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Abstract

The paper argues that the networked firms have an advantage in securing bank finance in countries with weak legal and judicial institutions. An analysis of recent BEEPS data from sixteen CEE transition countries lends some support to this hypothesis. Firms affiliated to business associations are more likely to have bank finance while small and medium firms are less likely to secure it. Importance of being associated with business networks is particularly evident among firms who borrow from foreign banks, as the latter attempt to hedge risk in an uncertain environment. Significance of business networking however vanishes if institutional quality improves.

JEL classification G21; G30; L14; M20; P21;
Keywords: Business networks; Firm financing; Bank Loans; Domestic private and foreign banks; Transition economies; Endogeneity.

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1. INTRODUCTION

Networks and informal relationships are often central to functioning of many organisations and management activities, especially in transition and emerging economies with imperfect and missing markets as well as weak legal and judicial institutions (e.g., Banerjee and Munshi, 2004; Fishman and Khanna, 2004). Recent transition literature however emphasizes the lack of social capital and networking in many central and eastern European (CEE) countries, commonly attributed to the so called dictatorship theory (e.g., see Raiser 1999, Paldam and Svedsen, 2000, 2001). The existing literature has largely focused on measuring the stock of social capital, determinants of social capital and also its impact on economic development and growth in the region, usually at the national level. Cross-country studies have generally found that active membership in organization is associated with higher economic growth (e.g., see Knack and Keefer, 1997; Whiteley 2000). It is however important to understand the possible micro-economic mechanism through which social network could affect economic growth and development and the literature is thin in this respect. The present paper aims to bridge this gap of the literature and explores the role of business networks on firm financing in a group of sixteen CEE countries.

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 (16% of our sample firms had access to some bank finance), even by the standard of other developing and emerging economies. This necessitates a deeper understanding of the financing and growth prospects of firms, especially SMEs in transition countries.

We know little about firms' financing choices in CEE countries. Fries and Taci (2002) examine the limits to banking reform while Klapper, Sarria-Allende, and Sulla (2002) have highlighted the financial constraint faced by the SMEs. De Haas et al. (2007) specifically examine bank's customer choice in transition countries and identify the lack of coverage of foreign and large domestic banks to offer loans to SMEs. The present

paper goes beyond this literature with a view to identify the factors responsible for firms' limited access to bank finance in a group of sixteen transition countries of Central and Eastern Europe (CEE).

Our analysis not only links to the literature on market imperfections, but also to the more recent literature on institutions and the value of social capital. Capital markets in transition countries are far from being perfect. There are not only problems of information/incentives, but also those of weak legal and judicial institutions; as a result, lender's and creditors' rights are not always protected. In this environment, networks of informal relationships tend to prevail in many business activities. Recent empirical studies in the organizational behaviour literature suggest that these networks are a response to inadequate institutional support (e.g., Boisot and Child, 1996), especially attributable to a lack of legal infrastructure that guarantees written contracts and private property. Lenders and borrowers often cultivate personal relationships to substitute for a stable legal and regulatory environment. Our analysis particularly focuses on the importance of firm's affiliation to business association in ensuring access to external finance, especially bank finance.

The analysis is developed in two steps: (i) we examine the determinants of firm financing choices (e.g., between/among internal finance, bank finance, non-bank finance, and stock market credit); (ii) we also examine firm's choice of bank types (state, private domestic and foreign for example). Other things equal, our central hypothesis is concerned with the role of business networking (formal and informal) on firm financing in general and bank financing in particular. These issues are especially important in the context of the on-going banking reforms and also the trade-off between bank-based and market-based finance in the region. Given that these countries are undergoing radical institutional restructuring, it is also important that the informal institutions (e.g., some business networks) remain compatible with the formal institutions so as to minimise the possible costs of corruption and tax evasion.

Note however that firm's affiliation to a business networks 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 possible endogeneity bias. Given the data at our

access, we adopt two possible approaches. First, we obtain the predicted value of business association membership using first stage regression and use this as an instrument for firm's financial choice regressions (i) and (ii) described above. 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 3). This allows us to use 2002 and 2005 BEEPS panel data fixed effects estimates to check the robustness of our cross-section estimates.

There is evidence from our analysis that younger small and medium sized enterprises are less likely to be networked in our sample countries while firms' access to bank loans, is significantly influenced by the firm's affiliation to business networks, other things equal. In particular, networked firms are about 7 percentage point more likely to obtain bank finance. The latter is especially evident in the firms' access to loans from foreign banks (in comparison to those from domestic state or private banks), perhaps highlighting foreign banks' attempt to reduce agency costs in a region with weak legal and judicial institutions. In the process, small and medium sized enterprises (SMEs) are discriminated against, forcing them to rely on internal finance or no finance at all. Thus bank reforms remain lopsided in the sample countries.

The chapter is developed as follows. Section 2 explains the analytical issues and identifies the central hypotheses while section 3 describes the data and explains the empirical methodology. Sections 4 analyses the results and the final section concludes.

2. ANALYTICAL ISSUES

Efficient allocation of resources is central to an understanding of economic growth. In a perfectly competitive world without any information problems, resources are allocated optimally through market mechanism so that the Pareto optimality holds good. Thus, in a perfect capital market, capital is allocated competitively, attaining its optimal allocation where the marginal product of capital is equal to the market interest rate so that market

interest rate will be the same across all alternative uses. However, Pareto optimality is lost if there are market imperfections.

Capital markets in developing and transition countries often suffer from various imperfections. There are problems of information and incentives and also those of weak legal and judicial framework, giving rise to agency problems. The borrowers approach financial institutions with a view to borrowing funds to invest, but the financial institutions (lenders) can not be sure as to who the best borrower is. Furthermore, even after loans are issued, the financial institutions cannot be certain that there would not be any 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. This is achieved by screening and monitoring borrowers, and also by imposing collateral requirement on potential borrowers before they can be considered for loans from the financial institutions. Collateral requirements differ in size and quality and are therefore not uniform across financial institutions or borrowers as in most cases it is dependent on the size of the loan being requested, the firm size[1] etc. Consequently there may arise different non-market mechanisms that we explore below.

2.1. Business Networks

An understanding of personalized exchange is central to an understanding of the institutional approach to the study of economic development and growth (e.g., see North, 1990).

In many emerging economies we observe predominance of informal networks in organizing different kinds of exchanges. These networks usually involve an exchange of favors, making business 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).

Affiliation to a business association may influence economic activity. Business groups are common form of business association in many emerging economies. They are

[1] See Beck, Demirguc-kunt, Maksimovic & Vojislav, (2002)

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). 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[2] (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. There could also be simpler business association of firms working together, involving exchange of favours which make doing businesses easier for those within the network. Granovetter (1994) among others shows recognition for the social mechanism in the form of the common family bond in family owned businesses that acts to reduce the likelihood of reneging of contracts. 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.

2.2. Firm-Bank Ownership Matching

In emerging markets bank finance dominates (relative to the market finance). Banks/financial institutions differ in ownership, as they may be, foreign owned, privately owned or state government owned. Borrowers too may differ not only in terms of ownership; many firms are closely held, often by strong families, and government interference is usually a pervasive feature. In the presence of market imperfections in countries with weak institutions, one possible way to reduce agency costs would be to adhere to ownership matching between firms and banks. For instance, Berger et al. (2006), highlight the aspect 'firm-bank ownership matching' in India. Thus one could observe foreign-owned banks serving foreign-owned firms and by extension, state-owned firms banking with state-owned banks, and private domestic firms having banking

[2] The ability to shift resources across units is used by a diversified business group to its advantage to consolidate its market power across industries (See Cestone and Fumagalli 2001).

relationship with private domestic banks. EBRD (2006) observe a form of bank-firm matching between large firms and foreign banks in a selected number of transition countries. The latter has been attributed to the fact that foreign banks operating in a host country tend to lack information on credit-worthiness of local firms, and so to hedge their potential risk of lending to a bad borrower firm, they may choose to serve large firms with more transparent accounting standards and whose credit worthiness can quite easily be assessed. Alternatively, foreign banks may choose those domestic firms who have previously established some international links by virtue of their import/export activities (Bonin and Leven, 1996). Thus the impact of foreign banks is likely to be larger in sectors where information asymmetries are lower (as a way of avoiding adverse selection).

3. DATA

Our analysis is primarily based on the EBRD Business Environment and Enterprise Performance Survey (BEEPS) 2005 data.[3] Business Environment and Enterprise Performance Survey ("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).

3.1. 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. This gives rise to a sample of 5597 firms, representing about 58% of all firms that participated in the survey. The country

[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.

distribution of our sample of firms is as shown in Table 1, which suggests that firms in Poland make up the largest proportion of our sample at 17.4%, followed by Turkey, Hungary and Romania.

BEEPS data allow us to classify firms by its ownership structure, namely, individual ownership, family ownership, foreign ownership, and state ownership; we could also identify the ownership structure (e.g., foreign, private domestic, state) of banks lending to the sample firms. Secondly, we classify firm size into three categories 'small', 'medium' and 'large' according to labour force size information contained in the BEEPS data.[4] We merge small and medium sized firms together to identify their financing choices; about 91% of sample firms are small and medium sized enterprises (see Table 1); in other words only about 9% sample firms could be classified as 'large' according to their employment size. Rise of small and medium enterprises (SMEs) in CEE countries could be attributed to the break-up of large state-owned enterprises.

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'. 41% of small firms in our sample fall into the category of young firms. It also means that large firms are not necessarily old firms.

Table 2 shows the sources of firm financing for new investment for sample firms in each of the selected countries. In general, a majority of firms in the sample countries tend to finance new investment through internal finance. Bank finance is the second important source of firm finance followed by non-bank finance and equity finance.

Table 3 shows firm's choice of banks by ownership structure. Of the firms that borrow from banks, borrowing from local commercial banks is most common, irrespective of firm ownership (state-owned, foreign-owned or individual and family owned). However, individual and family owned firms use domestic banks relatively more. While borrowing from state-banks is not so common, relatively higher proportion of state-owned firms borrow from state banks. Borrowing from foreign banks too is not very common and again foreign firms are relatively more likely to use foreign banks.

[4] 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.

BEEPS data provides information on whether a firm is affiliated to any business association. Using this information we could classify firms into networked and others. Table 4 compares selected characteristics of networked firms with other firms and highlights some important characteristics of networked firms. In general, older state firms and also foreign firms are more likely to belong to some business network while young SMEs in the domestic private sector are significantly less likely to be networked. Compared to non-networked firms, mean research and development spending of networked firms are significantly higher. Thus, networked firms tend to be in a more advantageous position among all sample firms. Networked firms may benefit in a number of ways from their affiliation to the business association including lobbying the government (40% of networked firms), resolving disputes (33% of networked firms), information on domestic/international product and input markets (about 80% firms), accrediting quality standards of the product (70% of networked firms) and getting information on government regulation (about 80% of networked firms). The latter in turn corroborates the possible endogeneity of the business association membership variable.

3.2. Institutions and Inter-Country Variation

The harmonious co-existence of firms and financial institutions is dependent on the prevailing legal and institutional structures to safeguard and enforce creditors' rights and to enforce contracts. This has been highlighted in the recent literature. For example, 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. Investor protection was observed to be weak in countries with a marked departure of its legal origin from common law[5], and hence such countries had smaller and narrower capital markets. La porta, Lopez-de-Silanes, Pop-Eleches, & Shleifer (2004) find that judicial independence is an important source of economic freedom, which explains part of the persistent finding that such freedom is greater in the common law countries. Using a sample of firms drawn from developing and developed countries, Beck et al (2002) find that all types of corporate constraints

[5] This is English law made by judges and subsequently incorporated into legislature

including those relating to financial, legal, and corruption do affect firm growth rates adversely. The extent of the effect depends very much on firm size: The smallest firms are most adversely affected by all these constraints. In addition, they show that firms that operate in countries with underdeveloped financial and legal systems and higher levels of corruption tend to be more constrained in general. The latter appears to relate to earlier work by Demirguc-Kunt and Maksimovic (1998), which stressed the importance of the financial system and the rule of law for relaxing firms' external financing constraints and facilitating their growth.

In central and eastern European and the Baltic States 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 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 be 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; and also include the creation of regulating institutions that deal with competition, securities markets, banking, trade, patents and so on. A similar view is shared by Rodrik (1997), who draws from the experience of the East Asian growth miracle, and emphasizes the need for government interventions for transition economies.

The 2007 International Property Rights Index (IPRI) as constructed by Horst (2007) provides useful information on both physical and intellectual property rights standards in many countries of the world and thus allows us to compare the institutional development in the CEE countries to those for the rest of the world. It has three components, namely, legal and political environment (LP), physical property rights (PPR), and Intellectual property rights (IPR) – for details about their construction see Horst (2007). The IPRI ranking compares countries according to the strength and effectiveness of their property rights protection. An overview of regional international property rights (IPRI) indices is presented in Table 5.

It is evident that the CEE countries and Russia region are statistically the third lowest ranked region in terms of all the four above enumerated measures – legal and political Environment (LP), physical property rights (PPR), intellectual property rights (IPR), international property Rights index (IPRI). Furthermore average values of these measures for CEE countries and Russia are almost half of those of Western Europe. This evidently suggests a number of ills with their institutional infrastructure and corporate governance standards. However, this may be associated with the fact that Russia is included in the list of CEE countries, and being a special case of very low corporate governance standards and infrastructure in general, perhaps it is not surprising, as its measure has an overbearing impact on the measures of the CEE countries.

Considering the individual countries, there is evidence of a wider dispersion in the institutional quality and reform indices among the 16 countries in our sample. It follows from Table 6 that these countries are at different levels of reform and we observe a bimodal distribution. Many CEE countries still have a considerable way to reach the international levels. This includes FYR Macedonia, Bosnia Herzegovina, Serbia, Montenegro, and Albania. Only one-quarter of the countries actually attain the highest value 4 of the Bank reform index and include 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. In terms of institutional quality, the country with the best institutions was Hungary at 8.7 closely followed by Slovenia, Poland, Czech Republic and Estonia respectively at 8.5, 7.0, 6.8 and 6.1. Among the selected CEE countries, Bosnia and Herzegovina seems to have the worst institutions, followed by Albania and Romania. We shall examine the extent to which some of these institutional indices may affect firms' financing choices in transition.

4. EMPIRICAL METHODOLOGY

This section explains the methodology to achieve the two objectives of the study as set out in the introduction.

4.1 *Choice of firm financing*

Our first objective is to analyse firm's financing choices FINNI for new investment, as defined as follows:

FINNI = 0 if no finance is used
= 1 if internal finance >0
= 2 if Bank debt >0
= 3 if non-bank credit > 0
= 4 if Equity > 0 (1)

Given the discrete and unordered nature of the variable, we apply a multinomial logit model to determine FINNI.

The multinomial Logit model is used where a choice is to be made 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:

$$\Pr ob(y_i = j) = \frac{e^{\beta_{Jj}^{'} x_i}}{\sum_{k=0}^{5} e^{\beta_i^{'} x_i}} \quad \text{j = 0, 1,…, J} \qquad (1.1)$$

Where Y is the discrete dependent variable and x's are the explanatory variables; j is the number of choices available to the individual as specified in (1). J=4 in our context.

Equation (1.1) is estimated for each choice. The estimated equations then provide a set of probabilities for the J+1 choices for a decision maker with characteristics X. Maximum likelihood is then used to solve the set of equations that arise to obtain the probabilities of each choice. This is done by first deriving the log-likelihood function, which is then maximized to obtain the maximum likelihood estimators. The log-likelihood is derived by defining for each individual, d_{ij} = 1 if alternative j is chosen by individual i, and 0 if not for the j-1 possible outcomes. Then for each i, one and only one of the d_{ij}'s is 1. The log-likelihood is as below:

$$\ln L = \sum_{i=1}^{n} \sum_{j=0}^{j} d_{ij} \ln \Pr ob(Y_i = j) \qquad (1.2)$$

The derivatives obtained by maximizing the above function have the simple form of:

$$\frac{\partial \ln L}{\partial \beta} = \Sigma(d_{ij} - p_{ij})\, x_i \qquad \text{for j = 1,…, J} \tag{1.3}$$

The negative sign of the hessian, obtained from taking the second derivative of the above function confirms that the estimates obtained are the optimum values (Greene, 2003). This model has also been employed by quite a number of studies including Berger et al (2006) and Detriagache et al (2000).

The set of explanatory variables x are chosen not only to reflect the hypotheses of interest, but also to be compatible with the existing literature. A number of studies on banking relationships have recognized the importance of business association membership such as Detriagache et al (2000), Ghatak and Kali, (2001), Berger et al (2006), Chang (2007). We thus hypothesize that firms affiliated to business associations are more likely to access bank finance.

Ownership structure of both firms and banks could play an important role especially in the context of networking in an imperfect world, e.g., see Berger et al (2006) and Detriagache et al (2000). To this end, we include controls for state-owned firms, private domestic firms and foreign firms.

Both firm size and age are observed to determine a firm's choice of finance. Klapper et al (2002), Kumar (2007), Berger and Udell (1995), Beck et al (2002) 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 3.1.

Other control variables include growth of prior year fixed assets, prior year research and development spending. Given the diverse set of countries in our sample, we also include some country-level institutional controls including EBRD competition policy

index, and institutional quality index[6] that may also influence firms' financing choices (see discussion in section 3.2).

Since the coefficient estimates do not reflect the marginal effects; we determine it separately as the partial derivative of the expected value of the dependent variable with respect to the particular explanatory variable.

4.2 Firms' choice of banks

Our second objective is to determine firm's choices of banks belonging to different ownership categories, namely, state bank, private domestic commercial bank, and foreign bank. This results in the construction of the following dependent variable:

BANKFCH = 0 if firm has no bank loan
= 1 if firm has loan from state banks
= 2 if firm has loan from private domestic commercial banks
= 3 if firm has loan from foreign banks

Given the unordered nature of this choice variable, we use a second multinomial logit model to determine BANKFCH in terms of a set of explanatory variables x2 and also determine the marginal effects for each of the included explanatory variables x2.

Our first 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, 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). 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 thus foreign banks may choose networked firms with a view to lower their agency costs.

A related hypothesis is to test whether there is a firm-bank ownership matching in our sample; in particular we examine whether foreign firms are more likely to borrow

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

from foreign banks while state-owned firms are more likely to borrow from state banks (Berger et al 2006).

The set of explanatory variables x2 has some common variables as in x in section 4.1 above; for example, we continue to include control for SMEs, young firms, interaction between SME and young, firm ownership type and firms' affiliation to business association. We also have a set of institutional control as before; but we now replace competition policy index by EBRD bank reform index, as we focus on banking relationship only.[7]

4.3. Addressing possible endogeneity of network affiliation

A potential problem with the identification of networked firms is that firms' 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 reap certain benefits (see discussion in section 3); thus networked firms are unlikely to be random among all sample firms. In other words, there remains an important selection problem to be addressed here. One option could be to generate an instrument for firm's affiliation to a business network. To this end, we run a first stage probit regression to determine sample firm's affiliation to a business network; we choose potentially time invariant explanatory variables like SME, young and firm ownership categories; Results of this regression are shown in Appendix Table A1.

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 consider the panel data where we have information on firms in both 2002 and 2005, although the latter considerably reduces the sample size. Note however that the panel element of the BEEPS data includes only about 15.45% of our total observations in BEEPS 2005 used in our analysis. These firms are firms initially surveyed in the BEEPS 2002 round and then were re-surveyed in BEEPS 2005, having expressed a desire to be involved in the 2005 BEEPS round.[8] The firms were identified through a firm identity number allocated to such firms

[7] 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.

[8] 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 the BEEPS 2005 survey round. In particular about 865 firms in fifteen selected countries are in this panel, giving rise to 1730 observations in total for the two rounds considered. We construct very similar regression variables used in the main part of the analysis. Means and standard deviations of these variables are shown in Table A4, which highlights their comparability with 2005 data.

One could use this panel data to estimate random effects binary probit model to determine firm's choice of banks (state, private commercial and foreign) in terms of lagged value of business affiliation as one of the possible covariates X.

$$Y^{*}_{it} = \beta' X_{it} + \varepsilon_{it}$$
$$\varepsilon_{it} = v_{it} + u_i$$

We observe $Y_{it} = 1$ if $Y^{*}_{it} > 0$ and 0 otherwise where Y is the dependent variable of our choice. We choose three Ys pertaining to firm's choice of state banks, private domestic banks and foreign banks (each of them being a binary variable) and run three random effects probit models (see discussion in section 4.3). There are two error terms in the model – one firm-specific (time invariant) u_i and the other v_{it} varies not only across firms but also over time. The model not only determines the parameter estimates β, but also the correlation ρ between u_i and v_{it}.

An important assumption here is that the firm-specific error term, u_i, is unrelated to the explanatory variables, $\mathbf{x}_{it}$, so that the conditional distribution, $f(u_i | \mathbf{x}_{it})$.is not dependent on $\mathbf{x}_{it.}$ In other words, firm-specific fixed effects u_is allow us to control for firm-specific unobserved variables. If however, we allow u_i to be correlated with $\mathbf{x}_{it}$, we consider $\mathbf{u_i}$ to be firm-specific unobserved heterogeneity and estimate the fixed effects logit model instead. Naturally the time invariant factors are dropped from the fixed effects model. In particular, 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 in the fixed effects model and check for the significance of t-statistic of the interaction term. In fact, statistical insignificance of the interaction term would highlight the fact that business association membership is not crucial for firm financing in countries with high quality institutions.

We compare the fixed and random effects estimates to check the robustness of our estimates especially for assessing the role of business association.

4.4. Model specification

In this section, we rationalize the choice of explanatory variables and the underlying hypotheses for each regression described in sections 4.1 and 4.2. Note that while most variables are common in both regressions, there are some identifying variables that arise by the very nature of the dependent variable. Variable definitions and summary statistics (means and standard deviations) are depicted in Table 7 while model specifications are summarised in Table 8.

In particular, we include a variable indicating small and medium enterprises (SME), young firms, interaction between SME and young firms, private domestic firms, growth of prior year fixed assets, prior year research and development spending (e.g., see Elsas, 2005 and, Detriagache et al 2000), business association membership, firm's ownership structure (state, private domestic, foreign) and an institutional quality index in each of the three regressions. For obvious reasons, EBRD competition policy index is included only in firms' financing choice regression while EBRD bank reform index is included in determining firms' choice of banks. We use similar institutional variables as those used by Berger et al (2006), Beck, Demirguc-kunt & Maksimovic (2002), Fries and Taci (2002) to control for the firms country business environment. Both regressions include control for manufacturing sector, which is the largest industrial sector in our sample.

5. RESULTS AND ANALYSIS

We outline the single cross-section results of our regressions with instrument for business association membership in Tables 9 and 10 while the uncorrected estimates are shown in Appendix Tables A2 and A3. A comparison of instrumented estimates with the uncorrected indicates biases if endogeneity of business association is not accounted for.

In particular while the uncorrected estimates suggest networked firms are 6.6 percentage point more likely to obtain bank finance (Table A2), instrumented estimates suggest that the premium is about 7.7 percentage point (Table 9). Finally Table 11 shows the panel logit fixed effects estimates for firms' choice of private domestic and foreign banks (see section 4.3); corresponding random effects probit estimates are shown in Appendix Table A4.

5.1. Determinants of Firm Financing Choices for New Investment

Our analysis in this section is couched in terms of the instrumented estimates and refers to the uncorrected estimates (Table A2) only for comparison. The multinomial logit results for firm financing for new investment are summarised in Table 9 where firms not using any formal source of finance (i.e, FINNI=0) are the reference category. Our diagnostic tests confirm the validity of the multinomial logit model. In particular, significance of the likelihood ratio chi-squared statistic confirms the goodness of fit of the estimated multinomial logit model.

Given that the estimated coefficients do not reflect the marginal effects, estimated marginal effects are reported in the table, which enables us to examine the magnitude of the effect of each of the explanatory variables on the particular mode of firm financing for new investment.

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 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 exogenous variables are the derivatives of the predicted dependent variable for small changes in the exogenous variables.

These estimates are generally consistent with our central hypothesis that affiliation to business networks significantly improves firms' access to bank finance in a world with information asymmetry and other imperfections. Firms affiliated to business

associations are about seven percentage points more likely to access bank finance. After controlling for all other factors, state, private or foreign firms are less likely have access to bank finance. State firms are also significantly less likely to get non-bank credit.

Firms with growing fixed assets tend to have more bank credit while R&D spending remains insignificant. Firm size is important too. SMEs are less likely to secure bank/non-bank loans and instead rely more on internal finance. However, firm age does not appear to be important here.

Finally, there is some evidence of the role of institutions in securing external firm financing. In particular, firms from more competitive countries tend to rely more on bank and non-bank credit while those from countries with better institutions in general have some access to equity finance.

5.2 Firm's Choice of Banks

As in the previous sub-section, we outline the marginal effects of our multinomial logit model regression results in Table 10. The reference category for our regression has been firms with no bank finance at all (i.e, BANKFCH =0). Our discussion in this section is couched in terms of the marginal effects of regression variables. Our diagnostic tests confirm the goodness of fit of the estimated multinomial logit model in this respect.

A positive role is observed for business association membership; the coefficient of business association membership is positive and significant for firms borrowing from foreign banks. In other words, affiliation to business association is conducive to securing loans particularly from foreign banks who face uncertain business conditions and weaker institutional environment in these group of transition 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, private domestic commercial, and foreign) of banks. However foreign firms and private domestic firms are only less likely to borrow from state banks, while their coefficients are insignificant for private domestic commercial bank and foreign bank. In other words, there is no evidence

that state firms, private domestic firms, and foreign firms are more likely to go to state banks, private domestic commercial banks, and foreign banks respectively.

The coefficient of growth of prior year fixed assets, while being positive for all bank categories, is significant only for loans from the private domestic commercial bank category; 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 less likely to borrow from private domestic and foreign banks; the latter may be associated with the barriers faced by SMEs such as collateral requirements as discussed by Berger and Udell (1995).

Bank reform index has a positive effect on loans from foreign as well as commercial banks. The latter highlights one positive consequence of bank reforms in these countries. However SMEs are less likely to secure loans from foreign banks even in countries with relatively better institutions. In other words, foreign banks tend to operate very cautiously in this region resulting in rather limited coverage, at least for business financing.

5.3. Panel data estimates

Finally, in an attempt to test the robustness of our estimates, we also estimate firm's choice of bank loans (BANKFCH) using panel data. We tried to estimate three separate random effects probit models to determine firms' loan from state banks, private commercial banks and foreign banks respectively. However, the model failed to run for firms' choice of state banks; which is perhaps attributable to small proportion (less than 5%) of firms using loans from state banks. Naturally the time invariant factors are dropped from the fixed effects model. Fixed effects logit estimates are shown in Table 11 while the corresponding probit random effects estimates are summarised in Appendix Table A5 where RHO is the estimated value of the share of the within firm variance in the model.

Both fixed and random effects estimates support the significance of business

association membership for obtaining loans from both private domestic and foreign banks in our sample. Considering the fixed effects estimates, one could suggest that a networked firm (relative to a non-networked firm) is 16 percentage points more likely to borrow from a private commercial banks; by the same token, a networked firm is 26 percentage points more likely to borrow from foreign banks, even after controlling for all other possible covariates. Note also that compared to the cross-section estimates, panel data estimates highlight a stronger relationship between business networking and access to bank finance. Clearly the networking effect is more pronounced for loans from foreign banks (relative to private domestic banks). Taken together, there is suggestion that foreign banks trade more carefully in these emerging economies with weak institutional environment and in the process, networked firms are likely to have more access to foreign banks. While the networking effect is somewhat weaker, it is present also for loans from private domestic banks in the sample of CEE countries. Interpretation of the interaction term is also quite interesting; insignificance of the interaction term highlights that business association membership is no longer significant in firm's access to loans from private domestic or foreign banks, if the institutional quality of the country is high, thus lending support to our central hypothesis.

Random effects estimates too are in line with the fixed effects estimates of business association membership. These estimates are also consistent with our results in the previous section 5.2; in particular, there is no evidence of firm-bank ownership matching. State firms were significantly less likely to borrow from state banks[9] while the coefficients of both private domestic firms and foreign firms remain insignificant in regressions representing firms borrowing from private banks and foreign banks. Small and Medium enterprises are less likely to borrow from private domestic commercial banks[10], while its coefficient is not significant for borrowing from foreign banks. Efficiency considerations appear to govern private domestic commercial banks' provision of credit to firms, as the coefficients of growth of prior year fixed assets and that of prior year research and development spending, are both positive and significant. The importance of CEE country reforms too appear to be highlighted in our results: as before

[9] Contained in our state bank regression results, which are not shown in our results
[10] A similar result was obtained for firms borrowing from state banks

bank reforms play a positive and significant role in ensuring access to loans from private domestic commercial banks. There is however no evidence that bank reforms have been associated with increased loans from foreign banks. Interestingly, better quality institutions as such fail to ensure greater access to foreign bank credit.

6. CONCLUDING COMMENTS

Financial intermediation may not always guarantee efficient utilization of credit, especially if there are market imperfections and institutional weaknesses. In this respect, t present paper explores a possible mechanism through which social capital could affect financing of investment and thereby encouraging growth of business enterprises; in particular, the paper focuses on the role of business networks on firms' access to bank finance in selected CEE countries.

Following the recent institutional economics literature and also that on organizational behaviour, we argue that informal networks are a response to inadequate institutions and imperfect markets that persist despite ongoing reforms. Firms' association with informal business networks may help them secure bank finances especially in transition and emerging economies. Results from our analysis do confirm the positive role of business networks for network participants. In particular there is evidence that affiliation to business association boosts networked firms' access to bank loans. Positive role of networks for network participants is particularly evident for firms borrowing from private commercial banks and also foreign banks. In the process non-networked small and medium enterprises are discriminated against. While bank reforms have been successful to discourage loans from state banks and encourage those from private domestic banks, it fails to have any perceptible effect to boost loans from foreign banks in our sample. These results appear to be robust to alternative specifications and sample choice.

There is however no scope for complacency. 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 welfare improving. We hope future research will address this.

As the efficiency of financial intermediation is dependent on how well banks are able to finance profitable investments by firm, policy should compel banks to properly screen firms through using asset based lending for large firms and credit scoring for small and medium firms, and development of adequate rules regulating the formation of networks by firms so as to enable firms enjoy the full benefits of forming networks. Given that equity markets in the region tend to be underdeveloped, policies should be aimed at helping the vast majority of small and medium enterprises' access to bank finance and thus boosting their investment and growth.

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Tables

Table 1: Distribution of firms across sample countries

Country	Number of firms	Percentage of Total observations	Number of small and Medium firms (SMEs)	SMEs as a proportion of total firms in each country
FYR of Macedonia	200	3.6%	180	90.00%
Serbia and Montenegro	300	5.4%	259	86.33%
Albania	204	3.6%	189	92.65%
Croatia	236	4.2%	203	86.02%
Turkey	557	10.0%	504	90.48%
Bosnia and Herzegovina	200	3.6%	180	90.00%
Slovenia	223	4.0%	195	87.44%
Poland	975	17.4%	906	92.92%
Hungary	610	10.9%	561	91.97%
Czech rep	343	6.1%	316	92.13%
Slovak rep	220	3.9%	198	90.00%
Romania	600	10.7%	541	90.17%
Bulgaria	300	5.4%	270	90.00%
Latvia	205	3.7%	184	89.76%
Lithuania	205	3.7%	185	90.24%
Estonia	219	3.9%	198	90.41%
Total	5597	100.0%	5069	90.57%

Table 2: Distribution of firms by source of financing for New Investment

COUNTRY	No Bank (coded 0)	Internal (coded 1)	Bank (coded 2)	Non-bank (coded 3)	Equity (coded 4)	TOTAL
FYROM (Macedonia)	100 (50%)	74 (37%)	15 (7.5%)	7 (3.5%)	4 (2%)	200
Serbia and Montenegro	92 (30.67%)	149 (49.67%	43 (14.33%)	14 (4.67%)	2 (0.67%)	300
Albania	31 (15.20%)	111 (54.41%)	56 (27.45%)	6 (2.94%)	0	204
Croatia	69 (29.24%)	72 (30.51%)	52 (22.03%)	28 (11.86%)	15 (6.36)	236
Turkey	231 (41.47%)	156 (28.01%)	21 (3.77%)	20 (3.59%)	129 (23.16%)	557
Bosnia and herzegovina	102 (51%)	57 (28.5%)	29 (14.5%)	12 (6%)	0	200
Slovenia	72 (32.29%)	73 (32.74%)	57 (25.56%)	20 (8.97%)	1 (0.45%)	223
Poland	188 (19.28%)	521 (53.44%)	148 (15.18%)	105 (10.77%)	13 (1.33%)	975
Hungary	146 (23.93%)	204 (33.44%)	86 (14.10%)	68 (11.15%)	106 (17.38%)	610
Czech rep	97 (28.28%)	123 (35.86%)	26 (7.58%)	61 (17.78%)	36 (10.50%)	343
Slovak rep	68 (30.91%)	80 (36.36%)	16 (7.27%)	31 (14.09%)	25 (11.36%)	220
Romania	106 (17.67%)	296 (49.33%)	102 (17%)	93 (15.5%)	3 (0.5%)	600
Bulgaria	74 (24.67%)	134 (44.67%)	59 (19.67%)	31 (10.33%)	2 (0.67%)	300
latvia	89 (43.41%)	47 (22.93%)	17 (8.29%)	19 (9.27%)	33 (16.10%)	205
Lithuania	36 (17.56%)	81 (39.51%)	17 (8.29%)	65 (31.71%)	6 (2.93%)	205
Estonia	62 (28.31%)	75 (34.25%)	20 (9.13%)	59 (26.94%)	3 (1.37%)	219
TOTAL	**1563**	**2253**	**764**	**639**	**378**	**5597**

Note: Figures in brackets refer to number of firms in each category as a proportion of total firms in each country

Table 3: Firms' choice of banks (by bank ownership type)

	Firm ownership			
Loans from	**State-owned**	**Foreign**	**Individual/family**	**Other domestic firms (general public and domestic company)**
State bank (1)	11 (20.75%)	5 (6.94%)	97 (13.34%)	17 (16.19%)
Local commercial bank (2)	37 (69.81%)	47 (65.28%)	543 (74.69%)	71 (67.62%)
Foreign bank (3)	5 (9.43%)	20 (27.78%)	87 (11.97%)	17 (16.19%)
TOTAL	53 (100%)	72 (100%)	727 (100%)	105 (100%)

Table 4. Comparison of networked and other firms

	Networked Firms	**Others**	**T-stat**
SME	0.8531	0.9611	. . -14.255*
Young	0.3683	0.4938	-9.547*
Private	0.7428	0.8300	-8.021*
State	0.1030	0.0657	5.044*
Foreign	0.0752	0.0374	6.167*
Growth of fixed assets	13.0964	12.4952	0.781
Research and development spending	19.1072	12.8704	. 1.808***

Table 5: Inter-regional Variation in International Property Rights Index (IPRI) Indices

REGION	Legal and Political Environment (LP)*	Physical Property Rights (PPR)*	Intellectual Property Rights (IPR)*	International Property Rights Index (IPRI)*
All Countries	4.9	5.6	5.4	5.3
North America	6.1	6.5	6.7	6.4
Latin America	3.4	4.7	3.8	4.0
Africa	3.7	4.4	4.5	4.2
Middle East/North Africa	5.1	5.1	4.8	5.0
Western Europe	7.2	7.2	7.6	7.4
Asia/Oceania	5.3	6.2	5.5	5.7
CEE countries and Russia	3.5	4.7	4.4	4.2

Source: International Property Rights Index 2007 report study conducted by Alexandra C. Horst, 2006 Hernando de Soto Fellow.[11]

Note: * In all cases, a rank of 1 is lowest (poor) and a rank of 10 is highest (excellent)

The measure of the Legal and Political environment (LP) was obtained by taking into consideration the factors of: judicial independence, confidence in courts, political stability, and corruption. The measure for physical property rights (PPR) was obtained by taking into consideration, the factors of: legal protection of property rights, registering property, and access to loans. Lastly the measure of Intellectual property rights (IPR) was obtained by taking into consideration, the factors of: protection of intellectual property rights, patent strength, copyright piracy, trademark protection.

[11] Found on UNDP website http://www.undp.org/legalempowerment/pdf/PRA_Interior_LowRes.pdf

Table 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	-3.3
Serbia and Montenegro	2.7	1	0
Albania	2.7	2	-7.1
Croatia	4	2.3	0.3
Turkey	0	0	0
Bosnia and Herzegovina	2.7	1	-9.9
Slovenia	3.3	2.7	8.5
Poland	3.7	3.3	7
Hungary	4	3.3	8.7
Czech rep	4	3	6.8
Slovak rep	3.7	3.3	2.8
Romania	3	2.3	-0.8
Bulgaria	3.7	2.7	0.1
Latvia	3.7	3	2.6
Lithuania	3.7	3.3	2.6
Estonia	4	3.3	6.1

Notes:[1] Both these indices are obtained from EBRD structural indicators database. The values of both these indices range between 0 (minimum) and 4 (maximum).
[2] Source: Bacchetta and Drabek (2002)

Table 7: List of variables and summary statistics

Variable Names	Variable definitions	Mean	Standard Deviation
Source of firm finance for New Investment	Source of firm financing of New Investment. A multi-coded variable, coded sequentially "0" through to "4". The variable is coded as follows: "0" if firm uses no source of finance "1" if firm uses internal finance "2" if firm uses Bank finance "3" if firm uses non-bank finance. "4" if firm uses equity finance	1.29	1.18
Firms' choice of banks by ownership type	Bank choice for bank financing of new investment. This is the dependent variable for our multinomial logit regression of firm characteristics on bank choice. The variable is defined as follows: "0" if firm uses no bank loan "1" if firm uses loan from state bank "2" if firm uses loan from Private domestic commercial Bank "3" if firm uses loan from foreign bank	0.38	0.82
Small and Medium Enterprise	Small and medium firm size. This is defined as a company having a labour force size of 0 -249 workers. A dummy variable coded "1" for small or medium firms and "0" otherwise.	0.91	0.29
Young Firm	Young firm with year of existence beginning on or after year 1995.. A dummy variable coded "1" if firm is a young firm, and "0" otherwise. Our definition of a young firm follows that by Klapper et al (2002)	0.43	0.50
Small and Medium Enterprises* Young firm	An interaction term derived from the product of the variables, Small and Medium enterprises and Young firm.	0.41	0.49
Growth of Prior year fixed assets.	Growth of firm's fixed assets in the last year in percentage	12.80	28.83
State firm	State-owned businesses. A dummy variable coded "1" if firm is owned by Government and "0" otherwise	0.085	0.28
Foreign firm	Foreign-owned business. A dummy variable coded "1" for firms owned by a foreign company and "0" otherwise.	0.057	0.23
Private domestic firm	Domestic firms owned by local citizens. 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 firm is privately domestically owned, and "0" otherwise.	0.79	0.41

Table 7: List of variables and summary statistics (Contd)

Variable Names	Variable definitions	Mean	Standard Deviation
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.	0.51	0.50
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).	16.07	131.01
Manufacturing sector operating firm	Firms operating in the manufacturing sector. A dummy variable coded "0" for firms operating in all other sectors and "1" for firms operating in the manufacturing sector.	0.42	0.49
Competition policy index	An EBRD Country business competition policy index ranging from 1.0 to 10.0 with higher values depicting highly competitive firms and low values depicting low competitive firms.	2.44	1.06
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 of -25.00 to 25.00 with higher values depicting higher quality institutions and low values depicting low quality institutions.	2.66	1.84
Bank Reform Index	An EBRD index indicating the extent to which banking sector reforms have taken place in transition countries.	3.15	1.14

Table 8: 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 Prior Year Fixed Assets	✓	✓
Firm ownership	State-owned firms	✓	✓
	Foreign-owned firms	✓	✓
	Private Domestic 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	competition Policy index	✓	
	Institutional Quality Index	✓	✓
	EBRD Bank Reform index		✓

Table 9: Multinomial Logit Marginal Effects of Firms' Financing (instrumented Business Association membership)

Explanatory Variables	Firm Source of Finance			
	Internal Finance	Bank Finance	Non-Bank Credit	Equity Finance
Constant	0.0901 (1.272)	-0.153 (3.338)***	-0.160 (4.092)***	0.0449 (1.402)
Predicted value of Business Association Membership	-0.0288 (O.474)	0.0766 (1.896)*	0.0299 (0.923)	-0.0637 (2.224)**
State Firm	0.0423 (1.195)	-0.133 (5.099)***	-0.0500 (2.339)**	-0.00313 (0.186)
Foreign Firm	0.0664 (1.473)	-0.0747 (2.534)**	-0.00641 (0.264)	0.0390 (2.208)**
Private Domestic Firm	0.0169 (0.641)	-0.0237 (1.498)	-0.0152 (1.006)	0.0154 (1.203)
Manufacturing sector contribution to sales	0.0187 (1.351)	0.0583 (6.394)***	-0.0176 (2.074)**	0.00804 (1.457)
Growth of Prior Year Fixed Assets	0.000264 (1.117)	0.000318 (2.282)**	0.000170 (1.032)	-0.0000687 (0.625)
Prior Year Research and Development Spending	0.0000701 (1.248)	0.0000319 (1.066)	-0.0000494 ().995)	-0.0000140 (0.559)
Small and Medium Enterprises	0.0929 (3.238)***	-0.0530 (3.058)*	-0.0671 (4.551)***	-0.0106 (0.945)
Young firms	0.0239 (0.420)	0.0358 (1.118)	-0.0186 (0.617)	0.00292 (0.143)
Small and Medium Enterprises* Young firms	-0.0620 (0.766)	0.0184 (0.368)	0.0458 (1.064)	-0.0489 (1.408)
EBRD competition Policy index	0.0244 (2.726)***	0.0274 (4.108)***	0.0527 (7.466)***	-0.0432 (15.492)***
Institutional Quality Index	-0.00440 (2.376)**	-0.00533 (4.267)***	-0.00208 (1.648)*	0.0112 (13.164)***

T-Statistics are provided in parenthesis. *, **, * denote significance at 10%, 5% and 1% levels**

Diagnostic Statistics:
Log likelihood Function: -7659.354 Restricted Log-likelihood: -7970.828
Chi Squared: 622.9477 Prob (Chisqd>Value): 0.0000000
Degrees of Freedom: 48.

Table 10: Multinomial Logit Marginal Effects for Firms' Choice of Banks (instrumented Business Association membership)

Explanatory Variables	Type Of Bank State Bank	Private Domestic Commercial Bank	Foreign Bank
Constant	-0.0740 (3.231)***	-0.175 (3.659)***	-0.0961 (6.978)***
Predicted value of Business Association Membership	0.0137 (0.663)	-0.00405 (0.096)	0.0311 (3.283)***
State firm	-0.0147 (1.661)*	-0.120 (4.777)***	-0.0318 (3.504)***
Foreign firm	-0.0305 (2.184)**	-0.0279 (1.019)	-0.00682 (0.860)
Private Domestic firms	-0.0106 (1.740)*	-0.0155 (0.948)	-0.00474 (0.979)
Growth of Prior Year Fixed Assets	0.0000566 (1.012)	0.000330 (2.425)**	0.00000890 (0.179)
Prior Year Research and Development Spending	0.00000650 (0.851)	-0.00000656 (0.181)	0.00000247 (0.226)
Small and Medium Enterprises	-0.00788 02(1.159)	-0.0713 (4.320)***	-0.0205 (4.193)***
Young firms	0.00507 (0.395)	-0.0297 (0.849)	0.0131 (1.824)*
Small and Medium Enterprises* Young firms	0.00315 (0.131)	0.000659 (0.012)	0.0137 (1.246)
EBRD Bank Reform index	0.000275 (0.118)	0.0283 (5.042)***	0.0114 (4.472)***
Institutional Quality Index	0.00254 (4.967)***	-0.00186 (1.718)*	-0.00254 (8.088)***

T-Statistics are provided in parenthesis. *, **, * denote significance at 10%, 5% and 1% levels.**

Diagnostic Statistics:

Log likelihood Function: -3409.683 Restricted Log-likelihood: -3540.975

Chi Squared: 262.5828 Prob (Chisqd>Value): 0.0000000

Degrees of Freedom: 33

Table 11. Logit Fixed Effects Estimates (marginal effects) of Firm's Choice of Banks

Variables	Loans from	
	Domestic banks	**Foreign banks**
Business association membership	0.16 (1.804)*	0.26 (1.958)*
Growth of fixed assets	-0.07 (1.119)	-0.06 (0.451)
Institutions*Business association	-0.01 (1.063)	-0.03(1.131)
Log-L	-110.9280	-31.7417

T-Statistics are provided in parenthesis. *, **, * denote significance at 10%, 5% and 1% level**

APPENDIX

Table A1. Probit estimates (Marginal effects) of a firm's affiliation to business association

Explanatory Variables	Probit Regression Estimates (Marginal Effects)
Constant	0.358 (10.292)***
State Firm	-0.00409 (0.117)
Foreign Firm	0.107 (2.863)***
Private Domestic Firm	-0.0362 (1.383)
Small and Medium Enterprises	-0.278 (13.058)***
Young Firm	-0.105 (7.591)***

T-Statistics are provided in parenthesis. *, **, * denote significance at 10%, 5% and 1% level**

Diagnostic Statistics:

Log likelihood Function: -3734.628 Restricted Log-likelihood: -3877.561

Chi Squared: 285.8667 Prob (Chisqd>Value): 0.000000

Table A2: Multinomial Logit Marginal Effects of Firms' Financing (business association not instrumented)

Explanatory Variables	Firm Source of Finance: Internal Finance	Bank Finance	Non-Bank Credit	Equity Finance
Constant	0.125 (2.775)***	-0.157 (5.632)***	-0.193 (7.295)***	-0.0161 (0.888)
Business Association Membership	-0.0513 (3.540)***	0.0664 (6.884)***	0.0508 (5.960)***	0.00106 (0.171)
State Firm	0.0396 (1.116)	-0.129 (4.997)***	-0.0484 (2.294)**	-0.00474 (0.277)
Foreign Firm	0.0596 (1.555)	-0.0551 (2.279)**	-0.00251 (0.122)	0.0204 (1.216)
Private Domestic Firm	0.0154 (0.580)	-0.0224 (1.425)	-0.0136 (0.914)	0.0165 (1.272)
Manufacturing sector	0.0195 (1.399)	0.0557 (6.157)***	-0.0178 (2.125)**	0.00804 (1.438)
Growth of Prior Year Fixed Assets	0.000274 (1.152)	0.000303 (2.194)**	0.000161 (1.245)	-0.0000722 (0.647)
Prior Year Research and Development Spending	0.0000743 (1.322)	0.0000247 (0.841)	-0.0000522 (1.065)	-0.0000146 (0.572)
Small and Medium Enterprises	0.0784 (2.725)***	-0.0337 (1.961)**	-0.0525 (3.590)***	-0.0145 (1.283)
Young firms	0.0222 (0.390)	0.0387 (1.218)	-0.0151 (0.507)	0.00403 (0.195)
Small and Medium Enterprises* Young firms	-0.0398 (0.679)	-0.0493 (1.485)	0.0204 (0.658)	0.0113 (0.526)
EBRD competition Policy index	0.0172 (1.856)*	0.0371 (5.530)***	0.0608 (8.607)***	-0.0435 (14.379)***
Institutional Quality Index	-0.00448 (2.412)**	-0.00531 (4.345)***	-0.00238 (1.931)*	0.0114 (13.067)***

T-Statistics are provided in parenthesis. *, **, * denote significance at 10%, 5% and 1% levels**

Diagnostic Statistics:
Log likelihood Function: -7616.301 Restricted Log-likelihood: -7970.828
Chi Squared: 709.0536 Prob (Chisqd>Value): 0.000000

Table A3: Multinomial Logit Marginal Effects for Firms' Choice of Banks (business association not instrumented)

Explanatory Variables	Type Of Bank State Bank	Private Domestic Commercial Bank	Foreign Bank
Constant	-0.756 (6.253)***	-0.259 (9.127)***	-0.0824 (7.681)***
Business Association Membership	0.0128 (3.321)**	0.0681 (7.215)**	0.0178 (5.330)***
State firm	-0.0143 (1.652)*	-0.118 (4.759)***	-0.0280 (3.237)**
Foreign firm	-0.0265 (2.387)**	-0.0366 (1.532)	0.00355 (0.600)
Private Domestic firms	-0.00992 (1.664)*	-0.0131 (0.812)	-0.00464 (1.012)
Growth of Prior Year Fixed Assets	0.0000516 (0.937)	0.000308 (2.287)**	0.00000747 (0.160)
Prior Year Research and Development Spending	0.00000526 (0.705)	-0.0000127 (0.354)	0.000000227 (0.022)
Small and Medium Enterprises	-0.00435 (0.650)	-0.0540 (3.312)***	-0.0136 (2.958)***
Young firms	0.00570 (0.453)	-0.0232 (0.669)	0.0125 (1.822)*
Small and Medium Enterprises* Young firms	-0.00912 (0.690)	0.00703 (0.195)	-0.0111 (1.467)
EBRD Bank Reform index	0.00200 (0.862)	0.0355 (6.378)***	0.0116 (4.982)***
Institutional Quality Index	0.00242 (4.898)***	-0.00149 (1.405)	-0.00219 (7.073)***

T-Statistics are provided in parenthesis. *, **, * denote significance at 10%, 5% and 1% levels**

Diagnostic Statistics:

Log likelihood Function: -3366.185 Restricted Log-likelihood: -3540.975

Chi Squared: 349.5789 Prob (Chisqd>Value): 0.0000000

Table A4. Probit Random Effects Estimates (marginal effects) of Bank Choice

Explanatory Variables	Loans from Private Domestic Commercial Bank	Loans from Foreign Bank	Descriptive statistics **Means**	Descriptive statistics **Standard Deviation**
Constant	-2.060 (7.100)***	-2.49 (3.781)***	N/a	N/a
Business Association Membership	0.235 (2.466)**	0.344 (2.249)**	0.38	0.48
State firm	-0.196 (0.913)	-0.601 (1.524)	0.045	0.21
Foreign firm	-0.0603 (0.286)	0.0420 (0.182)	0.091	0.29
Private Domestic firms	0.176 (1.292)	-0.252 (1.296)	0.67	0.47
Growth of Prior Year Fixed Assets	0.000195 (1.695)*	-0.00282 (0.126)	17.82	37.64
Prior Year Research and Development Spending[+]	0.198 (1.89)*	0.285 (1.716)*	0.23	0.42
Small and Medium Enterprises	-0.410 (2.629)***	-0.208 (0.906)	0.87	0.34
Young firms	0.216 (0.588)	0.608 (1.638)	0.32	0.47
Small and Medium Enterprises* Young firms	-0.209 (0.544)	-0.483 (1.236)	0.32	0.47
EBRD Bank Reform index	0.258 (3.577)***	0.234 (1.284)	3.16	0.91
Institutional Quality Index	-0.0131 (0.984)	-0.0539 (3.058)***	2.51	4.49
RHO	0.30 (3.904)***	0.035 (0.125)	N/a	N/a
Diagnostic Statistics:			N/a	N/a
Log Likelihood Function	-660.4499	-215.1756	N/a	N/a
Restricted log-likelihood	-685.5385	-233.4515	N/a	N/a
Chi squared	50.17728***	36.55164***		

T-Statistics are provided in parenthesis. *, **, * denote significance at 10%, 5% and 1% level**

+ Dummy variable (with 1 denoting firm having R&D spending; and 0 denoting otherwise) for prior year research and development spending employed in this regression as absolute value for actual R&D Spending of the firms was not available for BEEPS 2002