali (1999) and Ghatak and Kali (2000, 2001) however argued that while affiliation to business networks may facilitate business activities of networked firms, it could be inefficient from a general equilibrium perspective. This could be as a result of the rent seeking characteristic of networks as highlighted by Olson (1982) when networks seek to promote unproductive rents rather than common or public interest.

Thus our first hypothesis is that a firm's affiliation to a business association could enhance its external financing opportunities. Possible causes of this link would include, among others, the following: first, the adverse selection problems of screening potential borrowers are alleviated if a firm belongs to a business association (BA) as it may allow a lender to obtain information regarding a firm's creditworthiness at lower costs than otherwise. In other words, networking may lower the information asymmetry between lender and borrower. A further possibility would be that business associations explicitly

[9] Business groups are common form of business association in many emerging economies, especially in Asia. They are a collection of legally distinct firms tied together and coordinating on their actions. Member firms are linked in a complex manner, e.g, through pyramidal holding, cross ownership or common directorates (Samphantharak, 2002; Claessens et al, 2000). Fisman and Khanna (2004) suggested that business groups play a role in aiding the economy where social provision of services falls short of the required level and are observed to provide an organizational structure that is better suited to dealing with the poor availability of basic inputs and services[9] (at the cost of non-business group firms in a resource constrained economy). Furthermore, group affiliates usually share a common brand identity (e.g, Salim group in Indonesia, the Tata group in India, and Samsung in Korea), and may draw on a common labour pool. Members also have access to an internal capital market, which in turn ensures an easier access to external capital.

monitor their members and ensure better repayment for banks, thus alleviating the moral hazard problems of contract enforcement. From the BEEPS questionnaire it however seems that business associations in our sample countries do not explicitly perform this monitoring/supervisory role. It could still be the case that a firm's affiliation to business association could minimize the potential moral hazard problems of strategic default because of reputation factor within a close-knit network.

While Bonin and Leven (1996) argued that foreign banks may choose those domestic firms who have previously established some international links by virtue of their import/export activities, others have focused on banks' preference to serve large firms with more transparent accounting standards. It follows from Table 2.5 that networked firms in our sample are on average more likely to be operating in the export sector, and 68% of networked firms tend to use international accounting standards. Accounting for business association membership thus allows us to clarify the mechanism through which some domestic firms may overcome the domestic barriers of weak institutions and local practices.

Clearly the quality of institutions could play an important role in the analysis of business networking in this paper, as the need for networking is greater in countries with weak institutions.[10] A second and a related hypothesis is therefore to examine whether the business networks loses its significance when institutional quality improves over time (to this end we include an interaction term between business association membership and institutional quality). Since there is limited time variation in our data for 2002-2005 BEEPS firm-level panel data, we could only exploit cross-country variation in institutional quality in our sample.

In Central and Eastern European as well as the Baltic countries, privatisation and institutional reform in the banking sector have advanced in step with the state's withdrawal from the direct provision of banking services and with progress in enterprise

[10] Recent literature highlights the importance of legal and institutional structures for enforcing contracts and safeguarding shareholders' and creditors' rights, thus promoting financial and economic development. In particular, La porta, Lopez-de-Silanes, Shleifer, & Vishny (1997) suggest that the legal environment matters for the size and the extent of a country's capital market. Demirguc-Kunt and Maksimovic (1998) argued that developed financial system and stronger rule of law help relaxing firms' external financing constraints, which in turn facilitates their growth. Beck et al (2002) showed that firms that operate in countries with underdeveloped financial and legal systems and higher levels of corruption tend to be more constrained than others.

reform. Shleifer (1997) argues that there has to be a transition of government for a transition to a market economy to take place. This was described as de-politicization of the economy, whereby control over resource use and ownership is transferred exclusively to the private sector. Government role will then be to provide the necessary institutions to support the market economy. This will necessitate the creation of laws and legal institutions that protect private property, enforce contracts between private parties, but also limit the ability of officials to prey on private property.

Considering the sample countries, there is evidence of a wide dispersion in the institutional quality, bank reform and competition policy indices among the 15 countries in our sample. The institutional quality index (see Bacchetta and Drabek, 2002) is a composite index capturing the strength of a country's government to provide the infrastructure to promote a conducive environment for business growth and development and comprises of five component indicators – government effectiveness, regulatory burden, rule of law, graft, and the extent of democracy (voice and accountability). Bank reform index constructed by EBRD captures the level of advancement of banking sector restructuring activities in CEE countries, while the competition policy index measures how fair the business environment is in CEE countries in promoting healthy competition between enterprises.

It follows from Table 2.6 that our sample CEE countries are at different levels of reform and we observe a bimodal distribution. Many CEE countries still have a considerable way to go to reach the international levels of institution quality. This is particularly true for Balkan countries like FYR Macedonia, Bosnia and Herzegovina, Serbia and Montenegro, and Albania, many of whom have a negative institutional quality index. In contrast, the country with the best institutions was Hungary at 8.7 closely followed by Slovenia, Poland, Czech Republic and Estonia respectively. Only one-quarter of the countries actually attained the highest value 4 of the EBRD Bank reform index including Croatia, Hungary, Czech Republic and Estonia. In terms of competition policy only five countries, namely, Poland, Hungary, Slovak Republic, Lithuania, and Estonia actually attained the highest level of competition policy reform.

2.2. Methodology

This section develops the empirical model to test the two hypotheses of interest:

H1. Business association membership has an effect on firm's access to external finance in general and bank finance in particular.

H2: The effect of business association membership on firm's financing opportunity may disappear in countries with stronger institutions

We test the validity of these hypotheses with respect to two sets of corporate decisions:

(i) Firm's choice of financing mode distinguishing between internal finance, bank finance, equity finance and non-bank credit.

(ii) For firms choosing bank finance, we further consider their choice of banks, distinguishing between state, domestic private and foreign banks.

2.2.1. An Empirical Model Of Firm Financing Choices

Our first objective is to analyze firm's financing choices for new investment. As indicated in section 2.1.1, firms may use different sources of finance including internal finance, bank or equity finance or non-bank credit. While a significant proportion of firms rely on internal finance only, many firms tend to combine internal and various sources of external financing (bank loans, equity and other non-bank sources). Accordingly, we first define a variable IF_{ic}, which takes a value 1 if the i-th firm in country c relies 100% on internal finance and zero otherwise. Suppose the underlying unobserved variable IF_{ic}^{*} is given by:

$$IF_{ic}^{*} = \alpha_0 + \alpha_{BA} BA_{ic} + \alpha_{IQ} IQ_c + \alpha_{BAIQ} BA_{ic} * IQ_c + \alpha_x X_{ic} + \varepsilon_i \qquad (2.1)$$

Where ε is normally distributed with mean 0 and variance 1. While BA refers to the i-th firm's affiliation to a Business Association in a given country, IQ refers to the institutional quality index in the c-th country. X refers to all firm-specific control variables (please see below for the exact model specification). Ceteris paribus, we do not

expect BA to have a significant effect on the likelihood of using internal finance, but in the absence of a prior we examine the validity of this null hypothesis as well:

What we observe is IF_{ic}, which is related to IF_{ic}^{*} as follows:

$IF_{ic} = 1$ if $IF_{ic}^{*} > 0$

$= 0$ if $IF_{ic}^{*} \leq 0$

Given the normal distribution of the error term, we use a probit model to determine the likelihood of 100% internal financing for new investment in our sample. Since the probit coefficient estimates do not reflect the marginal effects of each explanatory variable, we determine it separately as the partial derivative of the expected value of the dependent variable with respect to the particular explanatory variable in the estimation of equation (2.1).

It is also important to analyze the factors determining various sources of external financing, namely, bank finance, equity finance and non-bank finance, where networking could play an important role. Accordingly, we create three more variables, which take the value of 1 if the i-th firm in country c uses any of the three sources of external finance, and zero otherwise, as follows:

$BF_{ic} = 1$, if the i-th firm in country c uses any bank finance.

$EF_{ic} = 1$ if the i-th firm in country c uses any equity finance.

$NBF_{ic} = 1$ if the i-th firm in country c uses any non-bank finance (as defined in section 2.1);

Accordingly, for a given choice of external finance (BF, EF or NBF), generally denoted by XF for any source of external finance, we estimate a binary probit model for each of the sources of external finance, namely, BF, EF and NBF. As before, we assume that the underlying unobservable variable XF_i^{*} for the i-th firm is determined as follows:

$$XF_{ic}^{*} = \beta_0 + \beta_{BA} BA_{ic} + \beta_{IQ} IQ_c + \beta_{BAIQ} BA_{ic} * IQ_c + \beta_x X_{ic} + u_i \qquad (2.2)$$

The observable variable $XF_{ic} = 1$ if $XF_{ic}^{*} > 0$ and

$XF_{ic} = 0$ otherwise.

As before we assume that the random error term u is normally distributed with mean 0 and variance 1 and accordingly use a probit model to determine XF_i for each type of external financing choice namely bank finance (BF), equity finance (EF) and non-bank finance (NBF)[11].

Since the probit coefficient estimates do not reflect the marginal effects of each explanatory variable, we determine the partial derivative of the expected value of the dependent variable (BF, EF or NBF) with respect to the particular explanatory variable in each case.

After controlling for all other factors, an empirical test of our central hypothesis pertains to the sign and significance of the coefficient estimates of BA separately for bank finance (BF), equity finance (EF) and non-bank finance (NBF). A number of studies on banking relationships (e.g., Kali (1999), Ghatak and Kali, (2001)) have recognized the importance of business association membership. We thus hypothesize that firms affiliated to business associations are more likely to access bank finance. We are however not aware of any prior study that highlights the role of networking for equity finance or other kinds of non-bank finance. Thus we empirically explore the role of business association membership for accessing different kinds of external finance in our sample.

Note however that a firm's affiliation to a business association is likely to be simultaneous to firms' financing choices. So we need to explore possible instruments in this respect to obtain an unbiased estimate of BA in our model. This is discussed in section 2.2.3.

Further we include an index of institutional quality IQ[12] (see discussion in section 2.2.2) and also an interaction term between institution quality and business association membership. The interaction term enables us to identify a differential effect of networks in countries with weak institution quality and thus forms the basis of testing our second hypothesis.

We follow the existing literature to choose other firm-specific control variables X

[11] As a robustness test of our main regression results, we divide our sample into sub-samples based on the countries constituting our main sample and run firm finance choice regressions individually for each country.

[12] The use of a composite variable such as institutional quality in our regression enables us to solve the problem of multicollinearity that would have resulted had we used individual country level indices.

in each case for estimating equations (2.1) and (2.2). Ownership structure of firms (i.e., domestic, foreign) could play an important role especially in the context of networking in an imperfect world. Berger et al (2006) argue that foreign banks, especially in developing countries such as that of India, tend to serve transparent firms – firms with hard information which they are advantageous at processing, and based on this association with a foreign bank may develop multiple banking relationships. Foreign ownership is further highlighted by Beck et al (2006) as an important determinant of financing obstacles for firms – with foreign owned firms reporting less financing obstacles, as does Detragiache et al (2008) who find evidence linking foreign banks presence in poor countries with less credit supply to the private sector in such countries. It is therefore to this end that we include controls for state-owned firms, private domestic firms and foreign firms in the present study.

Both firm size and age are observed to determine a firm's choice of finance. Klapper et al (2002), Kumar (2008), Berger and Udell (1995), Beck et al (2002) and Beck et al (2006) confirm this. Thus we expect young SMEs to have less bank finance. While other studies have used log of sales e.g., Bevan and Danbolt (2004), and natural logarithm of the book value of the total property assets (e.g. Ooi, 2000), we use labour force size to proxy for firm size as explained in section 2.1.1. Other control variables include growth of fixed assets, prior year research and development spending. [13]

Finally, given that firm's membership of a business association is likely to be significantly higher in most Balkan countries in our sample, we also include a binary variable Balkan indicating if the firm is located in a Balkan country. The variable takes a value zero otherwise. We also interact firm's business association membership with the Balkan dummy to explore the differential effect of business association membership in Balkan countries (relative to other sample countries). Since Balkan countries on average tend to have weaker institutional quality, significance of this interaction term allows us to examine the link between business networks and institutional quality.

[13] Note that we do not include any measure of firm profitability as this is likely to introduce further simultaneity bias; also note that BEEPS data do not provide information on earnings before interest and taxes which is the basis of calculating profitability; we only observe if a firm is making any profit or not (as a binary variable).

2.2.2. An Empirical Model Of Firms' Choice Of Banks

Our second objective is to determine firm's choices of banks belonging to different ownership categories, namely, state bank, domestic private commercial bank, and foreign bank. Suppose B_{ijc} denotes i-th firm's choice of j'th bank in country c (where j refers to state, domestic private commercial, or foreign banks). For a given choice of j, suppose the underlying unobservable variable B_{ic}^{*} is determined by:

$$B_{ic}^{*} = \gamma_0 + \gamma_{BA} BA_{ic} + \gamma_{IQ} IQ_c + \gamma_{BAIQ} BA_{ic} * IQ_c + \gamma_x X2_{ic} + \varepsilon_i \qquad (2.3)$$

where the observable variable B_{ijc} is related to B_{ic}^{*} as follows:

$B_{ic} = 1$ if $B_{ic}^{*} > 0$

$B_{ic} = 0$ if otherwise

We determine equation (2.3) for each type of bank choice (state, domestic private or foreign) separately in our sample. Following on from Table 2.3, we can classify B_{ic} by bank ownership type as follows: borrowing from domestic private commercial bank (bank_private), state bank (bank_state) or foreign bank (bank_foreign). These three binary variables are defined as follows:

Bank_private = 1 if a firm borrows from a domestic private commercial bank and zero otherwise.

Bank_state = 1 if a firm borrows from a domestic state bank and zero otherwise

Bank_foreign = 1 if a firm borrows from a foreign bank and zero otherwise

Given the binary nature of these variables, we use probit models to determine these three bank choice variables using equation (2.3)[14].

As with equations (2.1) and (2.2), our central hypothesis here is to check if a firm's affiliation to business association is particularly important for loans from a particular type of bank classified by its ownership (i.e., state, domestic private commercial, foreign). This is closely related to the literature on foreign banks' entry in developing and transition economies (e.g., see Bonin and Leven 1996; Bonin et al. 1998).

[14] As a robustness test of our main regression results, we divide our sample into sub-samples based on the countries constituting our main sample and estimate bank choice regressions individually for each country..

In particular, there is suggestion that foreign banks tend to lend to borrowers with better accounting and reporting standards (and thus may prefer foreign firms) or with those firms who have established international links by virtue of their import/export activities. In an uncertain foreign environment foreign banks may choose networked firms with a view to lower their agency costs. This is related the concept of firm-bank ownership matching as observed by Berger et al. (2006) for India. Following on this, we examine whether foreign firms are more likely to borrow from foreign banks while state-owned firms are more likely to borrow from state banks in our sample of CEE countries.

We however do not have a prior as to how business association membership could influence firm's choice of banks for domestic private or state banks and therefore we empirically explore it in our analysis. Given the potential endogeneity problem of a firm's affiliation to a business association we instrument this variable (see discussion in section 2.2.3). As before, we also interact firm's business association membership with the Balkan dummy to explore the differential effect of business association membership in Balkan countries (relative to other sample countries), if any.

The set of firm-specific control variables X2 has some common variables as in X in section 2.2.1 above; for example, we continue to include control variables for SMEs, young firms, interaction between SME and young and firm ownership type. As we focus on banking relationship only, we now replace competition policy index by EBRD bank reform index with a view to explore the effect of bank reform on firms' access to state, domestic private and private foreign banks.[15] Table 2.7 provides an overview of explanatory variables employed in both our firm financing choice and bank choice regressions.

2.2.3. Addressing possible endogeneity of firm's affiliation to business networks

A potential problem with the estimation of equations (2.1) - (2.3) using business association membership variable BA as one of the explanatory variables is that firms'

[15] We included all institutional variables in an alternative specification; but the competition index was never significant. Thus the final specification does not include competition index.

affiliation to a business network is likely to be endogenous. This is because firms may choose to belong to a network with a view to facilitate its financing access (see discussion in section 2.1); thus networked firms are unlikely to be random among all sample firms. Accordingly, there remains an important selection problem that we need to address here. One possibility would be to generate an instrument for firm's affiliation to a business network. To this end, we first use a probit model to determine sample firm's affiliation to a business network; we choose potentially time invariant explanatory variables like SME, young and firm ownership categories and generate the predicted value of the variable as a possible instrument for a firm's affiliation to a business association. In doing so, we need to ensure some exclusion restriction for the estimation of the selection equation with a view to minimize the possibility of endogeneity bias in estimating equations (2.1) - (2.3). In particular, we argue that unlike firm financing opportunities, growth of fixed assets and research and development spending are not pertinent in the determination of first stage BA membership equation so that they are excluded from the first stage regression. Further we include a sector control, namely, if a firm is involved in export sector in determining firm's membership of business association, which is not included in equations (2.1) - (2.3). Finally, we include a Balkan dummy to examine the differential effect of Balkan countries in business networking. Probit marginal effects estimates of business association membership as shown in Table 2.8 highlights that the likelihood of business networking is significantly higher among foreign firms, exporting firms and also those from the Balkan countries while it is lower for small and medium sized enterprises. We generate the fitted value of this regression as an instrument for firms' business association membership to be used in estimating firms' financing opportunities equations (2.1) - (2.3).

It is however difficult to address this selection issue convincingly in a single cross-section data-set that we have used so far. One possible alternative is to make use of the available panel information of sample firms for 2002 and 2005, although the latter considerably reduces the sample size (note that the two year BEEPS panel data corresponds to only about 14.19% of our total observations in BEEPS 2005).[16] These are the firms initially surveyed in the BEEPS 2002 round and then were re-surveyed in

[16] Also see footnotes to Tables 11 and 12.

BEEPS 2005, having expressed a desire to be involved in the 2005 BEEPS round.[17] The firms were identified through a firm identity number allocated to such firms in the BEEPS 2005 survey round. In particular about 715 firms in fourteen selected countries are included in this panel, giving rise to 1430 observations in total for the two rounds considered. The underlying idea is that ceteris paribus variation of firm characteristics over these two years 2002 and 2005, would allow us to identify the causal effect of business association membership on firms' financing opportunities equations (2.1) - (2.3). We construct very similar regression variables used in the cross-section analysis of equations (2.1) - (2.3). Means and standard deviations of these variables are shown in Appendix Table A2.4, which highlights their comparability with 2005 data used in the cross-section analysis.

One could use this panel data to estimate fixed effects logit model to determine the i-th firm's financing choice (wholly (100%) internal finance, bank finance, equity finance and Non-bank finance) for new investment in year t, t=2002, 2005, in country c, in terms of lagged value of business affiliation as one of the possible covariates X. We assume that the underlying unobserved variable Y_{ict}^{*} is determined by:

$$Y_{ict}^{*} = \Psi_0 + \Psi_{BA} BA_{it} + \Psi_z IQ_{ct} + \Psi_{BAIQ} BA_{it} * IQ_{ct} + \Psi_x X_{it} + \Omega_i + e_{it} \qquad (4)$$

such that

$$Y_{ict}=1 \text{ if } Y_{ict}^{*}>0$$

$$Y_{ict}=1 \text{ if } Y_{ict}^{*}>0$$

In this respect, we choose four Ys pertaining to firm's financing choice of wholly internal finance, bank finance, equity finance, and non-bank finance (each of them being a binary variable) and run four separate fixed effects logit models (see discussion in section 2.3.3). There are two error terms in the model – one firm-specific (time invariant) Ω_i and the other e_{it} that varies not only across firms but also over time. The firm-specific fixed effects Ω_is allow us to control for firm-specific unobserved variables, which in turn minimizes the estimation bias arising out of firm-level unobserved heterogeneity, thus justifying the use of the fixed effects logit model.

[17] Firms in Bosnia and Herzegovina, although surveyed in 2005, were either not surveyed in 2002 or refused to be involved in the BEEPS round of 2005 having participated in BEEPS 2002.

In similar fashion, we use our panel data to estimate fixed effects logit models to determine i-th firm's choice of banks B_{ict} in year t (t=2002, 2005) in country c.

Suppose the underlying unobserved variable B_{ict}^{*} is determined by:

$$B_{ict}^{*} = \delta_0 + \delta_{BA} BA_{it} + \delta_{IQ} IQ_{it} + \delta_{BAIQ} BA_{it} * IQ_{it} + \delta_x X2_{it} + F_i + v_{it} \qquad (2.5)$$

Such that the observable variable B_{ict} is related to the unobservable B_{ict}^{*} as follows:

$B_{ict} = 1$ if $B_{ict}^{*} > 0$

$B_{ict} = 0$ if otherwise

As before, we choose three Bs pertaining to firm's choice of state banks, domestic private commercial banks and foreign banks (each of them being a binary variable) and run three fixed effects logit models (see discussion in section 2.3.3) for each case. There are two error terms in the model – one firm-specific (time invariant) F_i and the other v_{it} that varies not only across firms but also over time. The model not only determines the parameter estimates δ and also their marginal effects. Firm-specific fixed effects F_is would allow us to control for firm-specific unobserved variables. In other words, we use fixed effects logit models to determine equations (2.4) and (2.5), which in turn minimize the potential endogeneity bias arising from unobserved heterogeneity in the data. We can thus consider the fixed effects panel (2002-2005) data estimates to be superior to the single cross section estimates for 2005 BEEPS sample.

As before, we include similar firm and country-specific explanatory variables in both fixed effects models captured by equations (2.4) and (2.5) above. Naturally the time invariant factors are dropped from the estimation of fixed effects logit models. We include firm's association to business association and growth of fixed assets. Since it has been argued that business association membership has been a response to institutional weakness, we also include an interaction between business association membership and institutional quality index, and check for the significance of t-statistic of the interaction term. Infact, statistical insignificance of the interaction term in both fixed effects models, would highlight the fact that business association membership is not crucial for firm financing and bank choice, in countries with high quality institutions.

2.3. Results And Analysis

First we determine the likelihood of a firm's affiliation to business enterprise; these estimates are summarized in Table 2.8 (see discussion in section 2.2.3). We generate the predicted value of business association from these estimates and use this predicted value as an instrument in the cross-section probit estimates of firm's financing choices (see section 2.3.1) and also probit estimates of firm's choice of banks (see section 2.3.2). These estimates are summarized in Table 2.9 and Table 2.10 respectively (corresponding uninstrumented estimates are shown in Appendix Tables A2.1 and A2.2). Table 2.11 shows the panel logit fixed effects estimates for firms' four financing choices for new fixed investment, while Table 2.12 provides the panel logit fixed effects estimates for firms' access to loans from private domestic and foreign banks (see section 2.3.3).[18]

2.3.1. Determinants of Firm Financing Choices for New Investment

Table 2.9 summarizes the probit estimates of firm financing choices. Columns 1 shows probit marginal effects of the probability of firms having 100% internal finance while columns 2-4 show the probit marginal effects of firm's access to bank finance, non-bank finance and equity finance, if any. Significance of the likelihood ratio chi-squared statistic in each case confirms the goodness of fit of these estimated models.

Given that the estimated coefficients do not reflect the marginal effects of our explanatory variables, we compute the marginal effects and report them in the table. This enables us to examine the magnitude of the marginal effect of each of the explanatory variables on the particular dependent variable in question.

As dummy variables taking the values of 1 and 0 dominate our selection of exogenous explanatory variables of interest, such as small and medium enterprises or foreign ownership of firms, their reported marginal effect is the difference in predicted

[18] We use STATA to run the regression models, which automatically drops the firms with missing observations, thus resulting in a lesser number of observations than we initially began with.

value for the dependent variable (e.g., probability of firm financing by internal finance) for a dummy variable of 1 versus 0, with all other exogenous variables at their means. On the other hand, the marginal effects for the continuous exogenous variables are the derivatives of the predicted dependent variable for small changes in the exogenous variables.

Since a significant proportion of sample firms relied on internal finance, we estimated the determinants of the likelihood of securing 100% internal finance. Clearly firms affiliated to business association are significantly less likely to rely fully on internal finance; the same result holds even when institutional quality improves (note that the interaction between institutional quality and business association is negative and significant). While firms in Balkan countries are significantly more likely to rely on 100% internal finance, networked firms in Balkan countries are significantly less likely to do so as the interaction term between Balkan and business association is negative and significant. Finally, firms from countries with more stringent competition policy are less likely to rely solely on 100% internal finance, thus highlighting the importance of market reform on corporate financing opportunities.

It is however more interesting to consider the probit estimates of the likelihood of access to bank/non-bank finance as well as equity finance (see columns 2 - 4). These estimates (except those for equity finance) are generally consistent with our central hypothesis that affiliation to business networks significantly improves firms' access to all types of external finance in our sample of emerging economies with weaker institutions. Firms from countries with better institutions tend to have less bank or non-bank finance. However, institutional quality appears not to be important for firm financing for new fixed investment, by equity. Even for countries with better institutional quality, business association membership significantly enhances firms' access to bank and non-bank finance in our sample.

Other results: Firms with growing fixed assets tend to have more bank credit while R&D spending remains insignificant. Firm size is important too. SMEs are more likely to secure bank loans and hence rely less on internal finance. This may be the result of SMEs having increased access to bank finance following the advent of bank reforms in

CEE countries, which saw private banks respond to firms demand for credit. Note however that the marginal effect of bank finance for SME's is only about 9% (compared to about 20% for networked firms) though the effect is significant only at 10% level. The firm age does not however appear to be important here.

A comparison of our instrumented marginal effects estimates with un-instrumented ones (see Appendix Table A2.1.) suggests that our un-instrumented estimates are biased upwards. In particular, access to bank-finance is higher by about 35 percentage points for networked firms, when we consider the un-instrumented estimates; however, this marginal effect comes down to 20 percentage points when we consider the instrumented estimates shown in Table 2.9. Further, the two coefficients involving institutional quality remain insignificant in the un-instrumented estimates though they turn out to be significant in the instrumented estimates (see Table 2.9).

2.3.2. Determinants of Firm's Choice of Banks

As in the previous sub-section, we outline the marginal effects of our probit model determining firm's choice of banks between state bank, domestic private commercial banks and foreign banks; these estimates are shown in Table 2.10. Our diagnostic tests confirm the goodness of fit of the estimated probit model in this respect.

While business association membership is insignificant for firms' access to loans from state bank, the coefficient of the variable is positive and significant for firms borrowing not only from domestic private commercial bank, but also from foreign banks. In other words, affiliation to business association is conducive to securing loans particularly from new domestic and foreign private banks, who face uncertain business conditions, especially in countries with weaker institutional environment in our sample. With the improvement in institutional quality, business association affiliation continues to be significant and positive for firms' access to loans from domestic state and private banks, though not for loans from foreign banks. Compared to other sample countries, access to state banks is limited in Balkan countries; while access to domestic private

commercial banks is significant more pronounced. Membership of business association is however particularly not of relevance for firms' finance from various banks operating in Balkan countries.

It is evident that state banks' role has been curtailed by the recent reform and as such state firms are less likely to borrow from all three categories (state, domestic private commercial and foreign) of banks. However foreign firms are less likely to borrow from domestic private commercial banks, while the estimated coefficient is insignificant for loans from state and foreign banks. In contrast, we find no evidence of domestic private commercial banks being more or less likely to borrow from any type of bank. In other words, evidence of firm-bank ownership matching turns out to be weak when we control for all other factors in our sample.

While the coefficient of growth of fixed assets is positive for all bank categories, it is significant only for loans from the private domestic and foreign banks; the latter reflects the importance of satisfying some efficiency requirement in the allocation of private commercial bank loans.

After controlling for all other factors, it appears that SMEs are significantly more likely to borrow from domestic private commercial banks, while the coefficient of small and medium enterprises remains insignificant for loans from state and foreign banks. As in Table 2.9, the marginal effect of bank finance from domestic private banks for SMEs is only about 6% while that for business association membership is about 17%. In other words, despite some progress, business networking tends to raise barriers to access bank financing for small and medium enterprises in our sample.

A comparison of instrumented estimates of business association affiliation with those for the un-instrumented estimates (see Appendix Table A2.2) highlights differences in marginal effects as well as their significance. First, marginal effects of business affiliation are under-estimated in the un-instrumented estimates for loans from domestic (0.06 as opposed to 0.17) and foreign (0.03 as opposed to 0.06) banks. Accordingly, there is suggestion that the premium for business affiliation is lower for foreign (as opposed to domestic private banks). Second, the interaction term between institutional quality and business association affiliation turned out to be significant in the instrumented

estimates for access to loans from private domestic and foreign banks (thus highlighting the extent of bias in the un-instrumented estimates.

2.3.3. Fixed effects panel data estimates of firm financing and firms' choice of banks

Finally, in an attempt to test the robustness of our estimates, we use panel data to estimate firm's financing choices and also firms' access to loans from state, private and foreign banks respectively. In this respect, we are particularly interested in fixed effects estimates that minimizes the endogeneity bias arising from inclusion of unobserved time-invariant heterogeneity into the model. Since only logit (and not probit) models are amenable to fixed effects estimates, Table 2.11 shows the logit fixed effects estimates (marginal effects) of firm's access to 100% internal finance, and also any access to bank finance, non-bank finance and equity finance. Table 2.12 summarizes the corresponding marginal effects estimates of the firms' choice of state, domestic private and foreign banks. Naturally the time invariant factors are dropped from these fixed effects models. Also note that we lose a significant number of observations if there is no variation in the access to finance from the particular source over the two years in our sample. This loss of observations is a feature of fixed effects models given that they only use variation within groups of observations whilst estimating coefficients, and therefore their success at predicting outcomes, relies on the existence of sufficient variation between variable observations within groups of observations. The ability to obtain this required variation though is limited to the extent that the group sizes are small, and therefore in our case as we have only two year observations for our firms, our results are affected by such lack of variation in observations for firm characteristics[19]. Hence, we also show the pooled logit estimates with year dummies which is identical to the panel fixed effects estimates for two-years panel data in Appendix Tables A2.5 and A2.6.

Clearly, fixed effects estimates (marginal effects) of firms' internal and external financing choices shown in Table 2.11 support the significance of business association

[19] Increasing group sizes by obtaining more observations on the firms may however serve to resolve this Fixed effects logit regression challenge, which we are unable to address due to our limited data availability

membership for obtaining bank finance and non-bank finance only. As with the single cross-section estimates the networking variable turns out to be insignificant for equity financing. An improvement in institutional quality is associated with lower likelihood of firms accessing non-bank finance though the effect is insignificant for access to bank finance. Thus, networking is associated with greater non-bank finance, while it paves into insignificance for bank financing as and when institutional quality improves.

Next we move on to Table 2.12, summarizing the marginal effects estimates of firms' access to loans from state, private or foreign banks. As with single cross-section analysis, business association membership significantly enhances the likelihood of firms borrowing from private and foreign banks, but not from state banks. In particular, among firms with access to bank loans, a networked firm (relative to a non-networked firm) is 0.75 percentage points more likely to borrow from a private commercial banks; by the same token, a networked firm is 1.34 percentage points more likely to borrow from foreign banks, even after controlling for all other possible covariates. The networking effect is less pronounced for loans from domestic private commercial banks (relative to foreign banks), which contrasts the cross-section estimates. Note also that compared to the cross-section estimates (Table 2.10), marginal effects of networking are smaller in panel data estimates (0.75% as opposed to 17% for private domestic banks and 1.34% as opposed to 6% for foreign banks). In other words, cross-section estimates tend to over-estimate the true effect of business association membership and can thus be regarded as the upper bound of the true effect.

Further, considering the subsample of firms with access to bank loans, differential effect of networking vanishes (Table 2.12) for access to loans from private banks as institutional quality improves. The latter can be contrasted with the single cross-section estimates shown in Table 2.10, which could reflect the potential role of time-invariant unobserved heterogeneity accounted for in the panel data analysis. However the fact remains that the size of our panel sample is rather small and therefore, it would be interesting to see if these results hold in larger samples.

2.4. Concluding Comments

Financial intermediation may not always guarantee efficient utilization of credit, especially if there are market imperfections and institutional weaknesses. In this respect, the present paper explores a possible mechanism through which networking as measured by firm's affiliation to business association could affect financing of investment and thereby encouraging growth of business enterprises in selected CEE countries.

Following the recent institutional economics as well as organizational behavior literature, we argue that firms' association with informal business networks may help them secure external finances, especially in countries with weaker institutions. We further examine if the importance of affiliation to business networks disappears in countries with better institutional quality. Results from a sample of CEE transition countries do confirm the positive role of business networks on firm's access to bank finance. In particular there is evidence that affiliation to business association significantly boosts networked firms' access to bank loans, even after controlling for all possible factors. Positive role of networks for network participants is particularly evident for firms borrowing from domestic private commercial banks and also foreign banks. The effect is robust in both single cross-section and panel data analysis, though there is some evidence that single cross-section estimates tend to over-estimate the effect of business networks. In the process non-networked small and medium enterprises are discriminated against, despite various on-going reforms.

With respect to our second hypothesis, there is evidence from the single cross-section estimates that importance of business association persists even when institutional quality improves, especially for firms' access to bank and non-bank finance and also for firm's borrowing from state and private domestic banks. Note however that the differential effect of business association for countries with higher institutional quality is no longer significant when we consider panel fixed effects estimates.

Forming networks to secure bank loans and other business facilities may not necessarily be an efficient arrangement for the broader economy, as it may promote the interests of those networked firms who are successful to belong to good networks through family/political connections or otherwise, but are not necessarily more efficient firms.

Thus contrary to the common wisdom, social capital may not necessarily be a welfare improving arrangement. This is most especially as it would be interesting to examine whether networking as a screening device for banks assessment of firms creditworthiness works, as will be indicated by increasing loan default rates of such networked firms. Differences between networking and membership of business associations may also be explored with a view to understanding the structure of both business networks as informal business linkages, and those of memberships of business associations as formal business linkages and differences across the region, countries and industry.

Including firm data on earnings before interest or taxes[20] would further enhance our results of this paper in enabling us to convincingly pursue the effect of firm's affiliation of business networks on profitability. However BEEPS data does not provide such information. We however hope future research will address this as well as the aforementioned shortcomings of this paper.

[20] BEEPS questionnaire only asked firms whether a profit was made in the last year.

CHAPTER 2 TABLES

Table 2.1: Distribution Of Firms Across Sample Countries

Country	Number of Firms	Percentage of Total Observations	Percentage of young firms in each country	Percentage of firms with Business Association Membership in each Country	SMEs as a proportion of total firms in each country
FYR of Macedonia	200	4.0%	47.00%	41.00%	90.00%
Serbia and Montenegro	300	6.0%	42.67%	58.00%	86.33%
Albania	204	4.0%	61.76%	88.00%	92.65%
Croatia	236	4.7%	27.97%	82.00%	86.02%
Bosnia and Herzegovina	200	4.0%	57.50%	52.00%	90.00%
Slovenia	223	4.4%	21.97%	91.00%	87.44%
Poland	975	19.3%	37.47%	30.00%	92.92%
Hungary	610	12.1%	41.64%	54.00%	91.97%
Czech rep	343	6.8%	49.11%	21.00%	92.13%
Slovak rep	220	4.4%	43.64%	34.00%	90.00%
Romania	600	11.9%	38.00%	54.00%	90.17%
Bulgaria	300	6.0%	44.00%	43.00%	90.00%
Latvia	205	4.1%	54.15%	26.00%	89.76%
Lithuania	205	4.1%	46.83%	32.00%	90.24%
Estonia	219	4.3%	45.21%	48.00%	90.41%
Total	**5040**	**100.0%**	**n/a**	**n/a**	**90.58%**

The distribution of firms across sample countries. Data is obtained from the European Bank for Reconstruction and Development (EBRD) – World Bank Business Environment and Enterprise Performance Survey (BEEPS) 2005 Data survey. Patterns also observable are the various cross-country dissimilarities in young firms, Networked firms, and firms of Small and Medium Enterprise size, where firm size is defined by the number of employees. Our sample comprises 5040 firms in total of which 90.58% comprise SMEs. This suggests the growth in SMEs in Central and Eastern European countries owing to the transition country reforms. Furthermore, our sample represents some of the countries at an advanced stage in their reform process, notably, Poland, Hungary, Czech Republic, and Romania.

Table 2.2: Firms' choice of banks (by ownership type)

Loans from	Firm Ownership		
	State-owned	**Domestic Private**	**Foreign**
State bank (1)	12 (23.53%)	133 (15.93%)	7 (9.33%)
Domestic Private commercial bank (2)	34 (66.67%)	598 (71.62%)	48 (64.00%)
Foreign bank (3)	5 (9.80%)	104 (12.46%)	20 (26.67%)
TOTAL	**51**	**835**	**75**

The choice of bank type patronized for loans, by the three types of firms prevalent in our data set. This represents a smaller sub-sample of our original data set as it reflects only those firms that patronize, state banks, domestic private commercial banks, and foreign banks. Figures in brackets refer to the proportions of firm ownership by each owner obtaining loans (funding) from each of the three types of banks. It is constructed from the BEEPS 2005 questions 45 a17 to 45a19, which asked the respondents what proportion of their firm's new fixed investment has been financed by borrowing from domestic private commercial banks, borrowing from foreign banks, and borrowing from state-owned banks (including state development banks). Total firms borrowing from banks in our sample are 961 Firms and firm ownership is mutually exclusive. Note however, that while firm ownership is mutually exclusive, bank borrowing is not, and so the same type of firm can borrow from more than one type of bank. We have three types of firms: State-owned, Domestic Private (comprising individual-owned firms, family-owned firms, general public-owned and domestic company-owned firms) and Foreign firms. Here ownership refers to the firm ownership type with the majority of shareholding of all the shareholders in the firm.

Table 2.3: Distribution of Firms By Source of Financing for New Fixed Investment

Country	Source of Finance					Total
	Internal	Bank	Non-Bank	Equity	Other	
FYROM (Macedonia)	85 (42.50%)	18 (9.00%)	8 (4.00%)	4 (2.00%)	4 (2.00%)	200
Serbia and Montenegro	188 (62.67%)	50 (16.67%)	14 (4.67%)	2 (0.67%)	2 (0.67%)	300
Albania	162 (79.41%)	57 (27.94%)	6 (2.94%)	0 (0.00%)	0 (0.00%)	204
Croatia	130 (55.08%)	70 (29.66%)	32 (13.56%)	15 (6.36%)	3 (1.27%)	236
Bosnia and Herzegovina	79 (39.50%)	35 (17.50%)	12 (6.00%)	0 (0.00%)	0 (0.00%)	200
Slovenia	136 (60.99%)	66 (29.60%)	20 (8.97%)	1 (0.45%)	3 (1.35%)	223
Poland	733 (75.18%)	202 (20.72%)	112 (11.49%)	13 (1.33%)	0 (0.00%)	975
Hungary	304 (49.84%)	136 (22.30%)	88 (14.43%)	106 (17.38%)	0 (0.00%)	610
Czech rep	186 (54.23%)	39 (11.37%)	71 (20.70%)	36 (10.50%)	2 (0.58%)	343
Slovak rep	115 (52.27%)	29 (13.18%)	38 (17.27%)	25 (11.36%)	1 (0.45%)	220
Romania	433 (72.17%)	139 (23.17%)	93 (15.50%)	3 (0.50%)	2 (0.33%)	600
Bulgaria	184 (61.33%)	74 (24.67%)	32 (10.67%)	2 (0.67%)	4 (1.33%)	300
Latvia	74 (36.10%)	31 (15.12%)	28 (13.66%)	33 (16.10%)	4 (1.95%)	205
Lithuania	126 (61.46%)	32 (15.61%)	65 (31.71%)	6 (2.93%)	6 (2.93%)	205
Estonia	138 (63.01%)	39 (17.81%)	60 (27.40%)	3 (1.37%)	4 (1.83%)	219

The distribution of firms by source of financing for new fixed investment. Source of data is EBRD – World Bank BEEPS 2005 data. Figures in tables above refer to the number of firms using the various sources of financing for new investment, and so firms may be observed to use more than one source of financing. Therefore, proportions in table above may not add up to 100% in certain countries. Figures in brackets refer to number of firms in each category as a proportion of total firms in each country.

The above table is constructed from the 2005 BEEPs data questions Q45a15 to Q45a27 which asked respondents what proportion of firms new fixed investment have been financed from internal funds, equity, borrowing from local commercial banks, borrowing from foreign banks, borrowing from state-owned banks, including state Development banks, loans from family and friends, Money lenders or other informal sources, trade credit from suppliers, trade credit from customers, credit cards, leasing arrangement, The Government (other than state-owned banks), and other. A Firm's borrowing from internal funds constitutes the firm's financing of new investment by internal financing, Firms borrowing from banks is the summation of the proportions of financing obtained from each of the individual types of banks - domestic private commercial banks, foreign banks, and state-owned banks. Firm's non-bank financing for new investment is obtained by the summation of firms financing for new investment from trade credit from suppliers, trade credit from customers, credit cards, and leasing arrangement. A firm finances new fixed investment by equity if it obtains any proportion of financing by the issue of new shares. The column above referred to as "other", is the summation of firms proportions of sources of finance for new fixed investment from loans from family and friends, money lenders or other informal sources, The government (other than state-owned banks), and other.

Table 2.4: Distribution of Firms' Reliance On A Single Source Of Finance For New Fixed Investment Across Sample Countries

Country	Source of Finance					Total
	Internal	Bank	Non-Bank	Equity	Other	
FYROM (Macedonia)	70 (35.00%)	9 (4.50%)	0 (0.00%)	2 (1.00%)	15 (7.50%)	200
Serbia and Montenegro	142 (47.33%)	10 (3.33%)	3 (1.00%)	2 (0.67%)	7 (2.33%)	300
Albania	108 (52.94%)	11 (5.39%)	0 (0.00%)	0 (0.00%)	1 (0.49%)	204
Croatia	68 (28.81%)	20 (8.47%)	4 (1.69%)	3 (1.27%)	2 (0.85%)	236
Bosnia and Herzegovina	55 (27.50%)	14 (7.00%)	0 (0.00%)	0 (0.00%)	2 (1.00%)	200
Slovenia	64 (28.70%)	10 (4.48%)	2 (0.90%)	0 (0.00%)	5 (2.24%)	223
Poland	472 (48.41%)	23 (2.36%)	12 (1.23%)	1 (0.10%)	23 (2.36%)	975
Hungary	190 (31.15%)	37 (6.07%)	17 (2.79%)	46 (7.54%)	6 (0.98%)	610
Czech rep	113 (32.94%)	11 (3.21%)	17 (4.96%)	11 (3.21%)	38 (11.08%)	343
Slovak rep	75 (34.09%)	8 (3.64%)	8 (3.64%)	10 (4.55%)	5 (2.27%)	220
Romania	276 (46.00%)	33 (5.50%)	11 (1.83%)	1 (0.17%)	13 (2.17%)	600
Bulgaria	120 (40.00%)	22 (7.33%)	8 (2.67%)	0 (0.00%)	6 (2.00%)	300
Latvia	46 (22.44%)	11 (5.37%)	4 (1.95%)	18 (8.78%)	7 (3.41%)	205
Lithuania	75 (36.59%)	7 (3.41%)	24 (11.71%)	4 (1.95%)	5 (2.44%)	205
Estonia	68 (31.05%)	4 (1.83%)	4 (1.83%)	2 (0.91%)	3 (1.37%)	219

Distribution of firm's reliance on a single source of financing across sample countries. Source of data is EBRD – World Bank BEEPS 2005 data. All sources of finance are as earlier defined in the preceding Table 1.3. The figures in tables above refer to the number of firms financed 100% by either of the sources of finance – Internal finance, bank finance, non-bank finance, equity finance, and other. Figures in brackets refer to number of firms in each category as a proportion of total firms in each country. Note that proportions will not add up to 100% in all countries as not all firms will use 100% of any type of finance in sample countries. Clearly, most firms are 100% internally financed across our sample countries, with a lot fewer firms being 100% bank financed.

Table 2.5: Mean Comparison of Networked and Non-networked firms

Firm Characteristic	Number of Firms	Networked Firms	Non-Networked	T-stat
SME	5040	0.8419	0.9631	-14.569***
Young	5034	0.3428	0.4934	-10.954***
Private	5040	0.7227	0.8291	-9.069***
State	4906	0.1065	0.0666	4.945***
Foreign	5040	0.0864	0.0377	7.129***
Growth of fixed assets	4883	127.53	31.34	4.837***
Research and Development spending	3163	46.5764	10.4931	5.664***
Exports	5027	0.4008	0.2167	14.324***
International Accounting Standards (IAS)	5040	0.2752	0.1148	14.577***

Independent Sample Means Test. T-Test for the Significance of the Difference between the Means of Two independent Samples - Networked firms and non-networked firms, based on selected firm characteristics. Our data sample comprises a total of 5040 firms drawn from 15 CEE countries. However, on account of observations missing for a number of firms, the number of firms either in possession or not in possession of selected firm characteristics varies across countries. A negative significant t-statistic indicates that Networked firms are less likely to possess the firm characteristics in question compared to Non-networked firms. The inverse is equally true. All t-statistics are significant at the 1% level of significance. T-statistics are computed assuming non-equality of means between networked and non-networked firms.

Table 2.6: Institutional quality in sample countries

COUNTRY	EBRD Bank Reform Index[1]	Competition Policy Index[1]	Institutional Quality Index[2]
FYROM (Macedonia)	2.7	2.0	-3.3
Serbia and Montenegro	2.7	1.0	0.0
Albania	2.7	2.0	-7.1
Croatia	4.0	2.3	0.3
Bosnia and Herzegovina	2.7	1.0	-9.9
Slovenia	3.3	2.7	8.5
Poland	3.7	3.3	7.0
Hungary	4.0	3.3	8.7
Czech rep	4.0	3.0	6.8
Slovak rep	3.7	3.3	2.8
Romania	3.0	2.3	-0.8
Bulgaria	3.7	2.7	0.1
Latvia	3.7	3.0	2.6
Lithuania	3.7	3.3	2.6
Estonia	4.0	3.3	6.1

The Distribution of institutional quality across sample countries. The EBRD bank reform and EBRD competition policy indices are both obtained from the EBRD structural Indicators Database 2009. The values of both indices range between 0 (minimum) and 4+ (maximum). Higher values depict countries at higher levels of bank reform and a more competitive climate, respectively. Institutional quality index is obtained from Bacchetta and Drabek (2002). The index ranges from -25 to 25, with higher values depicting countries at higher levels of institutional quality.

Table 2.7: Model Specifications

Variable Category	Explanatory Variables	Firm Financing for New Investment	Firm's Bank choice
Firm Size	Small and Medium Enterprises	✓	✓
	Young firms	✓	✓
	Small and Medium Enterprises* Young firms	✓	✓
	Growth of Fixed Assets	✓	✓
Firm ownership	State-owned firms	✓	✓
	Foreign-owned firms	✓	✓
	Domestic Private firms	✓	✓
Business sector	Manufacturing sector firm	✓	✓
Business Association	Firms membership of business association	✓	✓
Research And Development	Prior Year Research and Development Spending	✓	✓
Country-level institutional variables	EBRD competition Policy index	✓	
	Institutional Quality Index	✓	✓
	EBRD Bank Reform index		✓

Model specifications for firm financing for new investment, and Firm's bank choice. The choice of variables employed by both models, differ to the extent that one variable is excluded in either model specification. EBRD Competition policy index is excluded from firm's bank choice regression, while EBRD bank reform index is excluded from Firm financing for new investment regression.

Table 2.8: Probit marginal effects estimates of a firm's affiliation to business association

Dependent Variable	**Business Association**
State Firm	-0.0521
	(0.0640)
Foreign Firm	0.151***
	(0.0641)
Domestic Private Firm	-0.0228
	(0.0505)
Small and Medium Enterprises	-0.300***
	(0.0367)
Young Firm	-0.129***
	(0.0222)
Exporting firm	0.142***
	(0.0239)
Balkan country	0.355***
	(0.0224)
Number of Observations	**2365**
Log-likelihood	**-1426.83**
Likelihood ratio Chi-square (7)	**422.15*** **

The table reports First stage probit (marginal effects) regression estimates with firm-level data using 2002 BEEPS. The dependent variable is a firm's affiliation to a Business Association, which we interprete as a firms Networking status. All variables employed in the regression are dummy variables, and detailed descriptions are as provided in Appendix Table A2.3. The number of observations of 2365 is arrived at, after excluding all firms missing observations for at least one of the variables included in our model specification. Standard errors are shown in parenthesis. *= significant at 10%; ** = significant at 5%; *** = significant at 1%.

Table 2.9: Probit Marginal Effects Of Likelihood Of Firm Financing Opportunities

	(1)	(2)	(3)	(4)
Dependent Variable	**100% Internal Finance**	**Bank Finance**	**Non-bank finance**	**Equity finance**
Predicted Business Association	-0.192***	0.203***	0.0835*	.0000509
	(0.066)	(0.0556)	(0.0501)	(0.0282)
State Firm	0.0111	-0.137***	-0.000803	-0.0283*
	(0.0626)	(0.0375)	(0.0487)	(0.0175)
Foreign Firm	0.163***	-0.144***	-0.0267	-0.0179
	(0.0622)	(0.0385)	(0.0490)	(0.0226)
Domestic Private Firm	0.0157	0.00312	-0.00438	-0.0106
	(0.0483)	(0.0403)	(0.0376)	(0.0230)
Growth of fixed assets	-0.00112***	0.00116***	0.000516**	-0.0000248
	(0.0003)	(0.00024)	(0.00022)	(0.00014)
Prior Year Research & Development spending	-0.0000192	0.0000672	7.90e-06	0.0000262
	(0.00006)	(0.00005)	(0.00004)	(0.00002)
Small and Medium Enterprise	-0.0850	0.0885*	0.0324	-0.0155
	(0.0727)	(0.0503)	(0.0502)	(0.0376)
Young Firm	-0.133	-0.0330	0.00682	0.0196
	(0.107)	(0.0928)	(0.0786)	(0.0434)
Small and Medium Enterprise X Young firm	0.0422	0.0655	0.0333	0.00234
	(0.108)	(0.0963)	(0.0807)	(0.0408)
Competition policy	-0.0715**	0.0247	0.0240	0.0253
	(0.0315)	(0.0269)	(0.0261)	(0.0183)
Institutional Quality	0.0030886	-0.0080101**	-0.00654**	0.00325
	(0.00418)	(0.00365)	(0.00338)	(0.00201)
Business Association X Institutional quality	-0.00988***	0.0100***	0.00757***	0.00154
	(0.00368)	(0.00319)	(0.0028)	(0.00147)
Balkan country	0.228***	-0.194***	-0.223***	-0.0431
	(0.0779)	(0.0518)	(0.0380)	(0.0334)
Business Association X Balkan Country	-0.0818*	0.148***	0.138**	0.0533
	(0.0520)	(0.0540)	(0.0662)	(0.0635)
Log likelihood	**-1605.82**	**-1281.26**	**-1120.97**	**-528.81**
Likelihood ratio Chi-square (14)	**66.92*** **	**127.11*** **	**62.66*** **	**60.03*** **
Number of Observations	**2365**	**2365**	**2365**	**2365**

The table reports probit (marginal effects) regression estimates for firm financing for new fixed investment using 2005 BEEPS data. All firms with missing observations for any variable are omitted from this analysis. The dependent variables in all regressions are whether the firm finances any proportion of new fixed investment using: 1 =100% Internal funds, 2 = Any bank finance, 3 = Any Non-bank finance (i.e., sum of trade credit from suppliers, trade credit from customers, Credit cards, and leasing arrangements), 4 = Any equity finance. The variable, predicted Business Association, is the predicted value of business association obtained from running the probit regression in Table 2.8 above, and employed as a regressor in the present regression. All other variable definitions are as detailed in Appendix Table A2.3. Standard errors are shown in parentheses. *= significant at 10%; ** = significant at 5%; *** = significant at 1%.

Table 2.10: Probit Marginal Effects Estimates of firms' Access to Banks by Ownership Type

	(1)	(2)	(3)
Dependent Variable	**State Bank**	**Domestic Private Commercial Bank**	**Foreign Bank**
Predicted Business Association	0.000354	0.170***	0.0603*
	(0.0029)	(0.0493)	(0.0165)
State Firm	-0.0253**	-0.0825**	-0.0168**
	(0.0113)	(0.0363)	(0.00687)
Foreign Firm	-0.0199	-0.111***	-0.00498
	(0.0145)	(0.0322)	(0.0135)
Domestic Private Firm	-0.00358	0.0124	0.000829
	(0.0176)	(0.0353)	(0.0111)
Prior year Growth of fixed assets	0.0000296	0.000914***	0.000141**
	(0.0001)	(0.00021)	(0.00006)
Prior Year Research and Development spending	7.80e-06	0.0000672*	0.0000147*
	(0.00002)	(0.0004)	(0.00001)
Small and Medium Enterprise	0.00211	0.0693*	0.00756
	(0.0249)	(0.0425)	(0.0131)
Young Firm	0.0518	-0.170*	0.0336
	(0.0382)	(0.0908)	(0.0271)
Small and Medium Enterprise X Young firm	-0.0448*	.2286439	-0.0217
	(0.0257)	(0.115)**	(0.0175)
EBRD Bank Reform Index	-0.0309**	0.0704***	0.0101
	(0.0147)	(0.0263)	(0.00782)
Institutional Quality	0.00447***	-0.0117***	-0.00169
	(0.00157)	(0.0033)	(0.00114)
Business Association X Institutional quality	0.00276**	0.00949***	-0.00145
	(0.00121)	(0.00288)	(0.0011)
Balkan country	-0.0362*	0.00949***	-0.0200
	(0.0225)	(0.0428)	(0.0131)
Business Association X Balkan Country	0.0649	0.0667	0.0264
	(0.0596)	(0.0464)	(0.0234)
Number of Observations	**2365**	**2365**	**2365**
Log likelihood	**-396.68**	**-1109.02**	**-280.66**
Likelihood ratio Chi-square (14)	**53.65*** **	**98.09*** **	**76.36*** **

The table reports probit (marginal effects) regression estimates for firm's bank choice for new fixed investment using 2005 BEEPS data. All firms with missing observations for any variable are omitted from this analysis. The dependent variables in all regressions are whether the firm finances any proportion of new fixed investment using Bank finance from 1 = State Bank; 2 = Domestic private commercial Banks; 3 = Foreign Bank. The variable, predicted Business Association, is the predicted value of business association obtained from running the probit regression in Table 2.8 above, and employed as a regressor in the present regression. All other variable definitions are as detailed in Appendix Table A2.3. Standard errors are shown in parentheses. *= significant at 10%; ** = significant at 5%; *** = significant at 1%.

Table 2.11: Fixed Effects Logit Marginal Effects Of Firms Financing Opportunities

	(1)	(2)	(3)	(4)
VARIABLES	**100% internal finance**	**Bank finance=1**	**Nonbank finance=1**	**Equity Finance=1**
Business Association	-0.287	0.859***	-2.295***	-0.847
	(0.238)	(0.289)	(0.287)	(0.855)
Growth of fixed assets	0.00296	-0.00463	0.00532*	-0.00248
	(0.00283)	(0.0.00374)	(0.00302)	(0.00596)
Institutional Quality	0.143	-0.172	-0.611***	-0.5032
	(0.198)	(0.249)	(0.198)	(63.681)
Business Association X Institutional Quality	0.0591	-0.0584	0.0797*	0.0259
	(0.0407)	(0.0487)	(0.0483)	(0.150)
Number of Observations	**298**	**234**	**622**	**60**
Number of Firms	**149**	**117**	**311**	**30**
Log likelihood	**-100.96**	**-74.75**	**-142.85**	**-18.44**
LR chi2(4)	**4.63****	**12.69*****	**145.43*****	**4.71****

The table reports fixed effects logit (Marginal effects) regression estimates with firm-level fixed effects using the panel component of the 2002 and 2005 BEEPS. Our panel is a balanced panel of 715 firms. Note that we lose a significant number of observations if there is no variation in the access to loans from the particular source for firms over the two years in our sample. Hence, we also show the pooled logit estimates with year dummies in Appendix Table A2.5 which is identical to the panel fixed effects estimates for two-years panel data. Firm finance source variables included in the regression are variables from Table 2.9 which have the potential to vary over time. All dependent variables are also as defined in Table 2.9 above. Consistent with our probit regression results in Table 2.9 above, networked firms are more likely to obtain bank finance. In addition, the insignificance of the interaction of Business Association and Institutional Quality suggests that, in countries with poor institutional quality, firms' network membership aids their access to bank finance. Standard errors are shown in parentheses. *= significant at 10%; ** = significant at 5%; *** = significant at 1%.

Table 2.12: Fixed Effects Logit Marginal Effects Of Firms' Access To Bank Loans

	Firms borrowing from		
VARIABLES	**State Bank**	**Local Private Commercial Bank**	**Foreign bank**
Business Association	-0.611	0.754***	1.336***
	(0.713)	(0.314)	(0.667)
Growth of fixed assets	-0.0126	-0.00562	0.0181*
	(0.0159)	(0.00376)	(0.0104)
Institutional Quality	0.0399	0.0632	Na[1]
	(0.440)	(0.320)	
Business Association X Institutional Quality	0.0945	-0.0608	-0.0766
	(0.109)	(0.0550)	(0.110)
Number of Observations	**82**	**196**	**50**
Number of Firms	**41**	**98**	**25**
Log likelihood	**-27.34**	**-62.73**	**-12.36**
LRchi2(4)	**2.16**	**10.39****	**9.93*****

[1] Note that the institutional quality variable is dropped for foreign banks.

The table reports Logit (Marginal effects) regression estimates for firm's bank choice, with firm-level fixed effects using the panel component of the 2002 and 2005 BEEPS. Our panel is a balanced panel of 715 firms. Note that we lose a significant number of observations if there is no variation in the access to loans from the particular source over the two years in our sample. Hence, we also show the pooled logit estimates with year dummies in Appendix Table A2.6 which is identical to the panel fixed effects estimates for two-years panel data. Variables included in the regression are variables from Table 2.10 which have the potential to vary over time. With regards to foreign bank choice, the variable institutional quality was dropped from the regression on account of institutional quality having no within group variance. All dependent variables are as defined also in Table 2.10 above. Consistent with our probit regression results in Table 1.10 above, networked firms are more likely to obtain bank finance from local private commercial banks. In addition, the insignificance of the interaction of Business Association and Institutional Quality suggests that, in countries with poor institutional quality, firms' network membership aids their access to bank finance. Standard errors are shown in parentheses. *= significant at 10%; ** = significant at 5%; *** = significant at 1%.

APPENDIX TABLES A2

Appendix Table A2.1: Un-Instrumented Probit Marginal Effects Of Likelihood Of Firm Financing Opportunities

	(1)	(2)	(3)	(4)
Dependent Variable	**100% internal finance**	**Bank Finance**	**Non-bank finance**	**Equity finance**
Business Association	-0.0827**	0.351***	0.0382	0.00885
	(0.0363)	(0.102)	(0.0280)	(0.0187)
State Firm	0.0474	-0.654***	-0.0160	-0.0285*
	(0.0613)	(0.178)	(0.0457)	(0.0172)
Foreign Firm	0.0804	-0.276	0.00934	-0.0184
	(0.0620)	(0.170)	(0.0489)	(0.0199)
Domestic Private Firm	0.0291	-0.0401	-0.0102	-0.0108
	(0.0480)	(0.128)	(0.0379)	(0.0230)
Growth of fixed assets	-0.00114***	0.00376***	0.000526**	-0.0000231
	(0.0003)	(0.00071)	(0.00022)	(0.00014)
Prior Year Research & Development spending	-0.0000374	0.000274	0.0000148	0.0000266
	(0.00006)	(0.000167)	(0.0004)	(0.00002)
Small and Medium Enterprise	0.0778*	-0.234**	-0.0391	-0.0150
	(0.0445)	(0.119)	(0.0367)	(0.0225)
Young Firm	-0.0610	-0.337	-0.0233	0.0197
	(0.104)	(0.290)	(0.0758)	(0.0418)
Small and Medium Enterprise X Young firm	0.0345	0.224	0.0355	0.00250
	(0.107)	(0.297)	(0.0808)	(0.0408)
Competition policy	-0.0823***	0.123	0.0302	0.0272
	(0.0316)	(0.0861)	(0.0263)	(0.0186)
Institutional Quality	-0.00239	0.0000516	-0.0039553	0.00383
	(0.0485)	(0.0138)	(0.00392)	(0.00236)
Business Association X Institutional Quality	-0.00170	-0.00412	0.00354	0.000468
	(0.0537)	(0.0150)	(0.00424)	(0.00269)
Balkan country	-0.015962	0.201	-0.157***	-0.0385
	(0.0615)	(0.179)	(0.0389)	(0.0311)
Business Association X Balkan Country	.0052163	0.0447	0.0881	0.0408
	(0.0674)	(0.191)	(0.0729)	(0.0642)
Number of Observations	**2365**	**2365**	**2365**	**2365**
Log likelihood	**-1607.47**	**-1281.86**	**-1121.4174**	**-528.69**
LR chi2 (14)	**24.12****	**125.91*****	**61.78*****	**60.26*****

The table reports probit (marginal effects) regression estimates for firm financing for new fixed investment using 2005 BEEPS data and with Business Association variable not instrumented. All firms with missing observations for any variable are omitted from this analysis. The dependent variables in all regressions are whether the firm finances any proportion of new fixed investment using: 1 =100% Internal funds, 2 = Any bank finance, 3 = Any Non-bank finance (i.e, sum of trade credit from suppliers, trade credit from customers, Credit cards, and leasing arrangements), 4 = Any equity finance. All variables are as defined in Appendix Table A2.3. Standard errors are shown in parentheses. *= significant at 10%; ** = significant at 5%; *** = significant at 1%.

Appendix Table A2.2: Un-Instrumented Probit Marginal Effects Estimates Of Firms' Access To Banks By Ownership Type

	(1)	(2)	(3)
Dependent Variable	State bank	Domestic private Commercial Bank	Foreign bank
Business Association	0.0291*	0.0550**	0.0295**
	(0.0156)	(0.0283)	(0.013)
State Firm	-0.0259***	-0.105***	-0.0176***
	(0.0102)	(0.0315)	(0.00591)
Foreign Firm	-0.0211*	-0.0565	0.00963
	(0.0119)	(0.0394)	(0.0192)
Domestic Private Firm	-0.00474	0.000232	0.000321
	(0.0173)	(0.0362)	(0.0113)
Prior year Growth of fixed assets	0.0000218	0.000927***	0.000138**
	(0.0001)	(0.00021)	(0.00006)
Prior Year Research and Development spending	8.99e-06	0.0000804*	.0000161*
	(0.00002)	(0.00004)	(0.00001)
Small and Medium Enterprise	0.00346	-0.0751*	-0.0222
	(0.0145)	(0.0385)	(0.0160)
Young Firm	0.0517	-0.226***	0.0188
	(0.0360)	(0.0858)	(0.0217)
Small and Medium Enterprise X Young firm	-0.0436*	0.237**	-0.0197
	(0.0251)	(0.115)	(0.0171)
EBRD Bank Reform Index	-0.0332**	0.0712***	0.0100
	(0.0143)	(0.0263)	(0.00765)
Institutional Quality	0.00710***	-0.00727*	0.000844
	(0.0208)	(0.00406)	(0.00156)
Institutional quality X Business Association	-0.000679	0.00417	-0.00415***
	(0.00213)	(0.00422)	(0.00159)
Balkan country	-0.0248	0.0258	0.0419
	(0.2263)	(0.0484)	(0.0340)
Balkan country *Business Association	0.0261	0.00768	-0.0117
	(0.0475)	(0.0530)	(0.0129)
Number of Observations	**2365**	**2365**	**2365**
Log likelihood	**-394.76**	**-1112.98**	**-279.01**
LR chi2(14)	**57.48*** **	**90.16*** **	**79.66*** **

The table reports probit (marginal effects) regression estimates for firm's bank choice for new fixed investment using 2005 BEEPS data and with Business Association variable not instrumented. All firms with missing observations for any variable are omitted from this analysis. The dependent variables in all regressions are whether the firm finances any proportion of new fixed investment using Bank finance from 1 = State Bank; 2 = Domestic private commercial Banks; 3 = Foreign Bank. All variables are as defined in Appendix Table A2.3. Standard errors are shown in parentheses. *= significant at 10%; ** = significant at 5%; *** = significant at 1%.

Appendix Table A2.3: List of variables and summary statistics– Business Networks And Firm External Financing

Variable Names	Variable definitions	Mean	Standard Deviation
100% Internal Finance	This refers to firms that finance their new fixed investment entirely by internal funds. It is a dummy variable taking the value of "1" if firms finance their new fixed investment entirely by internal finance and "0" otherwise.	0.50	0.50
Bank finance	This refers to the proportion of firm financing for new fixed investment obtained from the bank. It is a dummy variable taking the value of "1" if any proportion of financing for new fixed investment is obtained from the bank and "0" otherwise.	0.26	0.43
Non-Bank finance	This refers to the proportion of firm financing for new fixed investment obtained from non-bank sources – Trade credit from Suppliers, trade credit from customers, credit cards, leasing arrangements. It is a dummy variable taking the value of "1" if any proportion of financing for new fixed investment is obtained from non-bank sources and "0" otherwise.	0.19	0.39
Equity finance	This refers to the proportion of firm financing for new fixed investment obtained from equity. It is a dummy variable taking the value of "1" if any proportion of financing for new fixed investment is obtained from equity and "0" otherwise.	0.06	0.24
State Banks	This refers to the proportion of firm financing for new fixed investment obtained from state banks. It is a dummy variable taking the value of "1" if the firm borrows from a state bank and "0" otherwise.	0.04	0.20
Domestic Private Commercial Banks	This refers to the proportion of firm financing for new fixed investment obtained from Domestic private commercial banks. It is a dummy variable taking the value of "1" if the bank borrows from a domestic private commercial bank and "0" otherwise.	0.19	0.39
Foreign Banks	This refers to the proportion of firm financing for new fixed investment obtained from foreign banks. It is a dummy variable taking the value of "1" if the bank borrows from a Foreign bank and "0" otherwise.	0.03	0.17
State firm	This refers to a State-owned firm. It is a dummy variable taking the value of "1" if the Government is the majority owner of the firm and "0" otherwise	0.07	0.25
Foreign firm	This refers to a foreign-owned firm. It is a dummy variable taking the value of "1", if a foreign company is the majority owner of the firm, and "0" otherwise.	0.06	0.24

Domestic Private firm	This refers to a firm owned by a local citizen or company. It comprises the sum of the dummy variables of Individual firm ownership, Family firm ownership, domestic company ownership and general public firm ownership. It is thus a dummy variable, with "!" indicating that a local citizen or company is the majority owner of the firm and "0" otherwise.	0.82	0.39
Small and Medium Enterprise	This refers to firms of Small and medium size. A small and Medium enterprise is defined according to the BEEPS survey data, as a company having a labour force size of between zero and 249 workers. The variable denoting a SME is a dummy. This is coded "1" for small or medium sized firm (enterprise) and "0" otherwise.	0.91	0.28
Young Firm	This refers to a firms years of existence or operation. We define a young firm as one in existence as at 1995. Our definition of a young firm follows that by Klapper et al (2002). A young firm is so coded as a dummy variable, taking the value of "1" if a firm is a young firm and "0" otherwise.	0.41	0.49
Small and Medium Enterprise X Young firm	An interaction term derived from the product of the variables, Small and Medium enterprises and Young firm.	0.39	0.49
Business Association Membership	Business association membership. A dummy variable coded "0" for firms not having business association membership and "1" for firms. Possessing business association membership.	0.48	0.50
Exporting Firm	This refers to a firm that exports goods either directly or indirectly. It is a dummy variable taking the value of "1" if a firm exports goods and "0" otherwise.	0.32	0.47
Growth of fixed assets.	This is the growth of a firm's investment in fixed assets. It is expressed in percentage	16.96	33.96
Prior year research and development spending	Research and Development spending in the previous year. This is a continuous variable measuring the amount of Research and development spending by firms (in thousands of US dollars).	31.91	192.26
Competition policy index	An EBRD Country business competition policy index ranging from 0.0 to 4.0 with higher values depicting countries with more (stringent) competitive climates, and low values depicting countries with less competitive climates.	2.80	0.63
Institutional Quality	A country broad composite index of institutional quality, comprising five component indicators – Government effectiveness, Regulatory burden, Rule of law, graft, and extent of democracy (voice and accountability) .(see Bacchetta and Drabek (2002), . Values range from values	3.63	4.60

	of -25.00 to 25.00 with higher values depicting higher quality institutions and low values depicting low quality institutions.		
Bank Reform Index	An EBRD index indicating the extent to which banking sector reforms have taken place in transition countries. It ranges from 0.0 to 4.0, with higher values depicting that the countries are at an advanced stage of banking sector reform.	3.56	0.45
Balkan	This represents a country from the Balkan region comprising: Slovenia, Albania, Croatia, Serbia and Montenegro, Bosnia and Herzegovina, FYR of Macedonia. It is a dummy variable taking the value of "1" if a firm is located in a Balkan country and "0" otherwise.	0.23	0.42
Business Association X Balkan country	An interaction term derived from the product of the variables, Business Association and Balkan.	0.18	0.38
Business Association X institution Quality	An interaction term derived from the product of the variables, Business Association and Institution Quality.	1.40	3.82

Source: 2005 BEEPS data, EBRD institutional indices and Bacchetta and Drabek (2002)

Table A2.4: Descriptive Statistics For The Panel Data Analysis– Business Networks And Firm External Financing

Variable Names	Mean	Standard Deviation
100% Internal Finance	0.49	0.50
Bank finance	0.27	0.44
Non-Bank finance	0.60	0.49
Equity finance	0.05	0.22
State Banks	0.053	0.22
Domestic Private Commercial Banks	0.19	0.39
Foreign Banks	0.037	0.19
Business Association	0.38	0.48
Growth of Fixed assets	22.70	44.44
Institutional Quality	2.13	4.95
Business Association*Institutional Quality	0.69	3.37

Source: 2002 and 2005 BEEPS data and Bacchetta and Drabek (2002)

Table A2.5: Firm Finance Choice Pooled Logit Estimates For 2002 And 2005 Data

	(1)	(2)	(3)	(4)
Dependent Variable	**100% internal finance**	**Bank Finance**	**Non-bank finance**	**Equity finance**
Business Association	0.129	0.399**	-0.208	0.175
	(0.218)	(0.175)	(0.272)	(0.417)
Growth of fixed assets	-0.00121	0.00413***	-0.000904	-0.00198
	(0.00184)	(0.00153)	(0.00286)	(0.00286)
Institutional Quality	-0.0589***	0.00655	0.00202	0.0933***
	(0.0216)	(0.0205)	(0.0414)	(0.0338)
Business Association X Institutional Quality	0.00787	0.00991	0.0365	-0.0337
	(0.0332)	(0.0289)	(0.0486)	(0.0493)
Constant	1.734***	-1.393***	-1.376***	-2.897***
	(0.148)	(0.129)	(0.227)	(0.242)
Year FE	Yes	Yes	Yes	Yes
Number of Observations	**1038**	**1038**	**514**	**1038**

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A2.6: Firm Bank Choice Pooled Logit Estimates For 2002 And 2005 Data

	(1)	(2)	(3)
Dependent Variable	**State bank**	**Domestic private Commercial Bank**	**Foreign bank**
Business Association	0.0720	0.165	0.805**
	(0.431)	(0.200)	(0.356)
Growth of fixed assets	-0.00354	0.00484***	0.00192
	(0.00409)	(0.00152)	(0.00268)
Institutional Quality	0.0532	0.00930	-0.0515
	(0.0395)	(0.0223)	(0.0520)
Business Association X Institutional Quality	0.126*	-0.0116	-0.0398
	(0.0683)	(0.0326)	(0.0671)
Constant	-2.871***	-1.927***	-3.410***
	(0.263)	(0.147)	(0.284)
Year FE	Yes	Yes	Yes
Number of Observations	**1038**	**1038**	**1038**

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

CHAPTER 3

Corruption, Foreign Bank Entry and Ownership Structure

3.0 Introduction

There is a general consensus that foreign banks can play a supporting role in the process of financial development and thus in the transition of Central and Eastern European (CEE) countries from socialist to market economies. This has resulted in a pronounced growth of foreign banks in the region (Naaborg et al, 2004, Claessens et al 2008). Existing evidence also suggests that foreign banks have generally outperformed private domestic banks in these CEE countries (e.g., see Bonin et al (2005); Havrylychk et al (2006); Claessens et al (2001)).

One cannot however ignore the important inter-country variation in foreign bank entry in the region. By 2008, Slovakia, Bosnia-Herzegovina, FYR Macedonia and Croatia had very high foreign ownership of banks (90% or more of total bank assets were foreign owned) while foreign ownership was rather limited in countries like Slovenia, Moldova (see Table 3.1). The unanswered question is what explains this pronounced inter-country variation in foreign presence in the CEE region? The present paper argues that corruption in general and relative corruption, i.e., the corruption in host countries relative to that in home countries, in particular, can explain a great deal of variation in foreign bank entry, mode of entry (distinguishing between foreign greenfield and takeover) and also foreign bank ownership, even after controlling for all other factors.

The rationale for foreign bank entry in transition countries is not fully understood. Most studies on foreign bank entry tend to focus on developed economies, mostly the US (e.g., see Goldberg and Saunders (1980), Goldberg and Saunders (1981), Fisher and Molyneux (1996), and Hultman and Mcgee (1988)). These countries welcomed foreign banks into their economies in the process of embracing capitalist principles in their economies. One can identify three key rationales for foreign bank entry. Williams (2002) argues that in order to provide financial services to their existing clientele, foreign banks establish a presence abroad where their customers are located (Brealey and Kaplanis (1996); Goldberg and Saunders (1981); Buch (2000); Lensink and Hermes (2004);

Brimmer and Dahl (1975); Gray and Gray (1981); Ball and Tschoegl (1982); Aliber, 1984); Nigh *et al.* (1986); Magri et al. (2005); Damanpour, (1991); Clarke et al (2003)). The attractiveness of host markets is another rationale for foreign bank entry. In particular, lower taxes and high GDP per capita are reasons for foreign bank entry in some transition countries (Claessens et al, 2000). Large host markets are likely to be attractive destinations for foreign banks as a result of the increasing opportunities to innovate and provide financial products not previously existing in such countries. Growing markets are equally appealing to foreign banks as they enable foreign banks to benefit from future opportunities that may become available as markets grow in size. Finally, host country institutions including bank regulation is the third rationale for foreign bank entry. Favourable host country regulation promotes competition between domestic and foreign banks (Clarke et al, 2001) and enables foreign bank expansion. Regulations conducive to foreign bank entry include regulation enforcing and establishing safe, transparent and enforceable rules for financial markets. Lensink et al (2002) find bank reforms to be important for foreign bank entry. Weak host country bank regulation on the other hand may protect inefficient domestic banks while increasing the costs of operation of foreign banks. Despite this, Cerutti et al (2007) and Focarelli et al. (2005) argue in favour of foreign banks to locate in countries with weak regulation.

The state of institutional infrastructure in transition countries differs significantly from that in the developed economies generally studied in the literature. Weak institutions in the CEE region encompass the legal, political and economic infrastructure as highlighted in the measures for rule of law, judicial efficiency, democratic accountability, protection of creditor rights, and protection of property rights. In particular, Lensink and Haan (2002) have identified bank reforms and better political freedom as important factors for foreign bank entry. While bank reforms have been ongoing for some time, the pace and sequencing of bank reforms have varied across the CEE region. Hungary, Czech Republic, Poland and Slovakia are among the earliest and swiftest economic and banking reformers (Koutosomanoli-Filippaki et al, 2009) and have also enjoyed the economic benefits. Strong institutions will thus promote foreign bank entry and weaker institutions are likely to discourage it.

While different dimensions of institutions may be pertinent, recent FDI literature has particularly focussed on the significance of corruption (e.g, see Globerman and Shapiro, 2003).[21] Higher corruption can significantly weaken CEE country institutional quality. Hellman et al. (2000) particularly argued that while corruption occurs everywhere, it is particularly widespread in transition and less developed economies which in turn weakens the process of economic reform. Corruption is generally defined and understood in most literature as the abuse of public power for private gain (See Rodriguez et al, 2005). Corruption may however have different facets and is consequently difficult to measure (Senior, 2006). In this respect, one may distinguish between petty corruption[22]and grand corruption[23]. Petty corruption is a low level corruption which may involve bribery to get routine procedures followed more quickly or not followed at all (Moody-stuart, 1996). In contrast, grand corruption is a high level corruption, and will tend to involve senior government officials, and those involved in the highest tier of decision making in the country. Thus, the former is of more direct consequence to the average citizen in a country, while the latter is a result of the actions taken by the national/sub-national authorities.

There is a general consensus that corruption adversely affects foreign direct investment as it acts as a tax on international investments (Wei, 2000). Hines (1995) cites the USA as a country from which foreign direct investment goes to less corrupt countries. Conversely, Egger and Winner (2005) provide evidence suggesting that corruption may encourage foreign direct investment. From that perspective, foreign bank entry might be encouraged despite the prevalence of corruption though there is no evidence in this respect. Distinguishing between absolute and relative corruption, Driffield et al. (2010) find that in addition to absolute corruption, relative corruption may further lower foreign ownership in non-financial firms in the transition region; the result is however reversed for knowledge intensive firms who are wary of sharing their knowledge with local partners in the region characterized by weak institutions. The literature is generally silent

[21] We do not survey the FDI literature as a whole, but only focus on the part of the literature where the role of corruption on FDI has been examined for obvious relevance to the current study.
[22] This is lower level corruption which may involve bribery to get routine procedures followed more quickly-or not followed at all (Moody-stuart, 1996).
[23] This is high level corruption, and will tend to involve senior Government officials, and those involved in the highest tier of decision making in the country.

about the role of corruption on foreign bank entry and ownership in the emerging world; the present paper attempts to bridge these gaps in the literature.

We argue that corruption may affect foreign bank entry to the extent that it increases the cost of operations (setting-up a business as well as running day-to-day business) of foreign banks in host economies. Petty corruption such as bribery from low level officials may reduce transaction costs of foreign banks to the extent that foreign banks are able to afford such costs to locate in such host countries. Grand corruption is another form of corruption representing an indirect cost to foreign banks in locating in host country economies. This could, for example, take the form of banks from certain home countries influencing the enforcement of host country bank regulation policies towards their home country. By so doing, foreign banks from competing home countries are placed at a disadvantage. In other words, absolute host corruption is likely to have an adverse effect on foreign bank entry.

In addition to absolute corruption, we also highlight the importance of foreign banks working in similar institutional host country environment as in the home country. The latter, in turn, offers an argument for relative corruption, i.e., the corruption in home country relative to that in host country. There is some indirect evidence in Europe that foreign owners try to minimize these costs, e.g., foreign owners are often from neighbouring countries (e.g., see Naaborg et al, 2004) so as to ensure a similar operating environment. For example, Swedish banks are observed to be prevalent in Baltic countries and Austrian banks in Slovak republic. Havrylychk et al (2006) suggest that foreign banks enter countries whose economic, political and social environment they know the best. Furthermore, Galindo et al (2003) emphasizes the increased cost to the foreign bank subsidiary of operating in a dissimilar host country environment. In the absence of any direct evidence in this respect, we examine if greater relative corruption would discourage foreign entry in a corrupt host environment in our sample.

A further important feature of our analysis is to consider the role of corruption and relative corruption on mode of foreign bank entry, which remains little understood. In this respect, we distinguish between foreign greenfield and takeover. A greenfield investment exists where a foreign bank establishes a new bank subsidiary in the host country. The foreign owner therefore fully controls the bank subsidiary and has no local

partner to collaborate with; in other words, this is a case of sole foreign subsidiary. A takeover bank is one where the foreign bank acquires usually a substantial stake in the host country bank, and yet may need to depend on the assistance of local partners to pursue business interests in the host country; in other words, a foreign take-over is likely to involve some form of joint venture with a local partner in the host country. In this respect, we explore the possible role of corruption on the choice between sole foreign subsidiary and joint venture which remains rather explored. On the one hand, foreign bank ownership through greenfield investment may be less attractive because the local partners in an acquired joint venture firm in the host country may provide the valuable local knowledge to deal with the corrupt business environment and government red tape in a host country. In other words, it is less likely for a wholly owned foreign subsidiary to own the know-how of how to avoid red-tape in the unfamiliar corrupt host environment. On the other hand, the presence of "knowledgeable" local owners/managers in a joint venture could be problematic (even if they had the expertise in dealing with the government red tape and corrupt business environment) because these local managers may trigger a bigger risk by leaking technology-related information to other firms. Along this line, Lehner (2008) found that greenfield foreign bank entry is relatively more common in developed markets with stronger institutions, while the cases of cross border lending and acquisition entry prevails more in less developed banking markets with weaker legal/judicial structures, which creates greater uncertainty in enforcing contracts. Unlike Lehner (2008), we particularly focus on CEE transition countries to examine the role of corruption and relative corruption on foreign greenfield and takeover.

Many existing studies tend to combine a number of institutional indicators measuring various aspects of institutional quality, into one composite index (e.g., see Claessens et al, 2008, and Lensink et al, 2008). This is particularly problematic as many of these indicators tend to be correlated with each other in a complex way and as such does not allow one to examine the role of a key institutional index independently. We focus on the corruption index because the corruption index is a useful measure of institutional quality in a country. Corruption can be seen as a key single indicator of institutional quality as it reflects the impact of underlying institutional inputs (including poor protection of property rights, excessive and arbitrary regulation, and weak informal

institutions, i.e., norms and values shaping human behaviour) into one output indicator that describes the quality of the interface between businesses and public administration. Moreover, unlike most other institutional indicators, corruption indicators are not expert-assessment based, but result from survey data based on experience of businesses. Since corruption is multidimensional and difficult to measure, we also examine the robustness of our results with possible alternative measures, e.g., the rule of law index.

We measure corruption using the Kaufman et al (2009) World Governance Indicators, and specifically Corruption control index. This is one of six important indicators of institutional quality, and is chosen as it measures the impact of corruption directly. There are other comparable corruption indices, e.g., those provided by the International country risk guide (ICRG), and the Transparency international index. We were however unable to use the ICRG corruption index as it was unavailable for a number of our sample countries such as Serbia, and FYR Macedonia. Hence, we use the corruption control index from Kaufman et al (2009) World governance indicators (see further discussion in section 3.2).

Second, unlike most existing studies (with the exception of Driffield et al., 2010 for manufacturing firms), we argue that in addition to corruption in the host country, one also needs to take account of the corruption in the host country relative to that in the home country. Absolute corruption is defined as the corruption existing in a host country while relative corruption is the absolute distance in the corruption between home and host countries.

Finally, in addition to the effect of absolute and relative corruption on foreign entry and foreign ownership, we empirically explore the role of absolute and relative corruption, ceteris paribus, on mode of foreign bank entry, which thus far remains rather unexplored and as such constitutes an important value added of our study.

Our analysis is primarily based on the bank-level data from Bureau van Dijk Electronic Publishing **(**BvDEP**)** Bankscope database from a number of CEE host countries for the period 2000 - 2008. This bank-level data have then been matched with Kaufman institutional data not only for host countries, but also for the home countries from where the respective foreign banks originate. Note however that the ownership

information obtained from Bankscope is largely time-invariant, as the ownership information primarily pertains to the latest year of the survey. Hence, we make use of a second sample with time-varying information on mode of entry from De Haas et al. (2011), which are then merged with the Bankscope data. Note however that the second sample does not have any information on continuous foreign ownership variable, which we obtain from Bankscope. While we adopt fixed effects logit to determine foreign bank entry using the De Haas et al. sample, we use pooled cross-section multinomial logit models to determine the mode of foreign bank entry using the Bankscope data; however, given the inertia in the ownership information we lose a lot of observations, when we use the panel model. We also determine a pooled Tobit model of foreign ownership by correcting for the mode of entry.[24] We check the robustness of our corruption estimates by employing alternative rule of law measure and also estimate an augmented model with additional explanatory variables to minimize the omitted variable bias.

Our analysis confirms the importance of both absolute and relative corruption on foreign bank entry, mode of entry and foreign ownership in the CEE region though there are also some differences with respect to each of the outcome variables of interest. First, there is evidence that higher levels of both absolute and relative corruption lower the likelihood of foreign bank entry. Second, we consider the multinomial logit estimates of mode of foreign bank entry, distinguishing between foreign greenfield and foreign takeover; there is evidence that greater relative corruption may increase the likelihood of foreign greenfield (as opposed to takeover) so as to reduce the direct and indirect costs of joint venture especially in an unfamiliar environment. However absolute rather than relative corruption is more important for foreign takeover where a foreign owner collaborate with a local partner. This appears convincing as the local owner in foreign takeover banks handles the local red tape in setting up and running the business in corrupt home environment. (iii) Finally, we consider the selectivity corrected estimates of foreign ownership in our sample and find that absolute corruption lowers foreign ownership while relative corruption remains insignificant here.

[24] Given the inertia in the ownership information, use of panel models means a significant loss of data; hence we also consider the pooled estimates which produce comparable estimates. See discussion in sections 3.3 and 3.4.

We contribute to the literature in a variety of ways. While there are a number of studies linking corruption and FDI for non-financial firms, as far as we are aware, ours is one of the first systematic studies linking corruption to foreign bank entry, mode of entry and foreign ownership in the CEE region. We examine the role of both absolute and relative corruption in the context of banks physically located in host CEE countries. In this respect, our examination of the role of corruption for foreign bank entry in the host CEE countries complements that of Galindo et al. (2003) study of relative corruption in the context of cross-border banking activity. Cross-border bank activity is uncommon in transition countries due to the level of banking sector development. Our study is also sufficiently different from Driffield et al. (2010) for manufacturing firms. Focusing on the case of banks (as opposed to non-financial firms), we use a different data set (Bankscope as opposed to Orbis) and different measures of corruption. Also the sample countries are somewhat different. More importantly, we have time-varying information on foreign bank entry and also the mode of entry; clearly, our mode of entry variable is richer, distinguishing between no entry, foreign greenfield, and foreign takeover. Accordingly, we not only obtain the panel data fixed effects estimates, but also a multinomial logit selection model (where the first stage equation pertains to model of entry) of foreign ownership. As a result, we are able to generate results for a sample of banks, which are sufficiently different from Driffield et al. (2010). Unfortunately, however, we do not have any information on the characteristics of the parent bank and we hope future research will address this.

The remainder of the chapter is organized as follows: Section 3.1 provides an overview of the literature on foreign bank entry and its relation with corruption. Section 3.2 discusses our data set and section 3.3 explains the methodology. Section 3.4 provides the discussion of our regression results, and section 3.5 concludes the chapter.

3.1. Background, Literature And Hypotheses

3.1.1. Determinants of FDI

Simonsen (2003) argued that the transition economies of Central and Eastern Europe show why FDI is now viewed with such near-universal approbation. Perhaps in no other part of the world during the ten years before, had FDI had such profound, beneficial effects on prospects for sustainable human development. The sharp growth in per-capita GDP and labor productivity seen in such countries as Poland, Hungary, and Estonia since the mid-1990s had been driven by the large amounts of FDI that these countries had attracted. Without their FDI successes, these countries would not have been front-runners for EU accession at the time. Certainly, these cases could have motivated more CEE countries in recent time to run for EU accession.

There is a large and growing literature on the determinants of FDI though there is relatively very little knowledge about the growth of foreign banks and bank ownership in transition economies of Central and Eastern Europe including the community of independent states (CIS). Here we briefly review the FDI literature for non-financial firms operating in the transition region because of their obvious resemblance to our objective of determining foreign bank entry, mode of entry and foreign ownership in CEE transition region. For example, Culem (1988), Mody and Wheeler (1992), Lucas (1993) and Cheng and Kwan (2000), Lankes and Venables (1996) find evidence that transition progress, political stability, new market opportunities and perceived risk levels were important for management decisions regarding investment, while Holland and Pain (1998) find that the method of privatization, labour costs, trade linkages and proximity to the EU as important arguments for FDI inflows. Resmini (2000), using a unique panel data set at the sector level for eleven CEE economies during 1990 to 1995, find that market variables such as population and GDP per capita were important for FDI inflow. Carstensen and Toubal (2004) find that market size has a positive effect on FDI flows and that the level and method of privatization as well as country risk significantly affect the volume of FDI inflows. Including CIS countries in a study of 25 transition countries, Kinoshita and Campos (2004) find labour costs, natural resource abundance and institutions as being additional determinants of FDI inflows in transition countries.

Johnson (2006) further compare CEE and CIS countries and argue that the larger inflows of FDI to the CEE economies rather than the CIS economies can primarily be explained by better opportunities for market-seeking investment due to stronger host country demand, a faster transition process and possibly less problems of corruption. Improved quality of institutions which play a significant role in attracting foreign direct investment inflow, in countries like Hungary, and Czech republic, which were swifter reformers, certainly could have also enabled significant levels of economic growth to have been achieved by some CEE countries that they were able to join the membership of organization for economic cooperation and Development (OECD), thus further boosting their development. Thus our attempt to include corruption is bound to benefit a deeper understanding of the variation in the share of foreign bank assets in the CEE countries, which in turn may further FDI inflow in banking in the transition region.

3.1.2. Foreign Bank Entry in CEE Countries.

It has been argued that the growth of foreign banks in emerging/transition countries is related to the broader growth of international banking which has been attributed to growing trade flows, foreign investment activities and globalization of capital markets. Despite various direct and indirect costs, establishing a physical presence in a host foreign country provides a string of advantages to the foreign bank. These, according to Berger et al (2000), include (a) more effective servicing and monitoring of retail customers and (b) an opportunity to compete for retail and wholesale customers in the foreign country. Clearly growth of foreign banks in the erstwhile communist states promotes competition in the banking sector between state, domestic private and foreign banks and introduces market mechanism to enhance savings, to channel available savings into value maximising investment and therefore significantly boost the process of economic growth.

Two forms of foreign bank entry exist in the literature. One form is cross-border lending in which foreign banks lend to firms in other countries without establishing a presence, while the other involves a direct establishment of a presence to support enterprises in host countries. Our analysis focuses on the latter, distinguishing between

greenfield banks and mergers or acquisitions.[25] The superior performance of greenfield banks compared to acquired or merged banks which often gives rise to joint venture with local partners, would inform the policy circle of their growing appeal. Despite this, acquired and merged banks have also attracted some interest from foreign individuals (e.g., see Megginson (2005) and Clarke et al (2003))**.** The forms of foreign bank operation has also evolved over time with foreign banks choosing to operate as branches, subsidiaries, or agencies This has been attributed to foreign banks attempts to maintain their global competitive edge (Heinkel et al,1992). Barriers to entry has also informed banks choice of organizational form as argued by Cerutti et al (2007) who find that banks are more likely to operate as branches in countries that have higher taxes and lower regulatory restrictions on bank entry and on foreign branches. Furthermore, Goldberg and Grosse (1994) argued lower regulatory restrictions to encourage growth of international banking.

Foreign banks aim not only to maximize their profits as they expand abroad (Williams, 1997), but also to diversify their risks in an uncertain business climate. From this perspective, foreign banks may tap into markets beaming with potential, while maintaining their existing share in current markets. This will protect the banks in the event of market downturns in various markets. It has been suggested that foreign banks in Central and Eastern European transition countries are more efficient than domestic banks (private or state banks) (Havrylchyk, 2006) and realize enormous profits. Kraft (2004) argued that high interest margins were the strongest reason for foreign bank entry in Croatia. Regulations have also been argued as a reason for foreign bank entry into the transition region. Foreign banks will enter countries with regulations promoting competition as a result of co-existence of both foreign and domestic banks. Such regulations will expose inefficient domestic banks and force them out of the market (Clarke et al 2001). Bank reforms also play a role in affecting foreign bank entry through the efficiency of the financial sector, as well as through its effect on domestic investment. Bank reforms once advanced will further curb banks excessive risk taking culture and banks substantially high interest margins (Williams, 2002).

[25] Berger et al (2000) illustrate how mega mergers are becoming the order of the day in the developed world especially US and Europe where commercial banking organizations are combining and large banks are merging.

3.1.2.1. Benefits of foreign Bank entry

The benefits of foreign banks to transition countries have been many and varied. In addition to boosting competition, foreign banks have brought about the use of advanced technology in lending which through spillover effects has benefitted the local markets (Claeys and Hainz, 2006). Foreign banks have also enabled increased access to credit to firms (Giannetti and Ongenna, 2005). Small firms are also not left out. Foreign banks responded to the huge demand for credit by new small and potentially profitable firms seeking to provide basic goods, and the emergence of entrepreneurs lacking access to start-up capital (Giannetti and Ongena, 2009)[26]. In addition, in competition with domestic banks these banks have contributed to the development of host country banking sectors. Thus efficiency of banking sectors has been the result (See Yildirim and Philipatos (2007); Bonin et al (2005)). Other ways by which foreign banks have contributed to the development of host country financial systems include provision of access to foreign capital and also mitigating problems of connected lending that afflict domestic bank lending in many developing countries (Mian (2006); Giannetti and Ongena (2009); Further, growth of foreign banks and therefore increased market competition may also help ease the barriers to entry for new entrepreneurial firms (Rajan And Zingales, 2003). Foreign banks tend to employ an educated labour force, who are more able to adapt new technologies (Lensink, Meesters and Naaborg, 2008) and also help improving the quality, pricing and availability of financial services, both directly as providers and indirectly through increased competition (Lensink et al, 2002).

3.1.3. Mode of Foreign Bank Entry

Most existing literature on mode of foreign entry pertains to multinational enterprises. The choice of mode of entry to penetrate a host country is one critical decision to be made by the foreign multinational enterprises and has been carefully studied in the international business literature (for recent reviews, see Buckley & Casson, 1998; Chang

[26] The emergence of small enterprises was also a product of the reform process which entailed enterprise reform.

& Rosenzweig, 2001; Davis et al., 2000; Root, 1994). We make use of this existing literature to draw inference about the mode of entry of foreign banks.

Foreign banks may penetrate host country banking sectors through two primary modes of entry[27], either as greenfield investments or takeover. These modes of entry play a crucial role in the transmission of benefits to domestic customers (Claeys and Hainz, 2007). As a greenfield investment, the foreign bank starts a new foreign bank subsidiary in the host country banking sector. The desire of foreign banks to follow their clients abroad, is the primary motivation for foreign greenfield investment of this type (Aliber, 1984), which in turn may boost competition (Poghosyan and Poghosyan (2009)) and also generate more transparent organizational structure. In addition, foreign greenfield investment may possess superior screening technology for choosing the best borrowers from the pool of all borrowers, and thereby may reduce the burden of non-performing loans, and other structural weaknesses associated with erstwhile state banks (Degyrse et al, 2009, and Claeys et al, 2007).

A second mode of entry through which foreign banks may penetrate host country banking sectors is takeover, usually via mergers and acquisition. In such takeovers, foreign banks acquire an existing domestic institution, thereby improving the efficiency of the domestic institution from its erstwhile inefficient state. The acquisition may be a partial acquisition of an existing bank –whether state or local private, or a complete acquisition of the bank[28]. The resultant joint venture bank may benefit from the soft information from its local managers that the Greenfield foreign bank[29] is not able to obtain. However the local advantage of the joint venture banks created by mergers and acquisition may be negated if the local managers may indulge in technology leakage to other firms, thus enhancing the relative merit of foreign greenfield banks.

[27] These are classed as equity modes of entry in the literature as equity is purchased in the process of bank ownership.
[28] in which case the newly completely acquired bank becomes wholly owned by the foreign individual taking over the bank.
[29] That whose ownership foreign individuals have through Greenfield investment.

3.1.4. Corruption and Foreign Bank Entry

Quality of institutions is fundamental to attracting foreign direct investment, especially for the banking sector (e.g., see Galindo et al, 2003)[30]. There is also an important positive externality here as foreign bank investment has a significant positive impact on local banks efficiency (Genci, 2009).

In the presence of corruption institutions are devoid of quality. This is compatible with a general view of corruption to create inefficiencies of government as argued by Mauro (1995), Mo (2001), Buchanan and Tullock (1962), and Rose-Ackerman (1999). Inefficient institutions may be created in developing countries as a result of corrupt officials. The state is inefficient in its provision of services as observed from the poor quality of institutions in the state. While government, the provider of social institutions, is by nature inefficient in many developing and transition countries, corrupt institutions in developing countries will further significantly enhance inefficiency. Accordingly, corruption may prevent developing countries from attaining the potential levels of development.

The value of quality of institutions to the development of the capitalist economy is one that has been extensively studied. Countries where the overall institutional environment is conducive to provide competition tend to have lower interest margins (Demirguc-Kunt et al, 2004). Quality institutions are ones in which creditor rights, shareholder rights and property rights are maintained, and the rule of law is upheld. Judicial efficiency is also present in such institutional environments. Political and Social institutions are also important for the development of the country. Measures of political and social institutional infrastructure include: political stability, voice and accountability, democracy, etc. Economic freedom as employed by Demirguc-Kunt et al (2004) is also a very important country level indicator of institutional infrastructure. The relegation of the role of Government in the emergence of the new market economy to that of provision of institutional framework to support the market, requires government to ensure these institutions are of utmost quality. It is these institutions that will provide the bed rock for effective reforms in transition countries.

[30] Galindo et al (2003) argues that a positive and significant correlation has been observed between various proxies of the flow of foreign direct investment in banking, and level of bilateral economic integration.

Among various institutional indices, we particularly focus on the role of corruption, which may act as a drag on foreign bank entry because corruption often rewards unproductive behavior by channeling unmerited contracts and rights to firms in exchange for bribes, thereby penalizing efficient and innovative initiatives. Corruption is often a trait of the government and its associated establishments that creates the level of bureaucracy to perpetrate corruption (Aidt, 2009). While corruption occurs everywhere, it is particularly widespread in transition and less developed economies with weak legal and judicial structures that make law enforcement more difficult in case of a conflict (Hellman et al., 2000). Indeed, corruption varies across countries as much as labor costs or corporate tax rates (Smarzynska & Wei, 2000). As such, corruption may adversely affect the market seeking and efficiency seeking (See Bevan and Estrin, 2004) motivations for foreign owners to the transition region.

Corruption may however affect foreign bank entry through influencing bank regulation. This is because corruption may be beneficial in circumventing regulatory and administrative regulations (Leff, 1964), which may induce foreign banks to enter the corrupt countries. Taken together, the effect of host corruption on foreign bank entry remain ambiguous and thus rationalizing our attempt to test this hypothesis for the sample containing Central and Eastern European countries.

3.1.4.1. Banking Regulation and Foreign Bank entry

Bank regulation has been argued to promote bank efficiency as it promotes bank competition. Bank regulation will promote the entry of foreign banks and exit of inefficient domestic banks. Foreign banks being the banks to benefit most given their superior skills in risk management, and use of efficient technology to the market, may therefore demand improvement in bank regulation as a result (Lensink et al, 2002). Improved bank regulation is a component of bank reform currently ongoing in many transition countries. Prior to the reform period, the banking sector was poorly regulated, with many newly established private banks lacking the necessary capital and skills to compete effectively with the dominant state-owned and privatised banks (Fries et al, 2002). Bank reform, especially in the areas of bankruptcy and corporate governance have

been associated with lower costs faced by new bank entrants (Fries et al, 2002). Voinea et al (2006) found that banking sector reforms positively influence foreign banks' activity in a sample of 12 home countries (of which 10 are EU members) and 16 recipient countries (consisting SEE and CEE countries). This is interpreted as a proxy for the degree and speed to which the EU policies have been adopted in recipient countries.

Bank reforms may however not be an unmixed blessing. Tighter bank regulation may hamper foreign bank entry, and while reducing bank activity promotes banking sector fragility (Barth et al, 2001; 2003). This is brought about by the harmful effects of competition[31] as a result of tighter bank regulations (Carletti 2005)[32]. Thus, banking sector development and performing banks, are adversely affected (Barth et al, 2003). Bank costs of financial intermediation are also affected. Demirguc-kunt et al (2004) find that tighter regulation boosts bank interest margins[33].

3.1.4.2. Corruption and Mode of entry

Once a foreign bank decides to enter a country, it needs to make a strategic choice about the mode of entry between greenfield and takeover. In this respect, Chen (2006), Harzing (2002) and Meyer (1998) makes a distinction between greenfield investment, and acquisition while others distinguish between joint venture and wholly owned subsidiary. In fact, there is often a correspondence between these two alternative sets of terminologies. In particular, a greenfield investment is a wholly owned subsidiary as no local partners are involved so that the foreign owner is in full control of the bank subsidiary in the host country. A takeover bank that may arise through merger and acquisition may involve local partners and as such bank control would be shared between the foreign and the local partners.

The choice of entry mode among firms has been widely researched on a global scale (Barkema & Vermeulen 1998, Chen 2006). There are four main theories of the

[31] Competition among banks, as a result of the presence of adverse selection in loan markets, enables banks exercise market power. Banks ability to screen borrowers effectively therefore worsens as the number of competing banks increase. Higher probability of bank failures result as tougher competition between banks leads to riskier banks.
[32] This contrasts with the traditional effects of bank regulation in promoting competition which leads to efficiency. Carletti et al however suggest that, whether greater competition enhances or worsens the stability of the banking system remains to be seen.
[33] A finding supported by Levine (2003).

choice of entry mode, primarily among multinational enterprises (but arguably equally applicable to banks as well): transaction cost theory (Meyer 2001), a learning perspective (Barkema & Vermeulen 1998) a strategic view (Harzing 2002) and institutional theory (Rodriguez et al, 2005).

Taken together, there is a tradeoff between these two choices, namely, fully owned subsidiary and joint venture banks. Corruption makes local bureaucracy less transparent and hence acts as a tax on foreign investors (Smarzynska and Wei, 2000). Most forms of foreign bank entry in corrupt environments take place through takeovers/ acquisition. Corruption may induce a foreign bank to collaborate with a local partner in joint venture banks, who enable the foreign owners to cut through the bureaucratic maze present in highly corrupt environments, and as such the value of a local partner may be high.[34] The problem however arises from the fact that the same local owner may be responsible for the leakage/diffusion of the foreign technology to others, which may be a source of conflict between the local and foreign owners in a joint venture; the fact remains that the likelihood of resolving a conflict in a corruption environment remains rather low. In the absence of any prior, we thus examine this empirically for our sample.

3.1.4.3. Relative Corruption and foreign bank entry

In addition to corruption in the host country, we argue that the distance in corruption between host and home country, which we label as relative corruption, may influence bank entry. While we are not aware of any study assessing the effect of relative corruption on bank entry, other measures of dissimilarity between home and host countries have been used in the literature. For example, the physical distance between host and home countries has traditionally been used in the literature to proxy for information costs (Buch 2005). It also affects international asset holdings and international capital flows negatively (Portes and Rey, (2001); and Wei and Wu (2002)). However, distance has since been redefined to refer to the dissimilarity between countries in terms of culture, language, and laws (e.g., see Berger et al, 2000). Institutions are not left out and the notion of distance is equally applicable, as argued by Mian (2006), and

[34] Further evidence in support is provided by Tekin-Koru (2006) and Uhlenbruck, Rodriguez, Doh and Eden (2006).

Lensink et al 2008). Berger et al (2000) observe physical distance to adversely affect foreign bank performance in countries. Foreign banks cost of providing services rise as a result of dissimilar characteristics between home and host countries. Foreign bank performance is however improved as the dissimilarity in host-home country characteristics reduce. Lensink et al (2008), observe foreign bank inefficiency to decline as institutional distance improves. Claessens et al (2008) argue foreign banks to enter host countries as a result of host comparative advantage relative to other competing foreign banks in the same host country. Learning costs of new institutional environments is another dimension brought into the foreign bank literature by Galindo et al (2003). Foreign banks face a cost in learning to deal with institutional differences across countries. These costs are however reduced, the closer the institution quality of the home country of the foreign bank is to that of its host country. If this is the case, we will expect more foreign bank entry in host countries of similar institution quality to their home countries.

Further Galindo et al (2003) focus on cross-border foreign bank entry, which is not a popular route of entry for foreign banks into transition countries. This is known as direct lending, and is typically offered to large-scale borrowers (Focarelli et al, 2005). Transition countries following enterprise reform have seen erstwhile large enterprises privatized as small and medium enterprises (Klapper, Sarria-Allende, and Sulla, 2002). Resulting from that, foreign banks establish themselves within the borders of host transition countries. A physical presence is important for development of personal relationships with clients as banks seek to expand bank activities (Rajan, 1998).[35]

Along this line, we not only explore the effect of relative corruption on foreign bank entry, but also consider if host countries share borders with home countries, and whether both host and home countries are both members of the European Union. Prospective membership of the European Union by a number of transition countries may have informed the advanced stage of reforms in countries like Hungary, Czech Republic,

[35]Our study differs from the study of Galindo et al (2003) in that our study is restricted to CEE countries only, where as Galindo examine a larger sample of countries in which both CEE countries, other transition countries and non-transition countries are lumped together. As such cross-border direct lending is not important for our sample as transition countries differ fundamentally in structure from other countries including many developing countries.

Poland, and Slovakia (Koutsomanoli-Filippaki et al (2009). This is important and relevant as we seek a deeper understanding of the reasons for the physical presence of foreign bank entry in transition countries despite the well known costs of corrupt operating environments.

3.2. Data and Sources

Data for our study is obtained from Bureau van Dijk Electronic Publishing **(**BvDEP**)** Bankscope database. This is a database containing balance sheet and income statement information pertaining to a large variety of banks. It also provides us with bank activities, as well as key ratios. Financial statement data is available for the period 2000 – 2008, over which our study is done. Furthermore, it is a popular database for use in study on banks, and has been extensively employed in previous studies on banking.

Bankscope provides us with unconsolidated and consolidated financial statement information for a number of banks. However, for the purpose of our study, we focus on banks with unconsolidated financial statements as this enables us to focus clearly on the characteristics of the foreign banks of interest. We use the 2008 version of Bankscope and we identify if a host bank has any foreign interest (investment) or not. This is regardless of the actual extent of foreign investment in the bank. These banks we define as foreign banks[36]. The complexities involved in identifying full ownership of any bank in Bankscope resulted in our decision to take into account direct bank subsidiaries ownership only. We thus do not take into account indirect foreign bank subsidiaries ownership of banks. Data on institutional characteristics employed in the study are obtained from Kaufman et al (2009) World governance indicators index, which are then matched with the host bank-level data for the sample countries. We also obtain the institutional indices for home countries of the foreign banks and match them carefully with the relevant host banks in our sample. This is our primary data-set containing

[36] This contravenes the popular definition of a foreign bank in previous studies, in which foreign banks are so defined if the foreign interest is at least 51% of total shareholding.

information for 138 banks over 2000-2008 and the total number of bank-year observation is 1018 (see further discussion in section 3.2.1.1).

The continuous foreign ownership information obtained from Bankscope is largely time-invariant. Hence we take advantage of some related data used by De Haas et al. (2011) to build a sub-sample with time varying ownership information (see further discussion in section 3.2.1.2) . This panel data set comprises of 780 observations drawn from 106 bank subsidiaries operating in 14 host countries in the CEE region.

3.2.1 Data Samples

Here we analyze the characteristics of both datasets as outlined in sub-sections 3.2.1.1 and 3.2.1.2.

3.2.1.1 Main Data set

For the 138 sample banks, we construct a pooled data set where some bank subsidiaries have observations for each of the years 2000 to 2008 and other bank subsidiaries are missing a few observations for some of the years. We match the foreign banks with their respective country of origin (country where their parent bank is located), called their home country. The country in which these foreign bank subsidiaries are located is referred to as the foreign bank subsidiary's host country. Some of the bank subsidiaries belong to banking groups and so we may find bank subsidiaries of similar names in different Central and Eastern European countries such as OTP bank, Banka dd, etc. Most foreign bank subsidiaries originated from developed home countries where their parent banks are located; there are only a few foreign banks originating from developing home countries. There is also significant concentration of foreign bank subsidiaries originating from European Union home countries, thereby highlighting the benefits of European integration.

Host countries in our sample include 14 countries, namely, Bosnia-Herzegovina, Bulgaria, Croatia, Czech republic, Hungary, FYR Macedonia, Moldova, Montenegro,

Poland, Romania, Serbia, Slovakia, Slovenia and Ukraine. Incidentally, one representative bank in our sample may have foreign investment from more than one foreign country; hence, we define the home country as the one with the highest ownership holding amongst all other foreign investors in the particular bank in the host country. Accordingly, home countries in our sample include Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, France, Germany, Greece, Hungary, Ireland, Italy, Israel, Lithuania, Luxembourg, Netherlands, Portugal, Romania, Serbia, Slovenia, Sweden, Turkey, and United States of America. In 2006, Austria was the largest foreign investor in terms of control of banking assets in the Czech Republic, Slovak, Hungary, Romania and Croatia (Altman 2006). Furthermore it is evident that parent banks from many emerging countries like Czech Republic, Hungary, and Romania are now investing in other neighbouring emerging economies.

3.2.1.2. Data Sub-sample

The continuous foreign ownership information obtained from Bankscope is largely time-invariant. Hence we merge the bank-level data set from Bankscope with related ownership information used by De Haas et al. (2011) to build a sub-sample with time varying ownership information. Note however that this information is not available for all the banks in our main sample and hence we create a subsample that contains time-varying ownership information. There are 106 banks giving rise to a sample size of 780. Also, unlike the main sample, the ownership in this sub-sample is binary in nature distinguishing foreign entry between greenfield and takeover. We construct an unbalanced panel data set from this sub-sample comprising banks observed for the period 2000 - 2008. This panel data set enables us to fully examine how foreign bank entry decisions and subsequently foreign ownership decisions are determined by the level of absolute and relative corruption in host countries. While there are fewer banks in this sub-sample, all the 14 host countries represented in the main sample are still present in this sub-sample as well.

3.2.2. Measure of corruption

There are various measures of corruption available in the literature. Impact of differences in corruption and other institutional characteristics on foreign bank entry[37] is analyzed using three of six country level indices from Kaufman, Kraay and Mastruzzi (2009). The institutional indices in Kaufman, Kraay and Mastruzzi (2009) are an updated version of the institutional indices constructed by Kaufman, Kraay and Zoido-Lobaton (2002). This is a database on world governance indictors and has been popularly employed in a number of studies such as: Galindo et al (2003), Demirguc-kunt et al (2004), Lensink et al (2008). It is worth noting that it is a perception based index, and as such weaknesses associated with the use of such data is acknowledged. Other comparable indices widely employed in studies on corruption include the Transparency international index (TI index) and the International country risk Guide (ICRG) index, which too are both perception based indices. The challenge with using such perception based indices is that perceptions my well be informed by not only conventional wisdom, but also by existent climatic conditions such as current economic performance of the country (Aidt, 2003). Given the popularity of the Kaufman et al (2008), we decided to employ the index.

Rule of Law: This index measures the perception of the extent to which agents have confidence in and abide by the rules of society and in particular quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence. The index ranges between -2.5 to 2.5, higher values indicating countries with better rule of law.

Control of Corruption: This index measures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. This index like others ranges from -2.5 to 2.5. Higher values indicate less corrupt countries, while lower values will indicate more corrupt countries[38].

[37] Foreign bank entry refers to the ownership of a bank subsidiary in a host country by a parent bank located in a foreign country.

[38] Aidt (2009) suggests a manipulation of corruption control indices such as the Transparency international index in which higher values correspond to less corrupt countries, while lower values correspond to more corrupt countries, as is often done in applied work. This will enable a more direct measure of corruption to be obtained from such indices of

We define corruption in the respective home and host countries as absolute corruption. We also compute the difference between the home and host corruption control indices and label it as relative corruption. Therefore lower values of relative corruption index correspond to closer similarity of host country institutions with that of the home. Appendix Table A3.1 provides the descriptive statistics of absolute corruption control in home and host countries, as well as, relative corruption in host countries. We observe Denmark as the home country having the highest mean absolute corruption control (thus the lowest corruption). Sweden and The Netherlands, have the next higher mean corruption control indices respectively. We argue that the greater the distance in home country and host country corruption control, the higher is the transaction costs being incurred by a foreign bank in a host country and therefore the lower is the foreign bank ownership. We empirically examine the validity of this hypothesis.

With regards to the host countries, Slovenia is the host country with the highest mean absolute corruption control (lowest corruption). Moldova is the host country with the lowest mean absolute corruption control (highest corruption). On the basis of relative corruption, Moldova has the highest mean relative corruption. This implies that foreign banks on average will find it difficult to operate in Moldova, due to the wide dis-similarity in operating environments. Slovenia on the other hand, has the lowest mean relative corruption. Thus on average, they will be more attractive to home countries for foreign bank investment.

Similarly, we construct relative and absolute measures with respect to the rule of law, which is used as an alternative corruption measure. Appendix Table A3.2 provides further justification for this. The table shows the bivariate correlations between corruption, rule of law and regulatory quality. It is however evident that corruption and rule of law measures are more closely correlated than corruption and regulatory quality measure. Hence, we can test the robustness of our original corruption results by employing rule of law as an alternative measure of corruption.

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corruption control. Once manipulated, lower values of the index will indicate less corrupt countries, and higher values will indicate more corrupt countries.

3.2.3. Data description

Table 3.1 provides selected financial sector indices in our host countries for the most recent year 2008. We observe foreign owned banks owning a significant asset share of banking sector assets. Slovakia has the highest asset share of foreign owned banks (99.2%), followed by Bosnia-Herzegovina (95.0%), and FYR Macedonia (93.2%). Slovenia has the least assets share of foreign owned banks at 31.1%. This trend is however not followed when we consider non-performing loans. FYR Macedonia is found to have the highest non-performing loans.

There is also wide variation in the distribution of Domestic credit to GDP ratio in our sample. Montenegro, Slovenia, Ukraine, Bulgaria, and Croatia have higher level of financial development as compared to Moldova, Romania, Serbia and FYR Macedonia. The final column of Table 3.1 shows the EBRD bank reform index, a constructed index by the EBRD measuring how advanced transition countries have gone in undertaking sweeping banking sector reforms, which again highlights same variation across sample countries. The highest bank sector reform of 4.0 is attained in Croatia and Hungary, while the lowest bank sector reform index of 3.0 is found in Bosnia-Herzegovina, FYR Macedonia, Moldova, Montenegro, Serbia, and Ukraine respectively.

The distribution of banks across the sample host countries are summarised in Table 3.2. Heterogeneity exists in the number of host country banks observed in each host country. Serbia; Poland, Czech Republic and Bosnia-Herzegovina make up the quartet of the host country bank observations most represented in our sample. Bulgaria bank observations are the least represented host country observations in our sample comprising only 2.2% of total observations.

Table 3.3 shows means and standard deviations of selected bank indicators for the sample host countries and highlights the heterogeneity in our sample in this respect. Return on Assets measures the overall profitability of our host banks in host countries. While banks in Moldova are the most profitable at 3.0%, other country banks, at 1.0% are considerably far behind. Ukraine on the other hand is the least profitable with an average at 0.50%. Return on equity, an alternative measure of bank profitability, and a measure of greater interest to shareholders of the bank, is quite high in a large number of host

countries on average. Moldova is once again the host country on average with the highest return on equity. Negative average return on equity is observed in the Serbia and Ukraine.

There is also significant variation in net interest revenue, bank profitability, capital structure and riskiness across our sample host country banks on average. Most of the countries on average have quite profitable as well as highly capitalized banks, especially those in Moldova, Hungary, Slovenia, and Czech Republic.

Table 3.4 shows the distribution of five major home countries across the sample host countries. These are Austria, Germany, Greece, USA, and Italy. Austria as a major home country is compatible with arguments by Altman (2006) that high foreign ownership of the banking market in Central and Eastern Europe features a large presence and concentration of ownership with Austrian banks. 21.05% of Home country banks investments from Austria are made in host country banks in Serbia. 38.89% of German home country banks investment are made in host country banks in Poland. 50% of home country banks from Greece invest in host country banks in Serbia. 22.22% of home country banks from USA are made in home country banks in Poland and Moldova respectively. Italy, the last of the major home countries makes 25% of host country investment in Croatia and Romania. One of the reasons for major home countries to invest mostly in a certain host country may be due to similarity in institutional quality and business climate in the country. Corruption in major home countries relative to host countries may be very small and thus provide foreign banks from major home countries with familiar terrain to operate in at no additional cost in host countries.

Access to the panel data sub-sample allows us to focus on the mode of foreign bank entry, which primarily distinguishes between greenfield and takeover modes of entry. This is summarized in Table 3.5. Banks in the sample countries appear to be split in the choice between these two modes of entry. Clearly incidence of foreign takeover dominates in many sample countries like Romania, Hungary, Bosnia, Slovakia, Slovenia, and Bulgaria. However, foreign greenfield appears to be the dominant mode of entry in Croatia, Macedonia, Montenegro, Serbia and Ukraine.

Table 3.6 summarizes the distribution of foreign ownership in the sample host countries. There is substantial foreign bank ownership in general in all of our host

countries on average. While Romania has the highest mean foreign ownership concentration and Poland closely behind, Croatia has the least. Four levels of foreign ownership concentration are observed. These are full foreign ownership (100%), fifty-one percent but no more than 99% foreign ownership, 26% but no more than 50% foreign ownership, and 1% but no more than 25% foreign ownership. The former category of foreign ownership is quite substantial in our sample, with Montenegro and Hungary having the highest proportion of such bank types. In general though, most of our sample host countries are well represented in all categories of foreign ownership.

3.3. Methodology

The parent bank's decision to invest in a host foreign country may be viewed as consisting of three simultaneous decisions. (i) The first decision pertains to whether or not to locate in the host country. (ii) The second decision taken simultaneously to the first, is the mode of entry – foreign greenfield or foreign takeover and (iii) The actual amount of investment in the host bank as highlighted in the percentage of foreign ownership in the host bank. Models of foreign bank entry employed in previous studies have been built on this precept[39], of which Smarzynska and Wei (2001) and Javorcik and Wei (2009) are classic examples. Bank characteristics are viewed and argued as important factors for foreign entry in such studies, as are host country characteristics. For example, a home bank may decide to locate in a host country due to the host banks profitability. The same home bank may further then decide to acquire 100% of the shareholding in the host bank due to its expected profitability and the host country's expected market size growth.

Foreign banks mode of entry into host countries appears to be varied. Foreign banks may locate in host countries through mergers and acquisitions (Berger et al, 2000).

[39] Note though that such models mostly ignore the mode of entry decision and rather view foreign entry as being comprised of the decision to enter the host country and the foreign shareholding to own.

They may also locate as various forms: branches, subsidiaries, or agencies, based on host country advantages of doing so (Henkel et al, 1992, and Cerutti et al, 2007).

A simultaneous probit model was employed by Smarzynska and Wei (2001) to jointly determine a foreign investor's decision in choosing between a wholly-owned firm or joint venture conditional on foreign direct investment taking place. We deviate from this approach and develop our study in three stages – determining foreign bank entry, foreign bank mode of entry (foreign greenfield and foreign takeover), and foreign bank ownership. Our analysis has been guided by the distribution of foreign ownership concentration in our sample (e.g., see Appendix Figure B3.1). It follows that 60% of our total main data sample observations had attracted foreign ownership between 80% and 100%. In contrast, about 20% banks have less than 20% foreign ownership. It must be noted that whilst a host of existing studies examining foreign entry such as Javorcik and Wei (2009), focus mostly on firms, our study pertains to banks and as such offers new insight. Banks differ structurally and operationally from firms in the activities they engage in, however to the extent that they support firm existence, such a study as this may shed interesting light on corruption being an interesting rationale for foreign banks to enter host CEE countries and support the firms.

3.3.1. A Model of Foreign Bank Entry

We first focus on determining foreign bank entry decision in a host country. In this respect, we make use of the subsample data. Although ownership is largely time invariant in nature, for a sub-sample of banks there is some variation of ownership over time. So we start with simple logit model using pooled data (with control for years) and then move on to the logit fixed effects model which drops the firms for which there is no time variation in ownership.

Pooled Logit Model

Suppose Fij= 1 if the i^{th} foreign bank invests in the j^{th} host country

Suppose Fij= 0 otherwise.

Then, Fij =1, if Fij* >0

Fij =0 Otherwise.

Where

$$F_{IJ}^{*} = \beta_0 + \beta_C C_j + \beta_{Rc} RC_j + \beta_x X_{ij} + \mu_{ij} \quad (3.1)$$

Where C is absolute corruption and RC is relative corruption in country j respectively. Thus, after controlling for all other factors, we focus on identifying the pure effect of corruption and relative corruption. X refers to a set of bank characteristics – bank size, profitability, risk, intangible assets, and Herfindahl index.

Bank size is measured by the log of total assets. The huge asset share of foreign banks in many of the eastern European countries suggests that foreign banks will be of significantly large sizes. We measure bank risk by the ratio of non-performing loans to gross total loans. Existing literature suggests that foreign banks hedge risk in developing countries by lending to large firms due to their transparency in activities. The Herfindahl index of deposit market concentration provides us domestic deposit market share of the foreign bank subsidiaries in their respective host countries. It is a calculated index (see Appendix Table A3.3 for further details). Bank profitability is controlled for by the return on assets (otherwise known as ratio of earnings before interest and taxes, divided by total assets). Bank profitability accounts for banks operational efficiency (as measured by ratio of overheads to total assets), and credit market efficiency (as measured by ratio of net interest margin to total assets),

The index of market concentration is included to control for competition among banks in the host country. Descriptive statistics and other variable definitions are as provided in Appendix Table A3.3. Appendix Table A3.4 provides the descriptive statistics for our time varying bank ownership sub-sample.

In alternative specifications, we replace corruption (C) and relative corruption (RC) by the corresponding absolute and relative rule of law.

Logit Fixed Effects Model

Given that a sub-set of firms also experienced time variation in ownership, we also attempt logit fixed effects estimates of foreign bank entry.

We thus determine the decision of the i^{th} bank to invest in the j^{th} host country in year t, t=2000,…,2008, in terms of host country absolute (C) and relative corruption (RC), among other control variables X.

$$F_{ijt}=1 \text{ if } F_{ijt}^{*}>0$$

$$F_{ijt}^{*} =0 \text{ if otherwise}$$

where F_{ijt}^{*} is determined by:

$$F_{ijt}^{*}= \Phi_0 + \Phi_C C_{jt} + \Phi_{RC} RC_{jt} + \Phi_X X_{ijt} + e_{ijt} \quad (3.2)$$

All variables are as defined in the preceding pooled logit model above.

3.3.2. A Pooled Model of Foreign Bank Mode of Entry

Foreign banks may choose different modes of entry to enter the host country. Given the data at our access, we distinguish between foreign Greenfield entry and foreign takeover entry. We employ a multinomial logit model to determine the mode of entry where the reference category implies 'No entry'.

We thus define a new mode of entry variable, FBMODE as follows:

FBMODE = 0 if bank has no foreign investment

= 1 if foreign bank is a Greenfield investment

= 2 if foreign bank is a foreign takeover

Given the discrete and unordered nature of the variable, we apply a multinomial logit model to determine FBMODE using pooled data.

The multinomial Logit model is used where a choice is to be made by the i^{th} foreign bank in the j^{th} host country, from a number of alternatives and the data to be analyzed are individual specific. The choice sets, which are analyzed with this model, are unordered. The model is as illustrated below:

$$\mathbf{Prob}(\boldsymbol{y}_j = K) = \frac{\boldsymbol{e}^{\boldsymbol{\beta}_x' \boldsymbol{X}_j}}{\sum_{h=0}^{3} \boldsymbol{e}_h^{\boldsymbol{\beta}_j' \boldsymbol{X}_j}} \qquad \text{k = 0, 1,2.} \qquad (3.3)$$

Where, Y is the discrete dependent variable and X's are the explanatory variables; (inclusive of host country absolute corruption and relative corruption). K is the number of modes of entry choices available to the foreign bank as specified in (3.3).

Equation (3.3) is estimated for each choice with respect to the reference category. The estimated equations then provide a set of probabilities for the k+1 choices for a decision maker with characteristics X. Maximum likelihood method is then used to solve the set of equations that arise to obtain the probabilities of each choice.

In addition to the measures of absolute and relative corruption the set of control variables X employed in our multinomial logit model are similar to those used in the pooled logit and fixed effect logit models. In this respect we have been guided by the existing literature.

3.3.3. Determination of Foreign Bank Ownership with Selection for Mode of Entry

Determination of foreign ownership is contingent upon foreign bank's mode of entry (foreign green field or take over). Hence to determine foreign ownership, we need to correct for the selectivity bias arising from the choice of mode of entry**.** Note, however, that foreign bank ownership information is largely time-invariant in our sample. Therefore, we use a Heckman type selection to determine foreign ownership after

selecting banks with some foreign investment, which allows us to address the selectivity bias a la Lee (1983). This is a 2-step method. First we estimate the multinomial logit of bank mode of entry and generate the inverse Mills ratios for k=0, 1, 2 where k denote the mode of entry as follows: 0: No foreign entry, 1: foreign greenfield entry and 2: foreign takeover entry, respectively. The inverse Mills ratios are plugged into the second stage tobit model of foreign ownership FO_{ij} by the i-th bank in host country j.

$$FO_{ij}^{*} = \alpha_0 + \alpha_c C_j + \alpha_{RC} RC_j + \alpha_X X_{ij} + \partial_0 \lambda_{ij}^{0} + \partial_G \lambda_{ij}^{G} + \partial_T \lambda_{ij}^{T} + \varepsilon_{ij} \qquad (3.4)$$

Where FO_{ij} =0 if $FO_{ij}^{*} \leq 0$ and $FO_{ij} = FO_{ij}^{*}$ when $FO_{ij}^{*} > 0$. λs are the inverse Mills ratios respectively for k = 0, 1, 2.

X is the set of host country bank characteristics, explaining this probability, namely Profitability, bank size, Intangible to total assets ratio, ratio of non-performing loans to gross total loans, Computed Herfindahl index of deposit market concentration. C refers to host country absolute corruption. RC refers to relative corruption. Since we use pooled data, we also include the year dummies to control for variation over time. The remaining errors remain included in the independently and identically distributed error term, ε.

In all regressions, we determine the marginal effects of each explanatory variable separately as the partial derivative of the expected value of the dependent variable with respect to the particular explanatory variable. This is so, as the coefficient estimates do not reflect the marginal effects of each explanatory variable.

3.4. Empirical Results

We have access to time-varying bank mode of entry and ownership data though naturally there is a lot of inertia in entry information. Hence, in addition to panel models, we also experiment with pooled estimates. While Driffield et al. (2010) use Wooldridge (1995) model, we refrain from doing so; this is because application of Wooldridge (1995) model requires that the ownership variable is truncated from below or above, which is not the

case in our context. Further, the selection equation in Wooldridge model involves running a binary probit model to determine whether there is foreign entry or not; in contrast, our mode of entry variable is richer as it distinguishes no foreign entry from foreign greenfield and foreign takeover; as such we cannot apply a binary choice model as the first stage selection equation. Hence we take recourse to Lee (1982) where the first stage selection equation is a multinomial logit model to determine mode of foreign entry; we save the inverse mill's ratio from the first stage, which are then inserted into the second stage ownership equation to control for selectivity bias arising from differential modes of foreign entry[40]. In doing so we not only control for absolute and relative corruption, but also a whole host of other factors including year dummies; we argue that the year dummies would control for variation in ownership over time, if any. The advantage with this two stage model is that it makes use of most of the sample (the panel formulation of the model drops a large proportion of time-invariant observations).

The main results for all our regressions are as presented in Tables 3.7 – 3.9. Discussions on foreign entry are couched with respect to the fixed effects logit regression results (see Table 3.7). These fixed effect regression results may be compared to those obtained for the pooled samples in Appendix Table A3.5. Pooled multinomial Logit estimates of mode of entry form the second set of results presented in Table 3.8. We examine the banks choice between foreign greenfield and foreign takeover (relative to no foreign entry). Finally we consider the mode of entry selectivity corrected estimates of foreign ownership summarised in Table 3.9. In all estimations, we discuss marginal effects of the host bank characteristics and host country absolute corruption and relative corruption on the dependent variable of interest.

3.4.1. Results

The effects of host country absolute corruption on foreign bank ownership concentration is captured by corruption control indices. Although the Kaufman et al (2009) corruption

[40] Note that we insert only the inverse mills ratios for foreign greenfield and foreign takeover into the second stage regression while maintaining that of No foreign entry as the reference inverse mills ratio category which is omitted.

control world governance indicator is such that higher values of the indicator indicates lower corruption, we convert the variable appropriately so that higher value of the indicator refers to higher corruption.[41]

Fixed effects logit estimates in (Table 3.7) highlights the role of corruption on foreign bank entry; there is suggestion that, ceteris paribus, both absolute and relative corruption would significantly lower the likelihood of foreign bank entry; in other words, an exclusion of relative corruption would under-estimate the role of corruption on foreign bank entry. We also check the robustness of this corruption effect by employing the alternative measure rule of law, which appears to be compatible with the corruption result discussed above. In particular, it suggests a positive but insignificant effect of rule of law for foreign entry. This is because greater corruption or worse rule of law enhances costs of setting up and running operations in the host country.

Among other results for bank entry, evidence suggests the importance of higher intangible assets, and higher host country bank concentration for foreign bank entry. Greater share of non-performing loans however tends to be associated with foreign entry, possibly as a result of the banks potential profitability in host country CEE economies. Banks size though remains insignificant.

Table 3.8 shows the multinomial logit estimates of foreign banks mode of entry, where the reference category are those banks with no foreign ownership. These results suggest that higher host country corruption lowers the likelihood of foreign greenfield entry while higher relative corruption increases it. Relative corruption is however not significant for foreign takeover in a host country, but absolute host corruption is. The latter suggests the foreign banks may only desire a domestic partner in corrupt environments to achieve legitimacy as well as, reduce the risks of operating in such an environment. Employing rule of law as an alternative indicator of corruption provides evidence in support of corruption effect, as both absolute and relative rule of law coefficients are positive and significant for foreign greenfield mode of entry choice. Rule of law provides an avenue through which corruption can affect bank entry as lower rule

[41] Note that it is not possible to employ the methodology of Aidt (2009) to specify absolute corruption control in inverse form so as to enable a direct interpretation of the roles of host country absolute corruption, given that corruption control index is a continuous variable. The methodology of Aidt (2009) is only applicable where the measure of corruption control is of a discrete nature.

of law may be indicative of higher corruption in the host country and vice versa. In comparison of coefficients of host country absolute corruption and rule of law, while better rule of law results in marginally less foreign greenfield entry than lower corruption, relative rule of law results in slightly more foreign greenfield entry than relative corruption.

Selectivity corrected regression estimates for foreign ownership are shown in Table 3.9. Note that all our inverse Mill's ratios are statistically significant, thus justifying the use of the selection model used here. Clearly, the relative corruption coefficient is not statistically significant here while that for absolute corruption coefficient is. The latter suggests that higher host corruption would lower the likelihood of foreign bank ownership.

Greater rule of law also has a positive and significant impact on foreign bank ownership providing supportive evidence in that regard. This is given that greater rule of law will imply lower absolute corruption as courts ensure that law and order are maintained, This once again reflects the increased costs of operation in host country by foreign banks on account of host country corruption which discourages foreign bank ownership.

3.4.2. Further Robustness Tests

Finally, we estimate extended models for determining foreign entry, mode of entry choice, and foreign ownership in an attempt to reduce biases due to omitted factors. In particular, we augment Tables 3.7 – 3.9 by including a binary variable, named integration, measuring joint EU membership/accession of the home countries and host countries of some banks in our sample, whereby host banks located in EU accession countries have foreign investment from banks from EU member countries. These results are summarized in Appendix Table A3.6. As before, absolute and relative corruption lowers entry while these variables have differential effects on foreign Greenfield and takeover entry. Surprisingly, integration yields a negative effect on foreign bank entry

while its effects on mode of entry remain insignificant; however, greater host GDP signifying the size of host market tend to boost foreign entry as well as foreign ownership. In other words, these lend support to our earlier results discussed in section 3.4.1.

3.5. Concluding Comments

This chapter examines how a foreign bank's decision to invest in a host country is affected by corruption in the host country as well corruption in the host country relative to that in the home country. We examine the roles of both host country absolute and relative corruption using bank-level data from CEE countries over the period 2000 – 2008.

Given that there is rather limited literature on foreign banks operating host countries, we build our analysis on the existing literature on FDI in emerging economies. We not only examine the factors determining foreign bank entry, but also mode of entry and also foreign ownership corrected for mode of entry. There is suggestion that both absolute and relative corruption are important for determining foreign bank entry and mode of entry in our sample, but only absolute corruption is important for determining foreign ownership ones we correct for the selectivity bias for mode of foreign bank entry.

There is evidence that ceteris paribus host country absolute and relative corruption would both discourage foreign bank entry; while both absolute and relative corruption are important for determining foreign Greenfield, only absolute corruption matters for foreign takeover. Finally, foreign ownership only responds to absolute corruption, once we correct for foreign entry. We examine the robustness of our central results by using alternative corruption index and also by estimating an augmented model with a view to minimize the omitted variable bias. Results are robust to these alternative specifications.

In light of findings CEE country governments may seek to improve the quality of host country institutions so as to promote continuous increase in host country foreign bank subsidiaries. This is most important given the stream of benefits the banks bring to CEE banking sectors and their increased costs of operation in CEE countries on account of host country absolute corruption. Encouraging foreign greenfield banks will also appear to be an ideal for CEE countries so as to enable inflow of foreign skills that promote the development of the banking system further.

CHAPTER 3 TABLES

Table 3.1: Selected Financial Sector Performance Indicators For The Sample Host Countries 2008

Host Country	Asset Share of Foreign Owned Banks (In percent)	Domestic credit to private sector (in per cent of GDP)	Non-performing loans (In percent of Total Loans)	EBRD Bank Sector Reform Index
Bosnia-Herzegovina	95.0	53.5	3.1	3.0
Bulgaria	83.9	74.5	3.2	3.7
Croatia	90.8	68.1	4.8	4.0
Czech Republic	81.7	51.0	3.3	Na
Hungary	84.0	67.6	3.3	4.0
Macedonia (FYR)	93.1	43.9	10.1	3.0
Moldova	31.6	36.5	5.9	3.0
Montenegro	84.6	87.2	6.0	3.0
Poland	76.5	55.0	4.7	3.7
Romania	87.7	38.5	4.5	3.3
Serbia	75.3	39.7	Na	3.0
Slovakia	99.2	44.7	3.5	3.7
Slovenia	31.1	85.6	3.6	3.3
Ukraine	51.1	79.8	2.3	3.0

Source: EBRD transition country Structural and institutional Change Indicators Database 2009.

The table summarizes selected indices of financial sector performance for 2008 in the sample host Countries. Clearly foreign banks dominate the banking sectors in our sample countries with the exception of Moldova, Slovenia and Ukraine. There is more heterogeneity in the distribution of domestic credit in our sample. 'Na' in the case of Czech Republic and Serbia implies that the performance indicator of interest is not available for both Czech Republic and Serbia Host countries.

Table 3.2: Distribution of Host Country Bank Observations in Sample

Host Countries	Number of Banks	Frequency	Percentage of Total Observations
Bosnia-Herzegovina	11	86	8.4%
Bulgaria	3	22	2.2%
Croatia	9	78	7.7%
Czech Republic	11	88	8.6%
Hungary	8	52	5.1%
Macedonia (FYR)	10	73	7.2%
Moldova	8	59	5.8%
Montenegro	3	23	2.3%
Poland	21	146	14.3%
Romania	14	85	8.3%
Serbia	22	158	15.5%
Slovakia	6	50	4.9%
Slovenia	7	54	5.3%
Ukraine	5	44	4.3%
Total	138	1018	100.0%

Source: Main data sample.

While our sample data set is quite huge comprising of 1018 bank observations, it is dominated by Serbia, Poland, Czech republic and Romania Bank observations

Table 3.3: Means Of Selected Host Country Characteristics

Host Country	Return on Assets (%)	Return on Equity (%)	Other income to Total Assets	Net Interest to Total Assets	Intangibles to Total Assets	Deposits to Total Assets	Total Liabilities to Total Assets	Equity to Total Assets
Bosnia-Herzegovina	1.0	7.0	0.04	0.05	0.0012	0.64	0.77	0.23
Bulgaria	2.0	15.0	0.04	0.05	0.0002	0.75	0.87	0.13
Croatia	1.0	5.0	0.02	0.04	0.0013	0.75	0.86	0.14
Czech Republic	1.0	12.0	0.01	0.02	0.0013	0.68	0.89	0.11
Hungary	0.0	13.0	0.02	0.05	0.0088	0.80	0.86	0.14
Macedonia (FYR)	0.0	5.0	0.03	0.05	0.0016	0.68	0.73	0.27
Moldova	3.0	14.0	0.05	0.06	0.0016	0.68	0.75	0.25
Montenegro	2.0	10.0	0.05	0.04	0.0021	0.75	0.84	0.16
Poland	1.0	8.0	0.02	0.04	0.0068	0.77	0.89	0.12
Romania	0.0	3.0	0.03	0.06	0.0038	0.79	0.81	0.14
Serbia	0.0	-3.0	0.08	0.05	0.0031	0.68	0.74	0.26
Slovakia	1.0	5.0	0.02	0.03	0.0014	0.85	0.91	0.09
Slovenia	1.0	8.0	0.02	0.03	0.0027	0.81	0.91	0.09
Ukraine	1.0	-7.0	0.03	0.05	0.0004	0.83	0.88	0.12

Source: Main data sample.

In all cases, higher values indicate better performance. The profitability ratio of return on equity is quite high in most countries, while that of Return on Assets appears to be on the low side. The share of other income to total assets accounts for bank sector quality variation (see Lensink et al., 2008), with higher values indicating higher banking sector quality. Intangibles to total assets ratios are quite low in host country banking sectors on average possibly indicating the low level of banking sector development in our host countries. These should improve with time as banks growth potential increases. Deposits to total assets, total liabilities to total assets, and equity to total assets are all measures of capital structure of host country banks.

Table 3.4: Distribution Of Foreign Banks From 5 Major Home Countries In CEE Region

	Home Countries				
Host country	**Austria**	**Germany**	**Greece**	**USA**	**Italy**
Bosnia-Herzegovina	3	1	0	0	0
	(15.79%)	(5.55%)	(0.00%)	(0.00%)	(0.00%)
Bulgaria	0	1	0	0	0
	(0.00%)	(5.55%)	(0.00%)	(0.00%)	(0.00%)
Croatia	1	2	0	0	2
	(5.26%)	(11.11%)	(0.00%)	(0.00%)	(25.00%)
Czech Republic	3	4	0	1	1
	(15.79%)	(22.22%)	(0.00%)	(11.11%)	(12.50%)
Hungary	0	0	0	1	1
	(0.00%)	(0.00%)	(0.00%)	(11.11%)	(12.50%
Macedonia (FYR)	2	1	2	0	0
	(10.53%)	(5.55%)	(20.00%)	(0.00%)	(0.00%)
Moldova	0	1	0	2	1
	(0.00%)	(5.55%)	(0.00%)	(22.22%)	(12.50%
Montenegro	0	0	0	0	1
	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(12.50%
Poland	0	7	0	2	0
	(0.00%)	(38.89%)	(0.00%)	(22.22%)	(0.00%)
Romania	1	0	3	1	2
	(5.26%)	(0.00%)	(30.00%)	(11.11%)	(25.00%)
Serbia	4	0	5	1	0
	(21.05%)	(0.00%)	(50.00%)	(11.11%)	(0.00%)
Slovakia	3	0	0	1	0
	(15.79%)	(0.00%)	(0.00%)	(11.11%)	(0.00%)
Slovenia	2	0	0	0	0
	(10.53%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)
Ukraine	0	1	0	0	0
	(0.00%)	(5.55%)	(0.00%)	(0.00%)	(0.00%)
TOTAL	19	18	10	9	8

The five major home countries from which foreign bank investment in host country banks originate. The distribution refers to our main data sample. Figures refer to the number of banks in respective host countries in which foreign investment from each Home country is made. Figures in parenthesis refer to individual host country banks in our sample as a proportion of total banks in sample host countries with foreign investment from individual home countries. Our distribution is heterogeneous across our sample.

Table 3.5: Distribution Of Foreign Ownership In CEE Region

Countries	%of Banks in each bank ownership category				Number of Bank Observations
	Foreign Greenfield	Foreign Takeover	Domestic private	State	
Bosnia-Herzegovina	6.00	60.00	33.00	0.00	63
Bulgaria	6.00	44.00	50.00	0.00	18
Croatia	23.00	0.00	77.00	0.00	78
Czech republic	47.00	21.00	21.00	11.00	81
Hungary	5.00	62.00	33.00	0.00	42
Macedonia (FYR)	32.00	8.00	60.00	0.00	60
Moldova	22.00	12.00	57.00	10.00	51
Montenegro	50.00	0.00	50.00	0.00	14
Poland	36.00	39.00	21.00	4.00	107
Romania	26.00	64.00	9.00	0.00	53
Serbia	36.00	5.00	45.00	14.00	121
Slovakia	32.00	50.00	18.00	0.00	34
Slovenia	0.00	47.00	25.00	28.00	32
Ukraine	25.00	0.00	75.00	0.00	44

Source: Sub-sample data with time varying bank ownership

Clearly incidence of foreign takeover dominates in many sample countries like Romania, Hungary, Bosnia, Slovakia, Slovenia, and Bulgaria. However, foreign greenfield appears to be the dominant mode of entry in Croatia, Macedonia, Montenegro, Serbia and Ukraine.

Table 3.6: Distribution Of Foreign Ownership – Main Bank Ownership Sample

		Percentage of banks when foreign ownership (FO) is as follows			
Host country	**Mean of Foreign Ownership[1]**	**Foreign Ownership =100%**	**51%<=Foreign Ownership <=99%**	**26% <=Foreign Ownership <= 50%**	**1%<=Foreign Ownership =<25%**
Bosnia-Herzegovina	72.50% (35.99)	31.00	37.00	19.00	0.00
Bulgaria	54.00% (33.55)	0.00	59.00	0.00	41.00
Croatia	34.42% (40.81)	0.00	19.00	12.00	23.00
Czech	55.63% (46.07)	44.00	8.00	9.00	9.00
Hungary	75.14% (37.98)	63.00	6.00	13.00	17.00
Macedonia (FYR)	64.08% (37.14)	12.00	47.00	0.00	29.00
Moldova	52.37% (41.81)	36.00	10.00	14.00	15.00
Montenegro	80.94% (29.46)	70.00	0.00	30.00	0.00
Poland	64.90% (42.24)	45.00	18.00	5.00	5.00
Romania	69.03% (43.66)	29.00	25.00	0.00	2.00
Serbia	64.33% (43.05)	42.00	11.00	4.00	24.00
Slovakia	82.01% (38.34)	48.00	0.00	0.00	18.00
Slovenia	45.44% (46.83)	13.00	0.00	15.00	0.00
Ukraine	47.42% (38.27)	0.00	61.00	0.00	18.00

Source: Main sample; [1] Standard deviations are shown in parentheses.

We classify sample banks according to the distribution of foreign ownership: (i) 100% ownership, (ii) at least 51% but at most 99% foreign ownership, (iii) at least 26% but at most 50% foreign ownership and (iv) at least 1% but at most 25% foreign ownership. The horizontal summation of proportions of foreign banks in all four categories adds up to 100%. A significant concentration of foreign ownership is evident in most of our sample countries, especially in counties like Czech republic, Hungary, Romania, and Poland, where bank reforms are much advanced. A significant proportion of host banks have 100% foreign ownership.

Table 3.7: Fixed Effects Logit Estimates of Foreign Bank Entry

	(1)	(2)
Dependent Variable	**Foreign Entry**	**Foreign Entry**
Return on Assets	-1.593	0.953
	(3.430)	(5.068)
Intangible Assets Ratio	10.68**	9.737**
	(4.661)	(4.211)
Small Bank	-46.53	-49.22
	(4,025)	(4,649)
Medium Bank	-22.97	-25.08
	(3,202)	(4,072)
Non-performing loans Ratio	14.04*	11.34
	(7.276)	(7.313)
Herfindahl index of market concentration	21.37**	23.18**
	(9.513)	(10.48)
Host Country Absolute Corruption	-6.559*	
	(3.497)	
Relative Corruption	-5.599**	
	(2.517)	
Host country Rule of Law		6.958
		(4.446)
Relative Rule of Law		-9.904**
		(4.497)
Observations	**192**	**192**
Number of Banks	**25**	**25**
LR chi2(8)	**101.73*** **	**112.14*** **
Log likelihood	**-30.533934**	**-25.327471**

Source: Panel data sub-sample.
Standard errors are shown in parenthesis. ***, **, * represent significance of coefficients respectively at 1%, 5% and 10% levels of significance.

Table 3.8: Multinomial Logit Regression of Foreign Bank Characteristics on Foreign Bank Modes of Entry

	(1)	(2)	(3)	(4)
Dependent Variable	**Foreign Greenfield**	**Foreign Takeover**	**Foreign Greenfield**	**Foreign Takeover**
Return on Assets	0.333	-0.762	-0.0524	-0.808
	(2.252)	(1.807)	(2.259)	(1.813)
Intangible Assets ratio	-12.27	41.07***	-14.97	36.61***
	(14.09)	(12.19)	(14.18)	(12.02)
Small Bank	0.582*	-2.621***	0.747**	-2.368***
	(0.340)	(0.372)	(0.346)	(0.368)
Medium Bank	0.439*	-1.160***	0.605**	-1.048***
	(0.266)	(0.245)	(0.272)	(0.248)
Non-performing Loans Ratio	-0.495	-0.213	0.0451	-0.213
	(1.112)	(1.177)	(1.105)	(1.167)
Herfindahl Index of Market Concentration	-2.318**	-1.044*	-2.132**	-0.950
	(1.018)	(0.634)	(1.013)	(0.631)
Host Country Corruption	-1.875***	0.534**		
	(0.248)	(0.248)		
Relative Corruption	0.630***	0.140		
	(0.117)	(0.111)		
Host Rule of Law			1.843***	-0.121
			(0.220)	(0.210)
Relative Rule of Law			0.802***	0.197
			(0.143)	(0.127)
Constant	-2.078***	-0.0880	-2.497***	-0.209
	(0.533)	(0.519)	(0.549)	(0.530)
Observations	**798**	**798**	**798**	**798**
Log-likelihood	**-740.24787**	**-740.24787**	**-740.56899**	**-740.56899**
Pseudo R2	**0.1289**	**0.1289**	**0.1286**	**0.1286**
Likelihood Ratio chi2(32)	**219.14*** **	**219.14*** **	**218.50*** **	**218.50*** **

Source: Panel data sub-sample. Standard errors are shown in parenthesis. ***, **, * represent significance of coefficients respectively at 1%, 5% and 10% levels of significance.

Foreign bank entry is defined as a categorical variable which takes a value 0 for no entry, 1 for foreign greenfield entry and 2 for foreign takeover. Therefore no foreign bank entry is our reference category in the multinomial logit regression. Our coefficients are jointly significant on account of the significant likelihood ratio chi-square. All variables are as defined in Appendix Table A3.3

Table 3.9: Joint Estimation of Multinomial Logit and Tobit Regression

Dependent Variable	Foreign Entry-Greenfield	Foreign Entry - Takeover	Foreign Ownership	Foreign Ownership
Return on Assets	-0.469	-0.788		
	(2.957)	(1.616)		
Intangible Assets	-4.357***	5.520	13.54	16.05
	(1.546)	(3.518)	(18.08)	(17.98)
Non-performing loans	0.456	-0.406	9.488	11.74
	(1.142)	(1.414)	(15.96)	(16.00)
Small Bank	0.631	-2.248***	-1.566	-2.202
	(1.399)	(0.603)	(5.012)	(4.950)
Medium Bank	0.282	-0.882**	-3.820	-3.729
	(1.034)	(0.374)	(3.682)	(3.740)
Herfindahl Index of market concentration	-3.857	1.292	-20.94**	-22.10**
	(2.579)	(2.265)	(10.43)	(10.44)
Host country Absolute corruption			-9.829**	
			(3.900)	
Relative corruption			-0.824	
			(1.697)	
Host country Rule of Law				8.475***
				(3.248)
Relative Rule of law				1.650
				(1.980)
Inverse mills 1 (Greenfield)			0.698***	0.631***
			(0.112)	(0.115)
Inverse mills 2 (Takeover)			0.460**	0.350*
			(0.221)	(0.206)
Constant	-0.589	-18.49***	83.42***	78.50***
	(1.077)	(1.138)	(7.402)	(7.632)
Sigma			37.50***	37.54***
			(0.970)	(0.971)
Country Dummies	Yes	Yes	No	No
Year Dummies	Yes	Yes	Yes	Yes
Observations	**798**	**798**	**798**	**798**
Log-likelihood	**-608.78**	**-608.78**	**-3900.68**	**-3901.00**
Likelihood ratio Chi2	**482.09*** **	**482.09*** **	**79.70*** **	**79.07*** **

Source: Main sample. Regression variables are defined in Appendix Table A3.3. Sigma is the ancillary statistic and is analogous to the square root of the residual variance in OLS regression. The values can be compared to the standard deviation of foreign bank ownership concentration in all regressions which suggests a substantial reduction. Standard errors are in parenthesis. ***, **, * represent significance of coefficients respectively at 1%, 5% and 10% levels of significance.

APPENDIX TABLES A3

Appendix Table A3.1: Absolute Corruption control and Relative Corruption in Home and Host Countries

	Absolute Corruption control		Relative Corruption	
	Mean	Standard Deviation	Mean	Standard Deviation
Home Countries				
Austria	1.94	0.07	n/a	n/a
Belgium	1.46	0.10	n/a	n/a
Bulgaria	-0.02	0.12	n/a	n/a
Croatia	0.14	0.07	n/a	n/a
Cyprus	0.91	0.09	n/a	n/a
Czech	0.38	0.05	n/a	n/a
Denmark	2.31	0.07	n/a	n/a
France	1.39	0.06	n/a	n/a
Germany	1.86	0.08	n/a	n/a
Greece	0.38	0.16	n/a	n/a
Hungary	0.65	0.09	n/a	n/a
Ireland	1.24	0.52	n/a	n/a
Israel	0.87	0.06	n/a	n/a
Italy	0.43	0.21	n/a	n/a
Lithuania	0.30	0.09	n/a	n/a
Luxemburg	2.03	0.14	n/a	n/a
Netherland	2.12	0.10	n/a	n/a
Portugal	1.16	0.08	n/a	n/a
Romania	-0.21	0.10	n/a	n/a
Serbia	-0.36	0.18	n/a	n/a
Slovenia	0.94	0.07	n/a	n/a
Sweden	2.21	0.08	n/a	n/a
Turkey	-0.08	0.17	n/a	n/a
USA	1.66	0.19	n/a	n/a
Host Countries				
Bosnia-Herzegovina	-0.37	0.10	1.71	0.93
Bulgaria	-0.04	0.12	1.71	0.24
Croatia	0.14	0.07	0.86	0.57
Czech Republic	0.38	0.06	1.33	0.39
Hungary	0.63	0.08	1.05	0.26
Macedonia (FYR)	-0.42	0.17	1.38	0.82
Moldova	-0.80	0.13	2.20	0.53
Montenegro	-0.52	0.21	0.84	0.55
Poland	0.31	0.11	1.55	0.36
Romania	-0.21	0.10	1.22	0.76
Serbia	-0.45	0.21	1.50	0.69
Slovakia	0.35	0.12	1.33	0.50
Slovenia	0.95	0.06	0.74	0.28
Ukraine	-0.81	0.19	2.70	0.26

Appendix Table A3.2: Correlation Between Host Country Measures of Institutional Quality

Host Country Indicators	Rule of Law	Regulatory Quality	Control of Corruption
Rule of Law	1.0000		
Regulatory Quality	0.1847	1.0000	
Control of Corruption	0.9369	0.1778	1.0000

Correlation Matrix providing the strength of correlation between host country institutional quality indicators. All indicators are obtained from Kaufman et al (2009) world governance indicators. A correlation of "1" is indicative of a strong positive correlation and is obtainable according to the above table at the diagonals where each indicator is expectedly perfectly positively correlated with itself. Aside from the diagonals, any correlation in excess of 0.30 is indicative of high correlation for a panel data set as our data set is. In that regard, Control of Corruption and Rule of law are highly positively correlated with a correlation of 0.9369. This suggests that combining indicators by principal component analysis as most previous studies have done such as Lensink et al (2008), may be inappropriate on account of such high correlations.

Appendix Table A3.3: Main sample Variable Descriptive Statistics - Corruption, Foreign Bank Entry and Ownership Structure

Variables	Variable Definition	Mean	Standard Deviation
Major Home Country bank Ownership concentration	This is the highest ownership concentration in a given host country bank from amongst ownership concentrations from home countries with investment in the given host country bank.	70.03	38.44
Return on Assets	This is the ratio of earnings before interest and taxes to total assets. It measures the income generating power of £1 of total assets. It is employed in decimal form.	0.009	0.045
Non-performing loans Ratio	This is the share of non-performing loans in gross total loans. It measures the proportion of gross total loans (net loans and loan loss reserves) that have actually been deemed to be irrecoverable by the bank. It is a measure of risk, and higher values suggest more risky banks, while lower values suggest less risky banks.	0.035	0.088
Intangible Assets Ratio	This is the ratio of intangible assets as a share of total assets. It may be viewed as a measure of future growth opportunities of a bank.	0.002	0.007
Small Bank	This is a dummy variable. It takes the value of "1" if the banks log of total assets falls within the defined first quartile of the log of total assets for our sample. It is "0" otherwise	0.250	0.433
Medium Bank	This is a dummy variable. It takes the value of "1" if the banks log of total assets falls within the defined second or third quartiles of the log of total assets for our sample. It is "0" otherwise.	0.501	0.500
Herfindahl Index of Market Concentration	This is a computed index measuring the extent of deposit market concentration of sample banks. It is the square of the share of each bank of the total deposits prevailing in a host country in any given year.	0.0522	0.145
Host Country Corruption Control	This refers to the corruption control index as obtain from Kaufman, Kraay and Mastruzzi (2009). Higher values depict countries with lower corruption, while lower values depict countries with higher corruption.	-0.054	0.497

Relative Corruption	This is corruption in the host country relative to that in the home country. It is obtained by subtracting host country corruption control index from home country corruption control index.	1.072	0.885
Host Rule of Law	This refers to the rule of law index as obtain from Kaufman, Kraay and Mastruzzi (2009). Higher values depict countries with better quality rule of law while lower values depict countries with poor quality rule of law.	-0.054	0.610
Relative Rule of Law	This is rule of law in the host country relative to that in the home country. It is obtained by subtracting host country rule of law index from home country rule of law index.	1.055	0.852
Integration	This is membership of both the host and home countries of the European Union. It is a dummy taking the value of "1" if both the host and home country are members of the European Union, and "0" otherwise	0.55	0.497

Main sample descriptive statistics and variable definitions for variables employed in Tobit regressions. It is based on a sample of 1018 observations.

Appendix Table A3.4: Time Varying Bank Ownership Sample Variable Descriptive Statistics - Corruption, Foreign Bank Entry and Ownership Structure

Variables	Total Observations	Mean	Standard Deviation
Return on Assets	798	0.007	0.049
Intangible Assets Ratio	798	0.003	0.007
Small Bank	798	0.249	0.433
Medium Sized Bank	798	0.501	0.500
Non performing loans ratio	798	0.035	0.086
Foreign Bank Subsidiary	798	0.273	0.446
Herfindahl Index (computed) of Market Concentration	798	0.070	0.166
Host country corruption control	798	-0.067	0.491
Relative corruption	798	1.091	0.871
Host country Rule of law	798	-0.060	0.609
Relative Rule of law	798	1.078	0.824
Integration	798	0.544	0.498

Sample Descriptive statistics of sub-sample data set obtained from main data set, comprising time-varying bank ownership. Total observations in the sample are 798. Bank profitability and intangible assets ratios are quite low in the sample at 0.7% and 0.003 respectively. Medium sized banks are the most frequent bank size in our sub-sample. With respect to host country institutional quality, Host country control of corruption, and host country rule of law are very poor at -0.067 and -0.060 respectively. Integration is variable capturing membership of both the host and home countries of the European Union. It is a dummy taking the value of "1" if both the host and home country are members of the European Union, and "0" otherwise and we observe that 54.4% of investment in host banks in countries that are members of the European union originated from banks located in home countries who are themselves members of the European Union

Appendix Table A3.5: Main Data and Sub-sample Pooled Logit Regression Estimates of Foreign Bank Entry

	Main Data Sample		Data Sub-sample	
	(1)	(2)	(3)	(4)
Dependent Variable	**Foreign Entry**	**Foreign Entry**	**Foreign Entry**	**Foreign Entry**
Return on Assets	5.140	4.786	-0.365	-0.560
	(5.849)	(5.668)	(1.583)	(1.590)
Intangible Assets	0.0315	-0.171	1.382	1.109
	(0.248)	(0.245)	(1.059)	(1.059)
Small Bank	0.709	1.802**	-0.914***	-0.755***
	(0.705)	(0.756)	(0.266)	(0.269)
Medium Bank	0.253	0.700	-0.382*	-0.276
	(0.514)	(0.563)	(0.206)	(0.211)
Non performing loans	-0.596	-1.384	-0.143	0.0589
	(1.757)	(1.918)	(0.897)	(0.900)
Herfindahl Index of Market Concentration	1.879	3.520	-1.012**	-0.938*
	(2.137)	(2.553)	(0.486)	(0.488)
Host Country corruption control	0.502		0.719***	
	(0.434)		(0.185)	
Relative corruption	6.326***		0.372***	
	(1.495)		(0.0911)	
Host country Rule of law		1.169***		0.874***
		(0.396)		(0.163)
Relative Rule of law		5.823***		0.476***
		(1.295)		(0.106)
Constant	1.344	0.743	-0.280	-0.527
	(0.943)	(0.983)	(0.410)	(0.420)
Year Dummies	Yes	Yes	Yes	Yes
Observations	**1,018**	**1,018**	**797**	**797**
Log likelihood	**-112.61**	**-105.16**	**-504.65**	**-499.70**
LR chi2(16)	**155.66**	**170.57**	**90.26*** **	**100.17*** **

Source: Main data sample (Columns 1-2). Data Sub-sample (Columns 3-4). We run this pooled logit model as an alternative to panel estimates given the observed low variability in time varying ownership data from De Haas et al (2011). All variables are as defined in Appendix Table A3.3. Standard errors are in parenthesis. ***, **, * represent significance of coefficients at 1%, 5% and 10% levels of significance.

Appendix Table A3.6: Estimates Of Extended Model Of Entry: Logit, Multinomial logit and Joint Estimation of Multinomial Logit And Tobit Regression

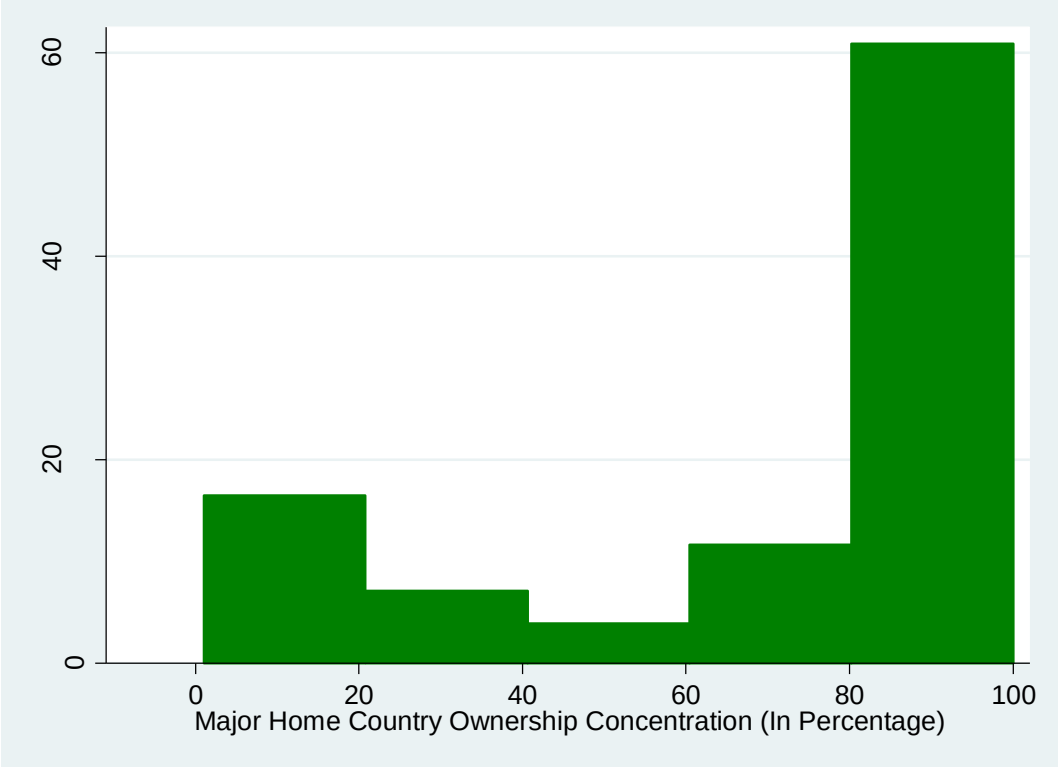
	Logit	Multinomial Logit		Joint Estimation		
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	**Foreign Entry**	**Greenfield Entry**	**Takeover Entry**	**Greenfield Entry**	**Takeover Entry**	**Foreign Ownership**
Return On Assets	-3.519	-0.176	-1.149	-0.297	-0.818	-74.51***
	(3.872)	(3.133)	(1.883)	(2.982)	(1.849)	(28.29)
Intangible Assets Ratio	9.082**	-4.080**	5.447***	-4.228**	5.421***	4.481
	(4.112)	(1.670)	(1.598)	(1.645)	(1.586)	(18.42)
Small Bank	-48.15	0.621	-2.347***	0.368	-2.413***	-4.250
	(4,251)	(0.497)	(0.459)	(0.482)	(0.453)	(5.074)
Medium Bank	-24.55	0.0501	-1.002***	0.0987	-1.001***	-6.392*
	(3,395)	(0.338)	(0.283)	(0.331)	(0.280)	(3.732)
Non-performing loans ratio	12.45*	0.492	-0.426	0.369	-0.365	6.710
	(6.432)	(1.225)	(1.255)	(1.165)	(1.219)	(15.85)
Herfindahl index	7.927	-3.682***	0.491	-3.480***	0.447	-25.19***
	(6.185)	(1.183)	(0.721)	(1.145)	(0.707)	(8.672)
Host country corruption	-6.056	-2.061*	-0.359			-9.208**
	(3.716)	(1.161)	(0.917)			(3.890)
Relative Corruption	-5.856**	0.587***	0.106			-1.993
	(2.605)	(0.165)	(0.139)			(1.801)
Integration	-1.869*	0.120	-0.306			-5.361*
	(1.072)	(0.289)	(0.235)			(2.974)
Inverse Mills (greenfield)						0.747***
						(0.116)
Inverse Mills (Takeover)						0.414*
						(0.229)
Constant				-0.104	-17.69	92.47***
				(0.717)	(1,297)	(8.088)
Sigma						37.18***
						(0.963)
Year Dummies	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Observations	**192**	**798**	**798**	**798**	**798**	**798**
Banks	**25**	**-----**	**-----**	**-----**	**-----**	**-----**
Log likelihood Ratio	**-30.66**	**-598.45**	**-598.45**	**-607.49**	**-607.49**	**-3888.86**
LR chi 2	**101.47*** **	**500.10*** **	**500.10*** **	**482.03**	**482.03**	**88.61*** **

Source: Data sub-sample (columns 1-3); Main data sample (Column 4). Column (1) are the fixed effect logit estimates, columns (2-3) are the multinomial logit estimates, and the tobit estimates are in the last column.

We run this extended model in an attempt to eliminate competing hypothesis that may bias our earlier results. All variables are as defined in Appendix Table A3.3. Standard errors are in parenthesis. ***, **, * represent significance of coefficients at 1%, 5% and 10% levels of significance.

APPENDIX FIGURES B3

Appendix Figure B3.1: Foreign ownership distribution of Major Home Countries in sample for 2000 - 2008



Source: Bankscope database

The distribution of major home country ownership concentration in host country in sample Central and Eastern European countries. A bi-model distribution is observed with about 30% of host country bank ownership by the major home country of between 1% and 20%, and 60% of host country bank ownership by the major home country of between 80% and 100%.

CHAPTER 4

How Does Bank Capital Affect Bank performance?

Implications for Bank Ownership in Transition Economies

4.0. Introduction

While financial liberalization and privatization have dominated the financial policy debate over the past few decades, the current financial crisis has highlighted the risks of unregulated privatization. During the sustained period of high growth over the past decade or so, unfettered risk-taking by banks had contributed to the outbreak of the financial crisis of 2007 around the globe necessitating huge government bail-out of banks see Coricelli et al, 2009; De Haas and Van Horen, 2009). Accordingly, capital management of banks has come under increasing scrutiny in recent time, hence necessitating a re-evaluation of bank regulations (See, Tarullo (2008) and Santos 2001). The latter induces us to examine and understand the link between bank capital and bank performance as bank capital is an essential component of bank regulation. In this respect we depart from much of the literature to argue that the relationship between bank capital and performance not only depends on the size of bank capital per se, but also on other factors including ownership and quality of financial institutions in the country.

Barth et al (2008) argued that a strategic approach to bank regulation was required to achieve a successful and effective banking system. The existing approach to bank regulation emphasizes aspects of direct official government restriction of bank activities, bank entry, provision of credit through government-owned banks, and rigorous supervision of banks. While capital regulation may ensure banks are in a good state of health, it is also desirable that an effective corporate governance mechanism is put in place, so as to ensure close scrutiny of bank activities in both short run and long run so that capital regulations are adhered to in practice. Effective corporate governance in the short run will enable the banks achieve future profitability, which in turn ensures some degree of sustainability.

The relationship between bank capital and performance could be ambiguous. While the popular view (e.g., see Diamond and Rajan, 2000) is that they are negatively related, Mehran and Thakor (2009) argued that they can be positively correlated. We go beyond this literature to argue that the relationship between capital and bank performance may also depend on bank ownership, as it has implication for cost of capital and also risk-raking. Particularly distinguishing between one hundred percent foreign owned subsidiary and jointly owned foreign and domestic bank subsidiaries[42] we examine this hypothesis. We define one-hundred percent foreign owned bank subsidiaries as banks domiciled in a host country as solely owned foreign bank subsidiaries; in contrast, joint venture bank subsidiaries are banks whose ownership is shared jointly by foreign and local private entities (individual or their affiliated companies).

The underlying argument is that one-hundred percent foreign subsidiaries and joint venture bank subsidiaries in host countries may operate differently as they may pursue divergent objectives as a result of their differential ownership structure. In particular, while there may be a conflict of interest between foreign and domestic partners in a joint venture; that may be absent in the case of a sole foreign owned subsidiary. However, there are also benefits of joint venture to both foreign and domestic owners. Foreigners are able to tap into markets beaming with potential and hedge their risk on entry by partnering with domestic partners with significant knowledge of the host economy (e.g., see Berger et al (2000) and Alvarez (2003) and especially where the foreign partners have little foreign production experience in an unfamiliar host environment.[43] On the other hand, domestic individuals are able to benefit of advanced skills and technology foreigners bring with them to the host economy and share with the domestic partners, thus significantly increasing the potential of the host country. Despite the benefits of joint ventures accruing both to the foreign and domestic owners forming the joint venture, it is the sole foreign ownership that enables the foreign owners to enjoy the benefits of profitability that come with locating in a developing country as highlighted by Claessens et al (2000). However, foreigners with the most benefit to offer developing countries may be reluctant to enter into joint venture agreements with

[42] Referred to hence forth as joint venture bank subsidiaries
[43] See Blomstrom and Zejan (1991)

domestic partners due to their fear to share such technologies with local partners (e.g., see Blomstrom and Zejan, 1991) especially when there are weak protection of intellectual property rights.

Our empirical analysis relies on data availability. In the present study, we distinguish between foreign greenfield and foreign takeover banks. While foreign greenfield refers to one hundred percent foreign owned subsidiary, foreign takeover is a case of joint venture through mergers and acquisition, though we do not know the exact share of foreign ownership in this case (see further discussion). The essential idea is that conflicts of interest between domestic and foreign partners (owners) are more likely to arise in the case of foreign take over (joint venture) banks, especially where foreign owners have such low minority stakes. This will allow us to examine our central hypothesis as to whether the adverse effect of bank capital on bank performance may be mitigated for foreign greenfield banks.

The analysis is based on bank-level Osiris data from a sample of listed banks[44] located in a group of Central and Eastern European (CEE) transition countries (see further discussion in section 4.2). Access to bank ownership data allows us to classify banks into foreign greenfield and foreign takeover bank subsidiaries and then explore the effect of bank capital for bank performance for each ownership type. Note however that Osiris ownership data is time–invariant in nature. Hence we supplement this data with Bank ownership data that distinguishes between foreign greenfield and foreign taken over from De Haas et al (2011).

Results suggest that, ceteris paribus, the relationship between bank capital and performance is contingent upon bank ownership structure. In particular, relative to other banks, bank liability is positively related to bank performance for the case of one hundred percent foreign bank subsidiaries. We also find that the pooled OLS estimates tend to over-estimate the differential return for foreign greenfield banks. Fixed effects least squares estimates suggest that the differential return for foreign greenfield banks is about 12.7% as opposed to about 15.1% in pooled OLS estimates. We attribute this differential premium in return on assets to the absence of any conflict of interests among the

[44] More specifically, bank subsidiaries.

shareholders of the one hundred percent foreign bank owned subsidiary; The latter can also be attributed to better practices and corporate governance mechanisms of one hundred percent foreign owned bank subsidiaries who generally originate from home countries with superior institutions. In other words, higher bank capital is not necessarily harmful for bank performance. Our results are robust to alternative model specifications.

The existing literature on the link between bank capital and bank performance does not take account of bank ownership structure. We can thus argue that our result offers an explanation for the ambiguous (positive/negative/insignificant) effect of the size of bank capital on bank performance, once ownership structure is taken into account.

The analysis is developed as follows. Section 4.1 provides the background of the study as well as hypotheses to be tested. Our sample data are described and sample characteristics discussed in section 4.2, while section 4.3 develops the empirical model of bank performance. Section 4.4 analyzes the results and the final section concludes.

4.1. Background and Hypotheses

According to Modigliani and Miller (1958), no systematic cross-section relationship exists between bank capital structure and bank value. A bank's value is therefore unaffected by the type of capital it is financed by, be it equity or liabilities (debt). However existing debate concerning the relationship between capital and bank value suggests that the popular view differs from this. The popular view argues bank capital and bank value to be negatively related. i.e., higher bank capital is associated with lower value. This is especially the case in light of agency theory. More capital may lower bank value as a banks possession of more capital lowers its liquidity creation (Diamond and Rajan, 2000). Furthermore, more capital may also act as a protective cushion for incompetent managers who may choose to undertake wasteful investment projects with bank capital.

A positive cross-section relationship between bank capital and bank value is however argued by Mehran and Thakor (2009). They argue that banks desire to guard against unexpected withdrawals by depositors or draw downs by borrowers which may bring about bank insolvency, necessitates banks to hold capital as a buffer against insolvency, as well as liquid assets – cash and securities. Furthermore, capital increases banks incentives to monitor its borrowers thus generating a surplus which could shape the competition between banks. In a competitive market, capital increases bank's incentives to monitor its borrowers as greater capital forces banks to internalize the cost of loan default on the one hand, while on the other hand, the loan rate gives banks a greater incentive to monitor its borrowers in order to receive the higher pay off if the project succeeds and the loan is repaid (see Allen, Carletti and Marquez, 2011).

The costs of bank failure are significant, and as Diamond and Rajan (2002) argue, bank failure can themselves cause liquidity shortages. Therefore following Diamond and Rajan (2002), one could justify a relationship between bank capital and bank value.

The importance of laws and regulations for bank growth and expansion cannot be over-emphasized. Laws and regulations promote a conducive climate for banks activities in a competitive market economy. While studies on effects of laws & regulations for corporations are vast, those on banks remain relatively few (with the important exception of the recent evidence from Caprio, Laeven, and Levine, 2007). We argue that bank ownership has important implications for the relationship between bank capital and performance though our knowledge in this respect remains rather limited.

Bank ownership structure in CEE countries over the past two decades or so, have undergone significant changes. Since the early 1990s, foreign banks have been active in the transition countries, as the countries implemented a variety of significant reforms. These reforms encompassed financial market liberalization, elimination of barriers to foreign bank entry, privatization of erstwhile state banks, to mention a few. This has given rise to existing studies on how foreign bank entry has affected bank performance in the region (e.g. Megginson (2005), Bonin et al (2005)). The general consensus is that foreign banks have been more efficient than other types of banks (e.g., see Giannetti and Ongena (2009), Fries and Taci (2005), Lensink et al (2008), Grigorian and Manole

(2002), Isik and Hassan (2002), Jemric and Vujcic (2002), Havrylchyk (2006), and Bonin et al (2005)).

Access to loans by borrowers, especially small and medium enterprises, has been created through competition between foreign and domestic banks. Small and medium enterprises have therefore been able to scale financial barriers to their survival, as high costs of accessing bank loans, are significantly reduced as well as the firms relative riskiness[45]. Despite this, the physical co-existence of foreign banks and domestic banks may present a risk to the host country economy in which the foreign banks are located. An unstable banking environment is created as a result of the co-existence of banks of different types as foreign and domestic banks. In particular, Detragiache et al (2008) argue that foreign banks tend to cream-skim the economy and discriminate against small and medium enterprises which are by nature soft-information borrowers, thus resulting in less credit being provided to the private sector and domestic banks having a riskier loan portfolio than foreign banks. Thus, bank ownership is important and is a significant factor in determining banks relative riskiness and related to that banks relative performance/profitability. The relationship between bank capital and bank performance cannot therefore be generalized as it may depend on other factors including ownership, as well as, the quality of financial institutions in the country.

The differences between foreign and domestic owners have been highlighted in the literature where foreign and domestic bank efficiency and performance have been widely studied[46]. While domestic owned banks may possess superior knowledge of the local economy, foreign owners may possess superior skills for risk management, and ability to attract foreign capital necessary for bank development. There could however be tensions between domestic and foreign owners in joint venture banks in general[47], regarding allocation of local and global profits, intellectual property rights, etc. (see Desai et al. 2003) Accordingly, these two types of banks may differ in terms of their capital control and therefore performance.

[45] As is characteristic of all small and medium enterprises in all countries of the world

[46] Note that in these literatures, foreign banks are defined as banks where the foreign individual or company owns at least fifty-one percent of total shareholding. Similarly, domestic banks are defined as banks where the domestic individual or company owns at least fifty-one percent of total shareholding.

[47] Regardless of which owner holds majority shareholding.

Most existing literature does not distinguish between foreign banks by their ownership variation: usually one-hundred percent foreign owned bank subsidiaries and joint venture foreign majority owned banks are lumped together as foreign banks, and the same is the case for domestic banks. An important innovation of the present study is to distinguish one-hundred percent foreign owned bank subsidiaries from joint venture bank subsidiaries, which enables us to analyze the differential implications for different ownership structure.

Most existing literature on joint venture arrangements pertain to non-financial firms. It is generally argued that joint venture is an expansion strategy for the firms, in that the foreign partners use their association with domestic partners to penetrate markets in host countries (for example, see Calem, 1988). Mutual benefit of both foreign and local private (domestic) partners may however be a motivating factor for such an arrangement (see Raff et al (2008), Slangen et al (2008), and Gomes-Cassares (1989)).

The undesirability of joint ventures may however lie in their nature of being unstable (See Gomes-Cassares, 1987; and Steensma et al, 2008). While Meyer and Altenborg (2008) view joint ventures as a coming together of foreign and private domestic shareholders with incompatible strategies, Miller et al (1996) view joint ventures as a fragile association of foreign and private domestic partners. Using American evidence, Desai et al. (2003) further argued that, over the period 1982 -1997 American multinational firms were decreasingly likely to establish joint ventures. This had been accompanied by an increasing appetite for multinational control in one-hundred percent foreign owned firm subsidiaries operating in host countries. It is argued that this increasing incidence of one hundred percent foreign controlled operations in host countries highlights growing differences between the costs of running overseas operations as joint ventures and the costs of administering foreign activities as one-hundred percent foreign owned operations.

Desai et al. (2003) identify three possible sources of the rising coordination costs of shared ownership. First, tax-efficient structuring of worldwide operations is made more difficult by tensions between joint venture domestic partners concerned with local profits and multinational parents concerned with global profits. Second, the ability

to transfer intellectual property in many host countries is limited by fear of its appropriation by local partners, especially in the absence of strong intellectual property rights. Third, the desire to structure worldwide production in a decentralized way with greater intra-firm trade creates the room for more conflict with local partners who have competing goals. Since multinational firms rely increasingly on cost savings and market opportunities created by worldwide tax planning, technology transfer, and production decentralization, they face growing incentives to avoid sharing ownership of their foreign affiliates.

Differential ownership structure may in turn, differentially affect the relationship between bank capital and performance for the following reasons: (i) corporate governance of banks as captured by ownership may affect the cost of capital of the firms and households they lend to and therefore bank valuation. (ii) Corporate Governance affects costs of financial intermediation, and thereby the cost of capital of the firms and households they lend to. (iii) Corporate Governance affects banks' risk-taking and risks of financial crises, both for individual banks and for the overall banking system. We argue that overall control by multinational parents in a foreign subsidiary in a host country may entail important implications for corporate governance mechanisms, as managers of one-hundred percent foreign owned subsidiaries may be subject to more rigorous regulations and supervision (relative to joint ventures) which may in turn boost their performance.

We use bank-level Osiris data from a sample of listed banks[48] located in a group of Central and Eastern European (CEE) transition countries, supplemented with Bank ownership data from De Haas et al (2011) to explore this further. We argue that Central and Eastern European countries are important cases in point. While the transition process has emphasized the need to ensure easy access to firm financing, risks of too much finance or capital remains underestimated. The latter highlights the importance of an analysis of bank capital and performance for the region

While there is a large literature on bank performance and efficiency in Eastern European transition countries (especially the CEE countries), this literature primarily

[48] More specifically, bank subsidiaries.

focuses on a comparison of domestic owned and foreign owned banks. While some of these studies control for some measures of bank capital, none of these studies explicitly explores the implication of ownership structure for the relationship between bank capital and performance. The present study bridges this gap in the literature. We deviate from existing literature on bank performance focusing on banks relative efficiency in this study, as we focus on the relationship between capital and bank performance and explore how this relationship may vary with ownership and nature of institutions in the region.

4.2. Data

The bulk of the data for this study have been obtained from the Bureau van Dijk Electronic Publishing **(**BvDEP**)** Osiris database. The database provides financial statements for both financial firms[49] as well as, non–financial firms[50]. Banks being a type of a financial firm, are the focus of this study. We focus on unconsolidated balance sheet and income statement data as use of consolidated bank data could blur the overall picture and may thus weaken our analysis. Bank financial statement data are all denominated in United States (US) Dollars currency.

The Bureau van Dijk Electronic Publishing (BvDEP) Osiris Database is updated annually; for the purpose of this study, we employ bank financial statement data from the December 2007 edition. This is because, as at the time of performing this study, the Bureau van Dijk Electronic Publishing **(**BvDEP**)** Osiris database 2007 edition was the only edition available to us. Bank ownership in our sample therefore referred to that for the latest year and was time invariant in nature over the period of our study. In order to address this shortcoming, we merge Osiris dataset with time varying bank ownership information available for sample banks from De Haas et al (2011). De Haas et al (2011)

[49] Financial firms refer to firms engaged in the business of financial intermediation. I.e. the receipt of deposits and investing of same in profitable ventures to earn returns both for the depositors but also ultimately for the owners of the financial firm itself. Financial firms include Banks, insurance companies, pension funds, finance houses, etc.
[50] Non-financial firms refer to those firms not engaged in the business of financial intermediation.

data distinguishes between foreign greenfield and takeover; foreign greenfield is equivalent to one hundred percent foreign owned bank while foreign takeover is treated as joint venture between foreign and domestic partners.

As the privatization process deepened especially in the post-1995 period, it gave rise to a co-existence of private domestic and foreign banks in CEE transition countries; this was accompanied by a decline in state bank ownership. We focus on the period 2000 to 2007 by when bank reforms were completed in most sample countries.

Majority of country level data on the quality of institutions are taken from the World Bank World Development Indicators. Further we get the creditor rights index from Djankov et al (2007).[51] We merge our country level data to bank level information on bank characteristics, performance measures, risk measures and capital structure measures.

Our data from the Osiris bank database comprises of banks in eleven Central and Eastern European countries over the period of 2000 – 2007. Out of a total of 57 bank subsidiaries (foreign greenfield, foreign takeover and domestic private banks, there are 18 foreign greenfield bank subsidiaries, 8 foreign takeover bank subsidiaries, and 41 domestic private bank subsidiaries. This included 1 bank subsidiary each from Hungary and Slovakia, 2 bank subsidiaries from Czech Republic, 3 bank subsidiaries from Bulgaria, 5 bank subsidiaries each from Moldova, Republic of Serbia and Ukraine, 7 bank subsidiaries each from Bosnia and Herzegovina and Poland, 10 bank subsidiaries from former Yugoslav republic of Macedonia, and 11 bank subsidiaries from Croatia. The choice of these countries has been dictated by data availability from Osiris.

We construct an unbalanced panel of bank data for the 397 observations drawn from our 57 bank subsidiaries. The bank subsidiary ownership distribution of the banks, in our data set suggests that foreign banks are substantially represented in our sample, and are almost as represented as the domestic private banks as observed in Figure B4.1. This may not be a coincidence, given the wave of foreign ownership sweeping through the CEE country economies and established arguments of foreign banks being the most efficient and occupying most significance in Central and Eastern European countries (See, Barth et al (2001) and Naaborg and De Haas, 2004). However, a reluctance of a growing number of countries in the world to completely transfer bank ownership to

[51] http://www.economics.harvard.edu/faculty/shleifer/dataset

foreign individuals persists. This may be because the identification of a bank owned by local individuals makes it more attractive to patronage by domestic depositors. Furthermore, this view is more palatable with a broader strategic objective of country governments of ceding ownership of strategic resources to citizens of the country – thus promoting citizen empowerment. In support of these views, evidence exists (in many developing countries), to suggest that the local populace are reluctant to embrace reforms, particularly those ushering the involvement of foreign individuals. The sale of erstwhile state banks to foreign individuals however persists due to such bank owners being well informed and better placed to deal with weaknesses of ailing state banks (Clarke et al 2003).

In many transition countries, large scale bank privatizations has been prompted by the general dissatisfaction of continued state ownership and its link with lower financial development, lower efficiency and productivity and slower growth in the region (Megginson, 2005; Barth, Caprio and Levine (2001a); La Porta, Lopez-de-Silanes and Shleifer, 2002). In support of this, Figure B4.2 provides an overview of the distribution of bank subsidiary types in our sample. We observe foreign takeover banks to be the least represented in our sample, followed by those of foreign greenfield banks. Domestic private banks appear to be the most represented. We have 57 foreign takeover banks, 95 foreign greenfield banks and 245 private domestic banks. In terms of percentage figures, 24% of observations refer to foreign greenfield bank subsidiaries, 14% to foreign takeover banks, and 62% by private domestic banks.

4.2.1. Banking in transition

There has been some consensus that state banks are less efficient than privately owned banks (Megginson, 2005 and Fries and Taci, 2005). This has been well documented in the bank privatization literature. State banks consistent with the performance of all state owned enterprises, are run with Government objectives to maximize social welfare (See Shirley and Walsh 2000). However, less competition, greater political intervention and weaker corporate governance are strong theoretical arguments against state ownership

(Clarke, Cull and Shirley (2003)). Poor performance in comparison to private banks has unsurprisingly been the result.

Improved efficiency has been the usual effect of privatization (Megginson and Netter (2001), Clarke, Cull and Shirley (2005), and Beck, Demirguc-Kunt and Maksimovic (2004)). This has been mainly attributable to the sale of erstwhile state banks to foreign individuals (Megginson (2005), Clarke, Cull and Shirley (2003), Bonin, Hassan and Wachtel (2004), Berger et al (2003)). The full benefits of bank privatization are however achieved when Government fully relinquishes bank ownership, of which Brazil (Beck, Crivelli and Summerhill (2005)), Poland and Czech republic (Bonin et al 2003b) and Nigeria (Beck, cull, and Jerome (2005)) are classic examples. The spectacular growth of foreign banks in the Central and Eastern European transition countries in the post reform period is therefore understandable in that context.

Performance of private banks may vary depending on whether they are de novo (newly established after the reform started) or not. De novo private banks perform better than privatized banks in general and this may be attributed to the difficulty experienced in transforming the pre-privatization fortunes of the privatized banks (Clarke et al, 2003). It is this marked distinction between the performances of types of private bank subsidiaries, namely private domestic and foreign banks that has been the basis for many arguments in the bank privatization literature. In most cases, foreign banks are observed to perform better than private domestic banks. General consensus exists in the case of foreign bank cost efficiency (Borovicka, 2007; Yildirim and Philipatos (2007), Weill (2003) and Bonin et al (2005)). However foreign bank efficiency/performance in general is not one which is universally agreed on. While Claessens et al (1998), Havrylchyk, (2006), Berger et al (2000) and Berger et al (2003) highlight better performance of foreign banks in relation to domestic banks, Lensink, Meesters and Naaborg (2008), find that foreign ownership of banks could reduce bank efficiency.

4.2.2. Foreign Greenfield Bank Subsidiaries

For the rest of our analysis we distinguish foreign greenfield bank subsidiaries from other varied bank ownership arrangements such as foreign takeover (or joint ventures) or domestic private banks, as their constitutions by solely foreign owners represent a special case in point of foreign ownership, and almost bear no mention in previous empirical studies examining the role/performance of foreign banks.

Foreign greenfield bank subsidiaries differ from joint venture bank subsidiaries, as they are owned by only one type of private owner –foreign, and as such may benefit from the more stringent regulation and supervision of management that obtains in their home country. This may give rise to tighter corporate governance mechanism of such banks in the host country. This is important given that one-hundred percent foreign owned bank subsidiaries will tend to have a stable ownership structure over time in contrast to other varied bank ownership arrangements involving foreign owners as joint venture bank subsidiaries (Gomes-casseres, 1987). One-hundred percent foreign owned bank subsidiaries will also differ from joint venture bank subsidiaries on the basis of the incentives for corporate governance which are more attractive.

4.2.2.1. Quality of institutions

Evidently bank performance depends on the quality of institutions. A critical component of the transition process in CEE countries has been the evolution of the legal and regulatory environment to accommodate the market-oriented economy to be borne (Kemme et al., 2008). Bank performance thus experienced a marked improvement resulting from the accompanying change in the social, economic and political environment in which banks were to operate. Despite this, various concerns remain including those relating to bank's risk-taking, bank efficiency, asymmetric information, and bank competition.

Bank competition has led to market concentration and therefore more challenges of regulation (Beck et al 2004). Even where bank regulation and control is tighter, banks efficiency has been adversely affected. Banks experienced increased costs of financial

intermediation on account of increased control of bank entry and bank activities (Demirguc-Kunt et al, 2004). Traditional bank regulatory measures such as capital adequacy ratio and cash reserve ratios, even when increased have also proved ineffective. Barth et al (2008) highlighted the ineffectiveness of strengthened capital regulations and official supervisory agencies following Basel guidelines over the last decade. Further evidence in support of this observation lies in the origin of the recent financial crisis.

Well developed institutions and regulations especially those relating to bank capital remain central to promoting the long term stability of the banking system. However, a solid bank capital structure is crucial for a bank's stability as well as its ability to provide liquidity and credit effectively (Diamond and Rajan, 2000). A stable bank contributes to promoting a stable banking system in a country. A stable banking system will promote depositor confidence and so prevent bank runs; and also ensure the liquidity of banks to ensure that efficient financial intermediation can take place to sustain the growth of the economy. Thus it is important for the banks to have a healthy capital base. From this perspective, regulation may promote a positive association between bank capital and bank performance as suggested by Mehran and Thakor (2009). Evidence in support of this is provided by Agoraki et al (2011) who find that higher capital requirement reduces bank risk- taking. The effectiveness of higher capital requirements is reduced however, with market power of banks and/or increase in off-balance sheet activities. This though depends on the type of private bank subsidiary, be it foreign greenfield or other jointly owned bank. In the case of a foreign greenfield bank subsidiary, improved institutions and regulation in the host country economy complements the regulations and institutions governing foreign bank activity from the foreign banks' home country. Hence foreign bank performance is strengthened by stronger regulation and institutions in their country of origin. Coupled with foreign banks reluctance to take on risks in developing countries due to the erstwhile existence of low quality institutions (see, Detragiache et al, 2008), foreign greenfield bank subsidiaries will have a tendency to outperform all other bank subsidiary types.

The case of jointly owned banks is very much different. Any resulting impact of bank regulation and institutions in the host country, especially with regard to curbing risky activity, will be very much felt by the domestic shareholders in joint venture banks,

since they are likely to be the forces driving the banks engagement in such risky activity (see, Detragiache et al, 2008).

While the need for effective regulation is not in doubt, strong institutions work in tandem to enforce them, especially in the form of strong creditor rights and shareholder rights, and rule of law. La porta, Lopez-de-Silanes, Shleifer, & Vishny (1997) find evidence that the legal environment as described by both legal rules and their enforcement - matters for the size and extent of a country's capital markets. A good legal environment protects the potential financiers against expropriation by entrepreneurs, and raises their willingness to surrender funds in exchange for securities. The scope of capital markets is hence expanded. Well-developed institutions are prevalent in developed countries, while much still needs to be done as far as institution quality is concerned in developing countries. If corporate governance policies are to be effective, strong institutions are required. These will ensure that the desirable stable, healthy banking system is achieved.

Meanwhile, bank performance in developing countries continues to suffer from the poor quality institutional design in these countries. While Claessens et al (1998) observe in general that foreign banks tend to perform better than domestic banks in developing countries, foreign bank performance in host developing countries may benefit from better quality institutions. A barrier to foreign bank performance is the poor access to information about the country's economy, language, laws and policies (Hymer, 1976). Domestic banks on the other hand, may not be affected, at least to the same extent, if the Berger et al (2000) home field advantage hypothesis holds true. This is because, domestic banks know their home country well and therefore have superior knowledge of profitable sectors to trade in (and so experience lower costs of financial intermediation), compared to their foreign counterparts. They may therefore be willing to foray into certain risky activity as a result of this superior access to information regarding the country's infrastructure, and in pursuit of highly profitable opportunities. Foreign banks on the other hand, due to the high costs of operation (including search costs of information, laws and policies) may be unwilling to undertake these activities. This exposes domestic banks deposits and shareholder capital to magnanimous risk.

Table 4.1a summarizes the selected institutional characteristics of the sample Central and Eastern European countries. Sources of data are varied and are as shown in the notes to the table. Clearly there is interesting inter-country variation. Creditor rights are strongest on average in Bosnia and Herzegovina, Croatia, Czech Republic and Macedonia (FYR) with the highest creditor rights score of 3. Hungary and Poland lag behind the pack with the lowest creditor rights of 1.

There appears a marked association between bank reform as measured by the EBRD bank reform index, and development as measured by GDP per capita. Countries with more advanced bank reforms have higher levels of GDP per capita compared with those countries less advanced in bank reforms. Croatia, Czech Republic, Hungary, Poland and Slovakia provide evidence in this regard. This further highlights the importance of developed banking systems for economic growth and development. While Czech Republic is the most developed country with GDP per capita of US$ 11263.76, Moldova is the least developed country with GDP per capita of US$ 837.82.

GDP per capita may proxy for the overall level of development, as bank costs may decrease with development due to corresponding improvements in the quality of state institutions[52] (Fries and Taci, 2005). Our data set provides evidence in support in the form of high pairwise correlations between GDP per capita and institutional quality in sample countries. GDP per capita is positively correlated with Bank credit to the private sector as a proportion of GDP (pairwise correlation of 0.4149). GDP per capita is also positively correlated with EBRD bank reform index (pairwise correlation of 0.8317).

With decreased costs of operation of banks located in host countries with better quality institutions, foreign banks are likely to be attracted to such countries and as such the banking system development is promoted. Evidence in support of this is observed from Table 4.1a where Croatia, Hungary, Czech republic, and Slovakia, have the most developed banking systems, according to private sector credit by banking system to GDP, in our sample. It comes as no coincidence that these countries are those with the most developed economies according to average GDP per capita.

[52] Evidence in support of this from Table 4.1a is provided in the case of Czech Republic and Croatia with the maximum creditor rights of 3.00 on average corresponding to higher levels of economic development. However the other countries represented in our sample do not portray this trend.

Table 4.1a depicts more developed countries as measured by higher levels of GDP per capita, to possess more developed financial sectors as measured by the ratio of private sector credit by banking system to GDP, as well as, the ratio of stock market capitalization to GDP. Therefore following Fries and Taci (2005), we use Log of GDP per capita as a proxy for the quality of country institutions.

An increasing trend observed in our data sample is that virtually most of home countries from which host country bank subsidiary ownership originate are members of the Organization for Economic cooperation and Development (OECD) of which interestingly, Hungary and Czech Republic, transition countries in themselves, are a member of. The OECD are a conglomerate of countries who come together to provide a forum in which member country governments can work together to share experiences and seek solutions to common problems, thus stimulating economic progress and world trade[53]. It therefore comes as no surprise that going by the average GDP per capita, Hungary and Czech Republic are one of the most developed host countries in our sample. We therefore, obtain average values of institutional indices as in Table 4.1a for all OECD member countries for the period 2000 - 2007. This is as in Table 4.1b.

From Table 4.1b and in comparison with average values obtained for Table 4.1a, we observe OECD countries to on average have higher values of all indices. This provides support for the argument that home countries tend to be at better levels of institutional quality than host countries.

4.2.3. Variable Definitions

Bank capital is generally defined as the excess of bank assets over bank liability where liability includes bank deposits which may be lent to investors as loans. For the purpose of this study, measures of bank capital explored include deposits, liabilities and shareholders' equity. In particular, we examine the impact of bank assets, bank capital, and bank risk measures on a number of bank performance indices for different identified

[53] See OECD website at http://www.oecd.org

bank subsidiary types, classified by their ownership structure. Among various measures of bank performance we consider return on (total) assets, profit margin and return on (shareholders') equity.

Return on assets is the contribution of each unit (US Dollars) of assets to total earnings prior to the deduction of interest and tax payments. The contribution of each unit of sales to gross profit is defined as Profit margin. Return on shareholders' equity is defined as the reward that shareholders realize from their investment in shares of the bank[54].

Return on shareholder equity in particular, is a comprehensive profitability measure since banks may have substantial off-balance sheet portfolios. Banks must allocate capital against every off-balance sheet activity they engage in. Hence a reflection of the banks off-balance sheet activities are net income (earnings) and shareholders' funds (Berger et al, 2009).

Bank capital is measured by the ratio of total deposits to total assets (deposits ratio), ratio of total liabilities to total assets (Liabilities ratio) and ratio of shareholders equity to total assets (shareholders equity ratio). These represent the three major sources through which banks may obtain capital to fund their activities. The capital measures provide the value of bank capital from each source of capital that is used to finance each unit (US Dollars) of total assets.

According to the Bureau Van Dijk Osiris bank database source, bank deposits are the hard earned income of bank customers which they choose to invest in various types of accounts that the bank may provide to save for withdrawal at a future date, and which may also attract interest revenue from the bank as bank re-invests these funds in profitable investment projects. Banks total liabilities are the sum of deposits and short term funding, other funding, other non-interest bearing liabilities, other reserves, and loan loss reserves. Lastly, shareholders equity is defined as the difference between total assets and the aforementioned total liabilities. The value of shareholders equity may be used to evaluate the performance of Central and Eastern European stock markets and their value to banks in terms of providing a source of capital for bank expansion/investment activity.

[54] It is the earnings realized by the bank on account of each unit of shareholders capital invested in the bank.

We also control for bank risk measures in this study as they explain bank performance. We take into account bank's off-balance sheet items that have been growing dramatically over the years. Off balance sheet items are the most viable means through which banks may engage in risky activities without being detected (at least in the short term). This is because they are concealed from the public eye and not reflected by their nature on banks' balance sheets and financial statements. Thus, it provides an avenue for banks engaged in such activity to circumvent regulatory authority which restrict banks activities in an effort to regulate the financial industry. This is more likely to be the case when banks are large, as larger banks have more liberty to take magnanimous risks at such an advanced stage in their growth process.

An important explanation for the steady growth of bank off-balance sheet activities in recent years is that it allows banks to earn fee income without putting an asset or liability on its balance sheet (Berger et al, 2009). Accordingly banks can avoid reserve requirements or capital adequacy requirements. We therefore compute the ratio of off-balance sheet items to total assets (off-balance sheet items ratio), and employ it as one of potential measures of bank risk. Other risk measures are also considered, such as loan loss reserves ratio – the ratio of loan loss reserves to total gross loans, and non-performing loans ratio – the ratio of non-performing loans to total gross loans.

Loan loss reserve acts as a bank's insurance against bad loans borrowed, and may increase with the size of bad loans given. It reflects the bank's ability to effectively manage its inherent risks of operation.

Non-performing loans ratio on the other hand, is an alternative measure of bank risk possibly more direct. It measures the loans given out by the bank which after the bank has exhausted all avenues to recovering the loan from the borrower are determined to be irrecoverable. It may however reflect a weakness of the bank in properly screening its potential borrowers when they approach the bank for loans. The non-performing loans ratio will increase as banks actual loans given out turn bad, and predicated on this will be the banks future decisions on risk management strategies.

Table 4.2 summarizes the average values of measures of capital over two identified time periods namely, 2000 – 03, and 2004 – 07. Most bank reforms in the

region were completed during the period, 2000-03. Thus, 2004-07 may be referred to as the post reform period, while 2000 – 03 is the reform period. From the capital measures, there appears to be striking similarities between all the time periods observed, and any differences are very little. However, the average capital measure of significant increase is that of liabilities ratio over the post-reform period where it is observed to be highest at 0.82. Average bank performance measures of bank return peaked over the post reform period, 2004 – 2007, and significantly too. This once again highlights the superlative performance of private bank subsidiaries, be it foreign greenfield, foreign takeover or domestic private, in the aftermath of the reform process. This could be explained by the resulting competition among banks of various types that co-existed in Central and Eastern European country economies following the completion of bank reforms.

In general, while deposits ratio remains unchanged for all three time periods, average liabilities ratio for the post reform period, as well as, the entire sample period, are higher than those for the pre-reform period. Equity ratio on the other hand dropped by 1% post reform and for the entire sample period than the reform period. Bank performance is also higher post reform as well as for the whole sample. Shareholders equity ratio while higher during the reform period appears not to have changed much over our sample period.

With reference to the risk measures, off-balance sheet items are similar across all identified time periods, suggesting banks continued tendency to engage in off balance sheet activity as a means to increase bank profitability, despite its evident risks. While loan loss reserves are highest in the post reform period, non-performing loans are the lowest on average during the period. This low non-performing loans ratio may suggest increased efficiency in private banks management of risks of operations, or alternatively the benefits of improved environment for bank operations.

Jointly owned banks in our data sample comprise of those where bank shareholding lies in both the hands of foreign individuals and those of private individuals. This classification allows us to explore the difference, if any, in the relationship between bank capital and performance among these different identified bank subsidiary ownership types. Corporate Governance implications of such varied shareholding arrangement will

therefore differ among both these private bank types owing to differences in bank ownership, which in turn will affect bank performance. Secondly, risk measures vary and will therefore have varying impacts on bank performance. Most existing literature overlook this, and so by employing various risk measures, we are able to assess the effects of the risk measures on various bank performance measures. Thirdly, various reforms undertaken by transition countries including economic, financial and institutional reforms, have promoted the foray of foreign banks into the transition countries, as well as the growth of private banks in general, in these countries. This may have enabled institutions to affect bank performance also in these countries as costs of operations decline. To that effect, by using a sample of banks over the period of 2000 - 2007, we are able to examine the impact of institutions on bank performance.

Our analysis focuses on one dimension of bank performance –return on assets, relating to the role of bank capital, bank risks and bank ownership. While some capital and risks could boost performance, too much capital and risks may harm it. In other word, we envisage a non-linear relationship. This is because, availability of bank capital enables the banks to have surplus capital, which could result in excessive risk taking, thus lowering bank performance. Unlike much of the existing literature, we also explore the potential role of ownership in this respect. We argue that 100% foreign subsidiary – foreign greenfield, may be more efficiency enhancing than the joint venture (jointly owned) banks and in the absence of any prior, we use our data to test the validity of this hypothesis.

4.3. Methodology

Our primary objective in this paper is to assess the effect of ownership on bank capital and bank performance, after controlling for all other factors.

However, given the time-invariant nature of Osiris bank ownership information, use of a fixed-effects model may be challenging. One option would be to run

separate regressions for identified bank ownership categories; however this is still problematic as this would reduce the sample sizes and may also cause selectivity bias in our estimates. Fortunately we have access to Bankscope time varying foreign ownership information compiled by De Haas et al. (2011). This allows us to merge Osiris data with Bankscope ownership data, which in turn gives rise to a sub-sample.[55] The size of the sub-sample was determined by the observations for which time varying ownership data was available. There are 397 observations in this sub-sample, which was used for estimating the fixed effects model (in equations 4.2). Note however that this ownership information is binary in nature distinguishing foreign greenfield banks from foreign takeover banks. We therefore proxy one-hundred percent foreign owned subsidiaries by foreign greenfield banks - newly established subsidiaries by parent banks. The reference category is the foreign take over banks which are essentially joint venture banks and also a handful of domestic private banks.

4.3.1. Determination of Bank Capital

First we determine bank capital in terms of selected bank characteristics and country level characteristics. We start with the pooled OLS estimates of capital structure in terms of foreign ownership (greenfield or not) and other control variables, including year dummies in our specification to control for year specific effects. However given the possible omitted variable bias we prefer panel data fixed effects estimates to pooled OLS estimates. These are determined as follows:

$$K_{it} = \gamma_0 + \gamma_1 F_{it-1} + \gamma_2 X_{it-1} + \theta_t + \nu_i + \varepsilon_{it} \qquad (4.1)$$

Where, K is measure of bank capital – liabilities ratio. Size of bank capital, K, depends on bank ownership F (whether greenfield/one hundred percent foreign owned, or not), and other variables subsumed in X – bank size, intangible assets as a share of total assets (Intangibles), Bank Age (Young), profitability (return on assets), Growth of the economy. With regard to bank ownership, we control for private domestic bank ownership, while

[55] We are grateful to Ralph De Haas and Yevgeniya Korniyenko of EBRD for sharing this information with us.

maintaining foreign takeover banks as our reference category. θ and ν are bank-specific and year specific fixed effects respectively.

4.3.2. Determination of Bank Performance

We begin with pooled OLS regression analysis for the sample period using available ownership information. Thus, bank performance, R_i of the i-th firm is given by:

$$R_i = \lambda_0 + \lambda_1 L_i + \lambda_2 F_i + \lambda_3 (F_i * L_i) + \lambda_4 G_i + \lambda_5 X_i + \mu_i \quad (4.2)$$

Where,

L = Capital measure: liability ratio

F = 1 if the bank is a foreign greenfield bank and zero otherwise.

G = Risk measure[56]

Equation (4.2) also includes an interaction term between F and L, with a view to capture the differential effect of capital in a foreign greenfield bank subsidiary on bank performance. As F, also enters the regression independently, the interaction of F and L enables us to capture the total (direct and indirect) effects of foreign greenfield ownership, on bank performance, as measured by the sum of the coefficients λ_4 *and* λ_5

The set of control variables included in X not only includes various firm-specific variables (e.g., age, bank size (proxied by log of bank assets), but also a dummy for reform period 2002-2004 when majority of reforms were completed[57], and country-level GDP per capita which is a strong correlate of country institutional characteristics. We also include the square of GDP per capita with a view to examine the evidence of non-linearity, if any Inclusion of year dummies in our specification enables us to control

[56] Of which we experiment with off balance sheet items (as shares of total assets), loan loss reserves, and non-performing loans due to potential correlation between all three risk measures (See Appendix Table A4.3).

[57] Inclusion of this dummy enables one to examine the immediate impact of successful bank reform completion on bank performance. Such an effect could whittle down over time. We drop the variable in final results as it was insignificant in all our regressions

for year specific effects. All right hand side variables are lagged by one year in an attempt to minimize simultaneity bias.

One potential weakness of equation (4.2) above is that these pooled OLS estimates could be biased due to the omitted factors influencing R_i. In order to address this bias arising from unobserved heterogeneity, we estimate a panel data fixed effects estimate as contained in equation (4.3)

$$R_{it} = \propto_0 + \propto_1 L_{it-1} + \propto_2 F_{it-1} + \propto_3 (F * L)_{it-1} + \propto_4 G_{it-1} + \propto_5 X_{it-1} + \theta_{it} + v_i + \mu_{it} \quad (4.3)$$

Where v_i refers to bank specific unobserved factors and θ_t refers to year specific unobserved factors. All other variables are as included in equation (4.2). As before, use of lagged explanatory variables will minimize the extent of potential endogeneity bias in our estimates, generated by reverse causality.

Given the differential corporate governance mechanisms in foreign greenfield bank subsidiaries we explore the differential implications of bank ownership structure for the relationship between bank capital and performance in our sample. Our fixed effects estimates ensure that bias arising from un-observed heterogeneity is minimized. To that effect, firm (bank) fixed effects (v) and year fixed effects (θ) enable any potential bias arising from firm (bank)/year level unobserved variation in the data to be minimized. Ceteris paribus, our analysis focuses on the sign and significance of α_3 which highlights the differential effect of foreign greenfield liability on bank performance relative to all other banks.

4.3.3. Descriptive Statistics

Our measures of bank performance with which we explore, as earlier discussed include return on total assets, profit margin and return on shareholders' equity. Our risk measures, on the other hand are, ratio of off balance sheet items to total assets, although we experiment with two other measures: ratio of loan loss reserves to total gross loans, and the ratio of non-performing loans to total gross loans[58]. Measures of capital structure

[58] The sum of total loans and loan loss reserves.

with which we explore include, deposits ratio, liabilities ratio, and shareholders' equity ratio. Definitions of regression variables employed in our model and the means and standard deviations of these variables are provided in Appendix Table A4.1. Pair wise correlations between explanatory variables employed in our regression models are as shown in Appendix Tables A4.2 and A4.3, and suggest that multicollinearity between the included regressors is not of a serious nature.

More interestingly, as we supplement our data set with data from De Haas et al (2011), where we observe foreign greenfield banks and foreign takeover banks, Table 4.3a compares the means of bank capital and performance measures between foreign greenfield and foreign takeover bank subsidiaries in our data sub-sample. In this regard bank capital examined included deposits ratio (ratio of deposits to total assets), and shareholders equity ratio (ratio of shareholders equity to total assets), in addition to liabilities ratio.

Compared to foreign takeover bank subsidiaries, foreign greenfield bank subsidiaries tend to have higher deposits and liability ratio, but lower equity ratio. It follows that foreign greenfield banks tend to be the most capitalized banks in terms of most capital ratios. Furthermore, greenfield banks have higher return on assets than foreign takeover banks, but no significant difference is observed for other potential profitability ratios - profit margin and return on equity measures. In Table 4.3b we observe a similar trend as means of foreign greenfield bank subsidiaries capital and performance measures are compared to those of all other banks in the sample. Foreign greenfield bank subsidiaries perform overwhelmingly better than all other bank subsidiary types. It would be interesting to see whether this bivariate comparison holds when we control for other factors in a multivariate regression framework.

4.4. Results

We start our analysis by considering pooled ordinary least squares (OLS) model for 2000 -2007. We also show the corresponding capital estimate as in equation (4.1) as summarized in Table 4.4.

Given the aforementioned concerns with single cross-section regressions as the use of continuous bank ownership data for the latest year may have resulted in, and the anticipated challenges in estimating fixed effects with time-invariant bank ownership, we introduce the time varying bank ownership data from De Haas et al (2011) and merge it with our Osiris data. De Haas et al data however only contains ownership of banks based on whether they are foreign greenfield, takeover, or domestic private bank. Our choice of bank performance measure, return on assets, is informed by the significance of the mean return on assets of foreign greenfield banks relative to those of other banks as discussed previously in section 4.3. This provides further substance to our argument that one hundred percent foreign owned/Foreign greenfield banks, tend to be the best performing banks compared to other types of banks. Table 4.5 shows the fixed effects least squares estimates.

4.4.1 Pooled Ordinary Least Squares Regression estimates

Table 4.4 shows the pooled OLS estimates and makes use of Bankscope time varying ownership information.

Table 4.4 suggests that foreign greenfield bank subsidiary dummy is negative and significant for return on assets, and results in a decrease in return on assets by 14.8%. It is however insignificant for bank liabilities. Furthermore, although higher liability lowers return on assets, higher liabilities in foreign greenfield banks increases return on assets by 15%.

In the aforementioned pooled OLS regression estimates, intangible assets are negative and significant for return on assets. Evidence of non-linearity of growth of GDP

per capita is also observed given the significance of log of GDP per capita and its square which are negative and positive respectively.

We compare these pooled regression estimates with those of fixed effects ordinary least squares in the subsequent section (4.4.2)

4.4.2. Fixed Effects Ordinary least squares Regression results 2000-2007

We present the bank performance fixed effects OLS estimates for sample banks as tabulated in Table 4.5. Foreign greenfield bank subsidiary dummy is negative and significant in respect of both bank liabilities and return on assets. This suggests that greenfield banks have significantly lower liabilities, while they result in a decline in return on assets by 1.1%. Foreign greenfield banks tend to have higher return on assets even when liability increases, and the differential return is 12.7%. The differential return of private domestic banks on the other hand remains insignificant. In general higher liabilities ratio lowers return on assets.

We observe the importance both for bank liabilities of intangible assets bank size, and bank age (young bank dummy), while growth of GDP results in a decline in bank liabilities. The significance of log of GDP per capita suggests that as CEE countries quality of institutions improves, bank liabilities will decline, resulting in less bank capital.

Important for return on assets are banks off balance sheet items and bank age (young bank dummy), which are both positive and significant.

4.4.3. Comparison of Pooled and Fixed Effects Ordinary least squares Regression results

Compared with pooled ordinary least squares regression estimates, fixed effects provide overwhelmingly better regression results. In particular, the differential return of foreign Greenfield banks of 12.7% in fixed effects ordinary least squares, is slightly lower than

15.1% obtained from pooled ordinary least squares. In other words, pooled OLS was overestimating the differential return on assets for foreign Greenfield banks.

4.5. Concluding Comments

Despite the growing importance of understanding the implications of bank capital for bank performance, existing literature remains rather limited, especially for emerging economies. The present paper aims to bridge this gap of the literature. Furthermore, concerns regarding bank excessive lending in light of the recent financial crisis suggest the need for stronger corporate governance of banks by its stakeholders –depositors, creditors, shareholders, and the Government. To that effect, much of the discussion in Europe has focussed on bank capital and capital regulation. However the success of any policy to address the challenges of bank regulation will require a strong corporate governance of the banks in ensuring that bank capital is employed optimally to earn attractive rewards both to depositors and shareholders. The strength of this corporate governance will in turn depend highly on bank ownership, i.e., whether the bank is a foreign greenfield bank subsidiary or not. Foreign greenfield banks being more profitable than other banks will benefit bank performance in the economy owing to their bank capital. Host CEE countries will therefore stand to benefit from the superior corporate governance of these banks, and can serve to ensure the promotion of these bank types by strengthening institutional quality. Using bank-level data for the period 2000-2007 for a group of Central and Eastern European countries, we assess the role of banks' assets, liabilities and risks on bank return on assets for foreign greenfield banks, while arguing foreign greenfield banks to be equivalent to one hundred percent foreign owned banks. Our results highlight the relationship between bank capital, bank risks, and performance, and this relationship may depend on ownership and institutions in these countries. We observe evidence that foreign greenfield bank subsidiaries tend to perform better than other banks. We argue that the latter crucially depends on of the fact that all owners in

foreign greenfield bank subsidiaries are foreign who share similar interests. Our results are robust to alternative specifications.

CHAPTER 4 TABLES

Table 4.1a: Means Of Selected Institutional Characteristics In Host Countries Of Sample Banks

Countries	Creditor Rights Index	EBRD Bank Reform Index	Private Sector Credit by Banking system to GDP	Stock Market capital to GDP	Banking sector Efficiency Index	Bank Size index	Equity Market Efficiency Index	Equity Market Size index	GDP per Capita
Bosnia and Herzegovina	3.00	2.52	0.00	0.00	n/a	n/a	n/a	n/a	2773.51
Bulgaria	2.00	3.36	0.29	0.14	5.51	4.84	4.01	0	3729.34
Croatia	3.00	3.78	0.44	0.33	4.89	5.76	0	0	8637.32
Czech republic	3.00	3.82	0.37	0.26	4.72	5.35	3.55	5.37	11263.76
Hungary	1.00	4.00	0.41	0.25	5.37	5.21	4.23	5.57	8853.12
Macedonia (FYR)	3.00	2.70	0.18	0.09	n/a	n/a	n/a	n/a	2828.33
Moldova	2.00	2.53	0.19	0.01	n/a	n/a	n/a	n/a	837.82
Poland	1.00	3.45	0.28	0.24	5.67	5.08	5.03	4.93	8036.20
Republic of Serbia	2.00	2.33	0.23	0.17	3.36	n/a	n/a	n/a	4272.57
Slovakia	2.00	3.46	0.38	0.08	4.76	5.52	0	0.92	8920.80
Ukraine	2.00	2.47	0.00	0.18	n/a	n/a	n/a	n/a	1959.41

The average country level measures of the quality of institutions in sample Central and Eastern European countries. Creditor Rights index is as obtained from Djankov et al (2007). The index ranges from 0 (weak creditor rights) to 4 (strong creditor rights)**.** EBRD Bank reform index is as obtained from EBRD Structural Change indicators database 2009.It ranges from minimum of zero, to a maximum of four**.** Private sector Credit to GDP and Stock market credit to GDP measure banking and stock market development respectively. They are as obtained from Beck et al (2009). Creditors' rights, EBRD Bank reform index, private sector credit by banking system to GDP, stock market capitalization to GDP are all averaged over the period 2000 – 2007. Bank sector Efficiency Index, Banking Sector Size Index, Equity efficiency index and Equity size Index are obtained from World Bank Financial sector Development Indicators, and were averaged over 5 years for each of the countries where available from 2001 -2005. GDP per capita is denominated in US Dollars, are obtained from the World Bank World Development Indicators and is also averaged over the period 2000 - 2007. Higher values of all indicators indicate better quality of institutions in these countries. Higher values of GDP per capita are indicative of more developed countries.

Table 4.1b: Means Of Selected Institutional Characteristics in OECD Countries Region

Countries	Creditor Rights Index	Private Sector Credit by Banking system to GDP	Stock Market capital to GDP	Banking sector Efficiency Index	Bank Size index	Equity Market Efficiency Index	Equity Market Size index	GDP per Capita
OECD Countries	1.97	0.89	0.76	n/a	n/a	n/a	n/a	26683.50

The average country level measures of the quality of institutions in the Organization for Economic cooperation and Development (OECD) region. OECD countries feature prominently as home countries of host country banks, and infact quite a number of CEE countries with investment in banks in fellow host CEE countries are members of OECD, such as Hungary, Poland, Czech republic, Slovakia and Slovenia to mention but a few. Thus, these CEE countries will certainly be expected to be highly developed than fellow CEE countries that are not members of OECD and as such reforms in the countries will be more advanced than in other CEE countries. Furthermore, some OECD countries that are not CEE countries have significant investment in most of the CEE countries in our sample data set such as Belgium, Germany, Italy, France and Greece and Austria. All indicators are as defined in Table 4.1a above, and were obtained from the same sources. We exclude the averages of EBRD bank reform index on account of the index being not applicable to OECD countries. Bank sector Efficiency, Banking Sector Size, Equity efficiency, and Equity size Indices are unobtainable for the OECD countries and as such we insert "n/a" into the respective columns meaning "not available". In comparison of Table 4.1b with 4.1a above, the OECD region average of all indicators are higher than all indicators of individual CEE countries above, except for creditor rights which is higher in a number of CEE countries than the OECD region. All indicators are averaged over the period 2000 -2007

Table 4.2: Average Capital Structure, Return and Risk measures for Sample Banks

Time Period	2000-2003	2004-07	2000-2007
Number of Observations	**181**	**216**	**397**
Capital measures			
Deposits ratio	0.72	0.72	0.72
Liabilities ratio	0.80	0.82	0.81
Equity Ratio	0.19	0.18	0.18
Return measures (in Percentage)			
Return on Total Assets	0.92%	1.33%	1.14%
Profit Margin	11.21%	22.84%	17.54%
Return on Equity	9.43%	10.44%	9.98%
Risk measures			
Off-balance sheet items ratio	0.21	0.21	0.21
Loan Loss Reserves ratio	0.043	0.052	0.048
Non- performing Loans ratio	0.06	0.02	0.04

Source: Bureau van Dijk Electronic Publishing (BvDEP) Osiris Database (2007)

Sample average capital structure, return measures and risk measures for sample banks over four time periods – Reform period (2000 – 2003), Post-reform period (2004 – 2007), and the full data sample period (2000 – 2007). The reform period is the period when most reforms in Central and Eastern European countries were implemented. The post-reform period on the other hand is the period when major reforms in most Central and Eastern European countries had been completed. As the number of observations in our sample varies from one year to another on account of missing observations –subsequently discarded, we observe a variation in the number of observations employed in making our comparisons across the identified time periods of reform.

Capital structure measures the state of health of the bank. Higher values indicate more healthy banks, while lower values indicate cause for concern on account of the health of the bank. Thus higher capital structure measures are preferable to lower measures Capital structure measures are: Deposit ratio – Ratio of total bank deposits to total assets, Liabilities Ratio – The ratio of total liabilities (sum of deposits, other funding, non-interest bearing liabilities, loan loss reserves and other reserves) to total assets, and, Shareholder equity ratio - the ratio of shareholder equity to total assets.

Return measures are the measures of the bank's profitability/performance. We have three bank profitability measures in this regard: Return on total assets, Profit Margin, and return on equity. Higher measures indicate better performing banks, while the inverse is equally true. All return measures are in percentages.

Risk measures reflect the impact on banks activities, of the business environment in which Central and Eastern European country banks operate. Banks may find it difficult to operate in highly risky business environments compared to less risky ones. Risk measures are: loan loss reserve ratio – The ratio of loan loss reserves to Gross loans, Non-performing loans ratio – the ratio of non-performing loans to total gross loans, and, off-balance sheet items ratio – the ratio of the value of off-balance sheet items to total assets. Higher risk measures indicate more risky banks, while lower values indicate less risky banks. Risk measures are computed in decimals.

Table 4.3a: Independent Sample Means Test Of Foreign Greenfield Banks And Foreign Takeover Banks For 2000-2007

Variables	Number of observations	Greenfield	Takeover	T-stat
Deposits Ratio	152	0.8080	0.5974	5.966***
Liabilities ratio	152	0.8927	0.8114	3.596***
Equities Ratio	152	0.1073	0.1886	-3.596***
Return on assets	152	0.0053	0.0153	-2.332**
Profit Margin	152	0.1656	0.1891	-0.440
Return on Equity	152	0.0866	0.1744	-1.043

Independent sample mean tests for foreign bank sample. We examine if the means of selected capital and performance measures for Foreign greenfield bank subsidiaries are significantly different from those for Foreign takeover bank subsidiaries. We make our analysis on the basis of the assumption of unequal variances between both foreign bank subsidiary samples. A positive and significant t-stat indicates that foreign greenfield bank subsidiaries capital and performance measures are significantly higher than those for foreign takeover bank subsidiaries. The inverse is the case in the event of a negative and significant T-stat. An insignificant t-stat suggests that Foreign greenfield bank subsidiaries and Foreign takeover bank subsidiary means are not significantly different.

Table 4.3b: Independent Sample Means Test Of Foreign Greenfield Banks And Other Private Banks For 2000-2007

Variables	Number of observations	Greenfield	Other Banks	T-stat
Deposits Ratio	397	0.8080	0.6915	7.360***
Liabilities ratio	397	0.8927	0.7953	7.843***
Equities Ratio	397	0.1073	0.2047	-7.843***
Return on assets	397	0.0053	0.0134	-2.694**
Profit Margin	397	0.1656	0.1785	-0.320
Return on Equity	397	0.0866	0.1040	-0.754

Independent sample mean tests for data sub-sample from De Haas et al (2011). We examine if the means of selected capital and performance measures for Foreign greenfield bank subsidiaries are significantly different from those for all other bank subsidiaries. We make our analysis on the basis of the assumption of unequal variances between both bank subsidiary samples. A positive and significant t-stat indicates that foreign greenfield bank subsidiary capital and performance measures are significantly higher than those for all other bank subsidiaries. The inverse is the case in the event of a negative and significant T-stat. An insignificant t-stat suggests that Foreign greenfield bank subsidiaries and other bank subsidiary means are not significantly different.

Table 4.4: Pooled Ordinary Least Squares Regression Estimates of Capital Structure and Bank performance (With Foreign Greenfield bank Dummy for 2000 -2007)

	(1)	(2)
Dependent Variable	**Liabilities**	**Return on Assets**
Greenfield Bank Subsidiary	-0.0623	-0.148***
	(0.0431)	(0.0376)
Domestic Bank Subsidiary	-0.0682	-0.121**
	(0.0444)	(0.0506)
Liabilities		-0.107**
		(0.0423)
Liabilities X Greenfield Bank Subsidiary		0.151***
		(0.0425)
Liabilities X Domestic Bank Subsidiary		0.132**
		(0.0586)
Return on Assets	0.124	
	(0.281)	
Intangible assets	-0.444	-0.441*
	(0.994)	(0.225)
Off Balance sheet items	-0.0172	-0.000299
	(0.0108)	(0.00126)
Bank Size	0.0940**	0.00658*
	(0.0325)	(0.00321)
Young	-0.243**	-0.0265
	(0.107)	(0.0166)
Log of GDP per capita	0.00309	-0.190**
	(0.0503)	(0.0647)
Square of Log of GDP per capita		0.0259**
		(0.00972)
Constant	0.134	0.407***
	(0.320)	(0.113)
Observations	**340**	**340**
Year FE	**Yes**	**Yes**
R-squared	**0.446**	**0.167**

Pooled ordinary least squares regression estimates of capital structure and bank performance using time varying Bank subsidiary ownership data from De Haas et al (2011). Bank performance is measured using Return on Assets. Capital structure on the other hand is measured by liabilities ratio. All of the explanatory variables are as defined in Appendix Table A4.1. The Interaction of liabilities with Foreign greenfield bank subsidiary dummy enables us to examine the differential effect of foreign greenfield bank subsidiaries in respect of liabilities relative to other bank subsidiary ownership types. Log of GDP per capita measures the growth of GDP per capita and is used as a proxy for the quality of institutions in Central and Eastern European countries. Higher values of Log of GDP per capita indicate countries with better institutional quality. The square of the Log of GDP per capita is included in the regression to examine if growth of GDP per capita has a non-linear relationship with bank performance. A significant coefficient for both Log of GDP per capita and its square, as well as a variance in signs between both coefficients is indicative of a non-linear relationship between Log of GDP per capita and Bank performance. All explanatory variables are lagged one period. Robust standard errors are in brackets *** = significant at 1%, ** = significant at 5%, * = significant at 10%.

Table 4.5: Fixed Effects Ordinary Least Squares Regression Estimates Of Bank Capital And Performance, 2000-2007

	(1)	(2)
Dependent Variable	**Liabilities**	**Return on Assets**
Foreign Greenfield Bank	-0.0362***	-0.0112**
	(0.111)	(0.00370)
Non foreign Bank	-0.00495	0.00484
	(0.00595)	(0.0521)
Liabilities ratio		-0.0544*
		(0.0287)
Liabilities Ratio X Foreign Greenfield Bank		0.127***
		(0.0285)
Liabilities X non-foreign bank		0.116
		(0.0915)
Return on Assets	-0.104	
	(0.0697)	
Intangible Assets	1.948*	-0.587
	(0.920)	(0.364)
Off Balance sheet items	0.00127	0.00130*
	(0.00140)	(0.000704)
Bank Size	0.114***	0.000949
	(0.0400)	(0.0107)
Young Bank	0.0589***	0.0118**
	(0.0101)	(0.00497)
Log of GDP per capita	-0.0981***	0.0427
	(0.0620)	(0.0657)
Square of log of GDP per capita		-0.00636
		(0.00939)
Constant	0.216	-0.105
	(0.170)	(0.133)
Observations	**340**	**340**
Number of Banks	**56**	**56**
R-squared	**0.186**	**0.048**

Fixed effects ordinary least squares regression estimates of capital structure and bank performance using time varying Bank subsidiary ownership data from De Haas et al (2011) for sample period 2000 - 2007. Bank performance is measured using Return on Assets. Capital structure on the other hand is measured by liabilities ratio. All of the explanatory variables are as defined in Appendix Table A4.1. The Interaction of liabilities with Foreign greenfield bank subsidiary dummy enables us to examine the differential effect of foreign greenfield bank subsidiaries in respect of liabilities relative to other bank subsidiary ownership types. Log of GDP per capita measures the growth of GDP per capita and is used as a proxy for the quality of institutions in Central and Eastern European countries. Higher values of Log of GDP per capita indicate countries with better institutional quality. The square of the Log of GDP per capita is included in the regression to examine if growth of GDP per capita has a non-linear relationship with bank performance. A significant coefficient for both Log of GDP per capita and its square, as well as a variance in signs between both coefficients is indicative of a non-linear relationship between Log of GDP per capita and Bank performance. All explanatory variables are lagged one period. Robust standard errors are in brackets *** = significant at 1%, ** = significant at 5%, * = significant at 10%.

Appendix Table A4.1: Variable Definitions With Their Means And Standard Deviations – Bank Capital And Performance

Variable Name	Variable Definition	Means	Standard Deviation
Return Measures (in Decimals)			
Return on total assets (In decimals)	This is the contribution of each unit of total assets to net profit of the bank. It is defined as Earnings before interest and taxes divided by total assets. It is usually measured in percentages, but for the purpose of obtaining concise regression estimates, we report it in decimal figures. A higher value indicates a more profitable bank.	0.011	0.032
Risk measures (In decimals)			
Off-balance sheet items to total assets	This is the ratio of off balance sheet items to total assets. It may provide an indicator of riskiness of a bank, since more risky banks will tend to engage in more off balance sheet activity. Thus, higher values indicate more risky banks.	0.121	0.644
Capital Structure Variables			
Liabilities ratio	This is the Ratio of the bank's total liabilities (deposits plus other funding, non-interest bearing liabilities, and other reserves) to total assets. The higher this is, the better the bank's capital base.	0.819	0.151
Bank Ownership			
Foreign Greenfield Bank	This is a dummy taking the value of "1" if a bank is a foreign greenfield bank and "0" otherwise.	0.239	0.427
Domestic Private Bank	This is a dummy taking the value of "1" if a bank is a domestic private bank and "0" otherwise.	0.617	0.487
Bank Characteristics			
Bank Size	This is measured by the log transformation of the value of the bank's total assets. Higher values indicate larger banks.	8.435	0.801
Young Bank	This is a dummy taking the value of "1" if a bank was established after 1995 and "0" otherwise	0.060	0.239
Intangibles	This is the ratio of Intangible Assets to total assets. It may measure firms'	0.002	0.006

	growth opportunities.		
Liabilities Ratio X Foreign bank	This is the cross product of Liabilities Ratio and Foreign greenfield Bank dummy. It measures the differential impact of liabilities of foreign greenfield banks.	0.214	0.383
Liabilities Ratio X Domestic Private Bank	This is the cross product of Liabilities Ratio and domestic private bank dummy. It measures the differential impact of liabilities of domestic private banks	0.489	0.405
Country Level Characteristics			
Log of GDP per capita	This is the log transformation of the value of Gross Domestic Product of a country attributable to each individual in the country. It is measured in US Dollars. Larger values indicate more developed countries and by inference higher quality institutional infrastructure.	3.56	0.372
Square of Log of GDP per capita	This is the square of the log of GDP per capita. It provides evidence as to the existence of a non-linear relationship between log GDP per capita and Bank performance.	12.84	2.59

Sample Descriptive statistics for all variables employed in our regression model specification. These statistics are inclusive of all types of bank subsidiaries. Variable are defined and their computation explained where applicable. All variable descriptive statistics are reported in Decimals.

Appendix Table A4.2: Sample Correlation Matrix Of Pairwise Correlations Between Variables Employed In Regressions – Bank Capital and Performance

Explanatory Variables	Foreign Greenfield Dummy	Domestic private Dummy	Liabilities Ratio	Intangible assets ratio	Off-Balance sheet items	Bank size	Young	Log of GDP Per Capita	Square of log of GDPPC
Foreign Greenfield Dummy	1								
Domestic Private Dummy	-0.7121	1							
Liabilities Ratio	0.2765	-0.2285	1						
Intangible Assets	0.3195	-0.2650	0.0667	1					
Off Balance Sheet Items	0.1700	-0.2065	0.0582	0.1772	1				
Bank size	0.5571	-0.4428	0.5679	0.2313	0.2064	1			
Young Bank	-0.1423	-0.1481	-0.4097	-0.0913	-0.0477	-0.2689	1		
Log of GDP Per Capita	0.3324	-0.3077	0.2399	0.2062	0.1340	0.5262	-0.1315	1	
Square of log of GDP Per Capita	0.3395	-0.3057	0.2445	0.2042	0.1330	0.5338	-0.1406	0.9979	1

Sample (of 397 observations) pairwise correlations between all variables employed in regression estimates. All variables are as defined in table 4 above. With the exception of the variables of Bank size, and its pairing with foreign greenfield dummy Domestic private dummy, and liabilities, for which there is high correlation, but for which the correlation is consistent with existing theory, there exists no excessive pair wise correlation between any other pairs of explanatory variables.

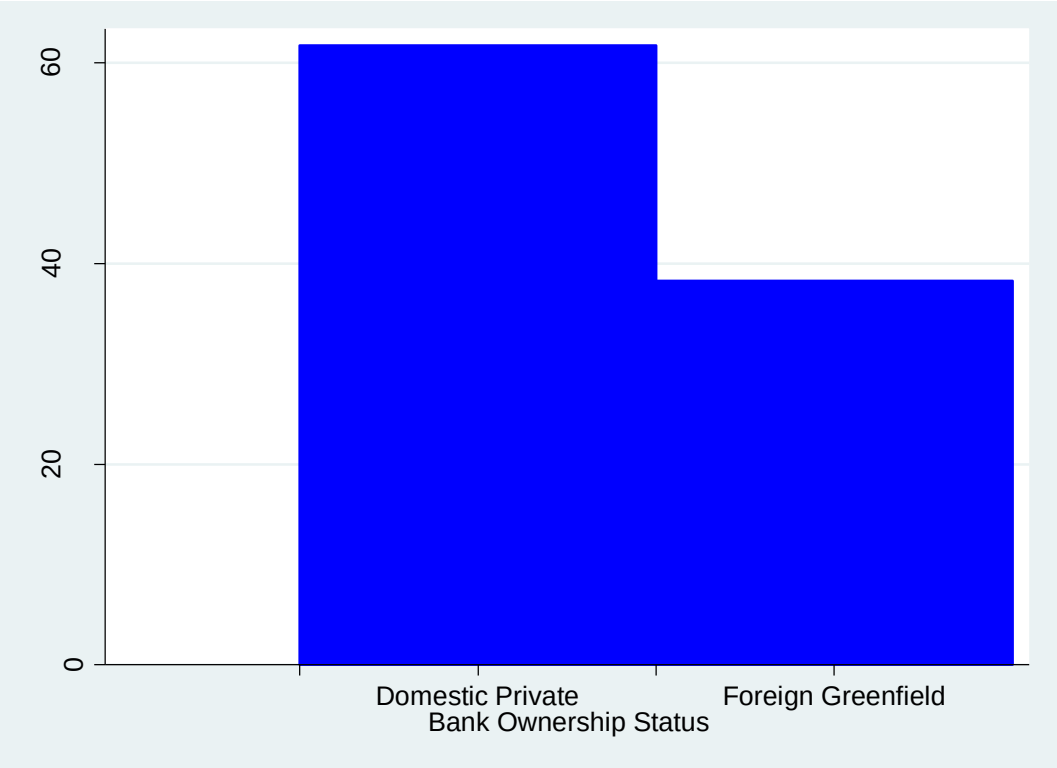
Appendix Table A4.3: Sample Correlation Matrix of Pair Wise Correlations between Risk Measure Variables Employed In Regressions – Bank Capital and Performance

	Risk Measures		
Risk Measures	**Loan loss Reserves Ratio**	**Off-Balance sheet items Ratio**	**Non-performing loans Ratio**
Loan loss Reserves Ratio	1		
Off-Balance sheet items Ratio	0.1261	1	
Non-performing loans Ratio	-0.0443	-0.0094	1

Sample pairwise correlations between risk measures experimented with in regressions. The three risk measures are Loan loss reserve ratio –ratio of loan loss reserve to gross loans, off balance sheet items ratio –the ratio of Off balance sheet items to total assets, and Non-performing loans ratio – the ratio of non-performing loans to gross loans. All pairwise correlations are low. However given the rising popularity of off-balance sheet activity in banks portfolios of assets, we choose to employ off-balance sheet items ratio as our measure of bank risk.

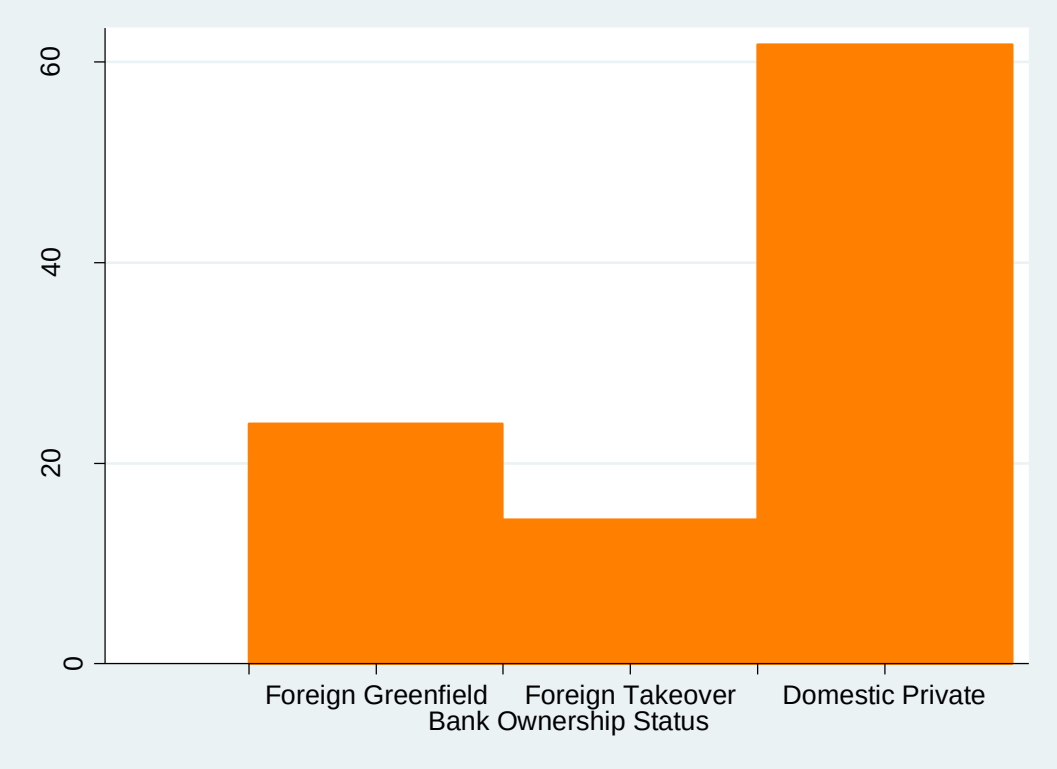
APPENDIX FIGURES B4

Appendix Figure B4.1: Distribution of Foreign bank ownership in sample CEE Countries for 2000 - 2007



Source: De Haas et al (2011)
The distribution of private bank ownership across sample Central and Eastern European countries. Foreign bank subsidiary observations in our sample are about half of those of Domestic private bank subsidiaries. This suggests the significant role that foreign bank subsidiaries are playing in CEE countries and their growing appeal.

Appendix Figure B4.2: Sample Distribution of Foreign Greenfield, Foreign Takeover and domestic private banks in sample CEE Countries for 2000 - 2007



Source: De Haas et al (2011)

The distribution of foreign greenfield, foreign takeover, and domestic private banks across sample Central and Eastern European countries. A bi-model distribution is observed with 60% of observations being those of domestic private banks, and about 24% being those of foreign greenfield banks

CHAPTER 5

Conclusions

5.0. Introduction

It is now well-established that growth and development cannot take place in an institutional vacuum. Transition from erstwhile communist states into a mature market economy requires an institutional framework that allows transactions to take place in an orderly manner and in which agents know that the decisions they take and the contracts they make will be protected by law, and enforced. Savers, investors, consumers, entrepreneurs, workers and risk-takers of all kinds need a framework of rules if rational, optimizing decisions are to be made. They also need some guarantee of economic stability and certainty, which can be provided only by good governance and sound economic policy-making. In this context, the thesis highlights the role of business association membership on firm's external financing opportunities, role of absolute and relative corruption on growth of a competitive banking system where foreign banks are allowed to operate freely and also that of ownership (distinguishing between fully owned subsidiaries from joint venture) on the relationship between bank capital and performance.

In this concluding chapter, we provide summary of our findings, contributions of our research as well as the challenges faced during the course of the thesis. Accordingly, this chapter comprises of three sections. Section 5.1, provides the summary of our findings, section 5.2 critically analyzes the contributions of our findings, while the final section 5.3 discusses the shortcomings of the study and scope for future research.

5.1. Summary of findings

The present thesis examines the implications of ownership and institutions for corporate financing in Central and Eastern Europe. There are three main empirical chapters (chapters 2, 3 and 4) in this thesis.

Chapter two examines the role of business networks for firm external financing. Our central hypothesis here is that firms' affiliation to business association are likely to be

beneficial in securing external finance (especially bank finance) in countries with weak legal and judicial institutions; this is because it helps banks and financial institutions to minimize the underlying agency costs of lending. Using recent World bank-EBRD BEEPS data, we find some support to this central hypothesis in our sample. Firms affiliated to business networks are more likely to secure external bank finance, especially from newly established foreign and domestic private commercial banks. In the process small and medium sized enterprises are discriminated against and are often less likely to secure external bank finance. This finding however highlights that too much reliance on business networking for credit allocation may encourage inefficiency as networked firms are not necessarily more efficient. Given the data constraint, we were unable to examine the implications of business association membership for firm efficiency, which we hope to address in future research.

Importance of foreign banks for economic development of CEE countries has been emphasized in the literature though there is wide dispersion in foreign investment in the region. In this context, the chapter three focuses on the implications of corruption for foreign bank entry and ownership structure in central and eastern European countries. Clearly corruption is an important aspect of weak institutions in many emerging economies. The chapter argues that the presence and persistence of corruption adversely affects costs of foreign banks (setting-up as well as running day-to-day business) in host emerging economies. The paper not only considers the role of host corruption per se, but also the distance in the corruption between home and host countries, which we label as relative corruption. It is argued here that relative corruption measures the degree of (un)familiarity in running a business in the foreign country. We primarily use Bankscope bank-level data to examine the implications of absolute and relative host corruption for foreign bank entry in our sample. While greater absolute and relative corruption may lower foreign bank entry, greater relative corruption is found to encourage foreign greenfield entry in our sample; relative corruption is not however significant for foreign takeover. The latter highlights the importance of encouraging foreign investors from countries with similar institutions.

Finally, we consider the implications of ownership for bank capital and performance in chapter four (the final empirical chapter). While much of the discussion in Europe after the recent banking crisis has focused on bank capital and capital regulation, we argue that the relationship between bank capital and bank performance crucially depends on bank ownership structure. Following on from the second chapter, our analysis focuses on a distinction between foreign greenfield and other joint venture (JV) banks in our sample. We predict a differential

effect of high bank capital in greenfield and JV banks because unlike greenfield banks, there remains a conflict of interests between foreign and domestic partners in JV banks. Using both Osiris and related data from De Haas et al (2011), we find a significant positive effect of foreign Greenfield (as opposed to JV) bank capital on bank performance, after controlling for all other factors. We argue that the better performance of foreign Greenfield banks in CEE countries in this respect can be attributed to their better governance compared to varied ownership arrangement in other joint venture banks. This is an important contribution to the existing literature as the distinction between foreign greenfield and JV banks is often not made.

Thus the present study highlights the role of institutions and ownership on corporate financing opportunities in the transitions of CEE countries from erstwhile planned economies. We hope findings of this thesis would inform policies and will also influence future research.

5.2. Contributions

Having successfully conducted a study of this magnitude, it is important to highlight the contributions of the research. This enables the creation of value to research.

The chapter on the role of business association membership contributes to a limited but growing literature on corporate financing in emerging economies. There is generally a consensus in the literature that business networks are a feature of the organizational landscape of many countries though their nature and effects may vary across the world. Kali (1999) argued that these networks absorb honest individuals and raise the density of dishonest individuals engaged in anonymous market exchange, which in turn may harm public interest. Consequently, the payoff from market exchange may diminish. Along similar lines Khawaja and Mian (2005) examining the link between political connection of firms and bank lending in Pakistan from 1996-2002, found that political firms borrow 45% more and also have 50% higher default rates and this preferential treatment of political firms largely occur in states banks in the country. In contrast, cross-country studies on social capital and economic growth (e.g., see Knack and Keefer, 1997; Whiteley 2000) have generally highlighted the positive impact of active membership in social organization to economic growth, thus motivating our analysis for the emerging economies of Central and Eastern Europe. While there is a growing

literature on corporate financing in CEE region (for example, see Fries and Taci (2002); Klapper, Sarria-Allende, and Sulla (2002); De Haas et al. (2007)) and also some literature highlighting the effect of lack of social capital in transition region (e.g., see Raiser (1999), Paldam and Svedsen (2000, 2001)) on economic development and growth in the region, we are not aware of any study that analyzes the role of business networks on firm external financing opportunities in the transition region. We thus integrate two strands of the literature, one on corporate finance and, the second one on social capital and economic development, to examine the effect of business networks on corporate financing opportunities in the CEE region. It is an important exercise because it would allow us to identify a possible micro-economic mechanism through which social networking could influence corporate financial opportunities in the region. Further results from our analysis highlights the aspect of inefficiency business networking may cause, distinguishing it from the advantages of social networking. Given that these countries are undergoing radical institutional restructuring, it is important that the informal institutions (e.g., some business networks) remain compatible with the formal institutions so as to minimize the possible costs of corruption and tax evasion and boost economic growth in the region. We thus hope that this research will inform policy makers to take steps to ease SME's access to external corporate financing opportunities from newly privatised banks (domestic or foreign).

The rationale for foreign bank entry in transition countries is not fully understood. Most studies on foreign bank entry have tended to focus on developed economies, mostly the US (e.g., see Goldberg and Saunders (1980), Goldberg and Saunders (1981), Fisher and Molyneux (1996), and Hultman and Mcgee (1988)). These countries welcomed foreign banks into their economies in the process of embracing capitalist principles in their economies. Rationales for foreign bank entry in CEE transition countries include provision of financial services to existing clientele (Lensink and Hermes, 2002), attractiveness of host markets, e.g., size, lower taxes, higher GDP (e.g., see Claessens et al. 2000), favourable host country regulation (Clarke et al. 2001, Cerruti et al. 2007) and also the role of bank reforms and political freedom (Lensink and Haan, 2002). While different dimensions of institutions may be pertinent, recent FDI literature for non-financial firms has particularly focussed on the significance of corruption (e.g, see Globerman and Shapiro, 2003). In this context, we focus on the role of corruption on foreign bank entry and ownership structure in CEE region characterised by weak institutions, which remains rather unexplored.

Corruption is argued to adversely affect foreign direct investment as it acts as a tax on international investments (Wei, 2000). Hines (1995) cites the USA as a country from which foreign direct investment goes to less corrupt countries. Conversely, Egger and Winner (2005) provide evidence suggesting that corruption might encourage foreign direct investment. From that perspective, foreign bank entry might be encouraged despite the prevalence of corruption. Distinguishing between absolute and relative corruption, Driffield et al. (2010) find that in addition to absolute corruption, relative corruption may further lower foreign ownership in non-financial firms in the transition region though the result is reversed for knowledge intensive firms who are unwilling to share their knowledge with local partners in the region characterized by weak institutions. The literature is however rather silent about the role of corruption on foreign bank entry and ownership in the emerging world and the present paper attempts to bridge this gap in the literature. We apply the literature on corruption and foreign direct investment (FDI) to the case of foreign banks with a view to explore if the results obtained for non-financial firms remain unchanged for the banking sector. The finding that relative corruption is important for foreign bank entry is a significant one for policy makers as it may emphasize the need for encouraging foreign banks from countries with similar institutions.

The recent financial crisis highlights concerns regarding bank excessive lending and hence suggests the need for stronger corporate governance of banks by its stakeholders – depositors, shareholders, and the government. During this period, much of the discussion in Europe has focused on the size of bank capital and capital regulation. In this context we argue that the effect of bank capital on bank performance crucially depends on bank ownership structure. While the existing literature highlights the relative efficiency of foreign banks as a whole, our analysis highlights the fact that there is heterogeneity in the ownership structure of foreign banks. In particular, we distinguish fully owned foreign owned bank subsidiary from joint venture foreign banks with a view to understand their differential implications for the effects of bank capital. The underlying argument is that unlike Greenfield banks there is likely to be a non-alignment of interests between foreign and domestic owners of joint venture banks, which in turn may influence the relationship between bank capital and bank performance in joint venture banks differently from that for fully owned foreign subsidiaries. Results support our central hypothesis that greater bank capital is not necessarily harmful for bank performance. In particular, there is suggestion that greater bank capital may improve bank performance of fully owned foreign bank subsidiaries only. This finding helps explaining the

mixed findings in the literature: While Claessens et al (1998), Havrylchyk, (2006), Berger et al (2000) and Berger et al (2003) highlight better performance of foreign banks in relation to domestic banks, Lensink, Meesters and Naaborg (2008), find that foreign ownership of banks could reduce bank efficiency. It can be argued that these mixed results in the literature can be better explained by differential bank ownership structure even for foreign banks, which remains rather unexplored. In other words, findings from this chapter highlight the importance of differential ownership structure of foreign banks.

5.3. Shortcomings and scope for future research

Like most empirical studies, the first and foremost challenge for us was access to suitable data to test our hypotheses. While BEEPS data had information about firm's affiliation to business association, we did not have in depth information of the nature of the business association, e.g., size of the association, duration of the affiliation or membership fee for the affiliation. While most of this information pertained to 2002 and 2005 rounds of the survey, 2009 round of the survey did not possess information about firm's affiliation to business association and hence we could not include 2009 data in our analysis. Also, the panel element of BEEPS data is limited and as such the size of the panel sample from 2002 and 2005 rounds of the data was limited. We however have tried our best to rise to the challenges and adopted suitable methodology to minimize any estimation bias. Finally, BEEPES data does not provide any information of profitability of firms and as such we were unable to test whether networked firms are more profitable or not. This remains an agenda for future research.

Our second challenge pertains to information on bank ownership that we employed for second and third chapters. Information on bank ownership from Osiris and Bankscope that was available to us only pertained to the final year of the survey. Although ownership is largely time-invariant, there are some important changes in ownership for about 20% of our banks. Fortunately we were able to access data containing time varying bank ownership information from De Haas et al (2011). However the latter was largely binary in nature distinguishing foreign Greenfield from foreign takeover and so we did not have continuous ownership information. In addition, we had rather limited information on parent bank characteristics. Again, we have adopted panel data methodology that minimizes estimation bias due to omitted

factors and our results are robust to alternative samples and methodology. We however hope that future research will address the gaps in the current thesis.

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