Composition of small and large firms' business networks in transition economies

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ABSTRACT

Recent research has theorized on the composition of firms' business networks but has not empirically examined business networks in transition economies may vary for different firms. In this study, using firm level data from twenty six transition economies collected by the World Bank and the EBRD in 1999-2000, we conduct a set of logistic regression models to investigate the composition of small and large firms' business networks. The results show that, in contrast to smaller firms, larger firms are more likely to have formal business relationships, and relationships with national and foreign financial institutions, government, and foreign firms. In addition, in a subgroup analysis of seven transition economies we show that the composition of the firms' business networks varies substantially across countries but that the government is still a dominant client. Furthermore, we found a large variation on firms' reliance on informal ties and the extent to which firms exchange with foreign firms.

Keywords: business relationships, multi-country, transition economies, institutional environment

INTRODUCTION

The composition of small and large firms' business networks is likely to vary substantially. While some scholars have suggested that firms' business networks evolve over their life cycles in response to strategies and circumstances (Human & Provan, 2000; Hite & Hesterly, 2001), few studies have attempted to test empirically how similar or different are the networks of firms of different sizes, and whether in fact there is any difference. However, it is likely that the composition, structure, configuration, and stability of firms' business networks are idiosyncratic to the firms' needs (Gulati et al., 2000; Hite & Hesterly, 2001). For example, network ties are particularly important for small and/or young firms whose legitimacy and reputation are not yet established (Saxenian, 1990; Stuart et al., 1999; Human & Provan, 2000). Firms integrated in business networks seem to have easier access to various types of resources (Lipparini & Sobrero, 1994) and information (Dyer & Singh, 1998) that improves their chances to detect new market and innovation opportunities (Birley, 1985; Walker et al., 1997; Gulati, 1998; Hite & Hesterly, 2001) and gain reputation and social endorsement (Stuart et al., 1999).

Previous research has suggested that there are significant differences in terms of organizational structure, market focus, strategy, and resource endowments between small and large firms (e.g., Stinchcombe, 1965; Mintzberg, 1979). For example, small and young firms are highly dependent on their personal and cohesive social relationships (Hite & Hesterly, 2001) such as their relationships with family members or friends on which they rely to obtain resources, gain legitimacy (Lipparini & Sobrero, 1994; Human & Provan, 2000), and to overcome possible disadvantages of newness and smallness (Stinchcombe, 1965). Conversely, larger firms may seek business relationships for different strategic motives (Hite & Hesterly, 2001) such as innovation, market access, financial needs, and so forth. Thus, differences in the business relationships of small and large firms are likely to be determined by both resource needs and by strategic motives. To some extent, the composition of the firms' network is the result of a planned strategy (Baum et al., 2000) and of a rational and 'calculative' process

(Hite & Hesterly, 2001). However, the environment in which firms operate also influence both firms' resource deficiencies and strategies as well as their ability to configure their networks. Hence, understanding how the composition of firms' business networks may differ for small and large firms offers insight into why firms may seek to modify their business networks. In addition, examining how this occurs in transition economies offers insight into the influence of the economic and institutional environment on firms' ability to establish business ties.

Firms in transition economies may need to rely more on their ability to form ties to other firms than firms in developed countries. Transition economies present an interesting context for studying business networks because, in this context, networks may not only be essential for firms' survival but they may also facilitate firms' adjustment to a business environment that is changing continuously. In this condition we may expect reputation and legitimacy to be a stronger referral than we probably consider in more institutionally developed countries. Furthermore, the lack of effective and efficient institutions in transition economies may require inter-firms forms of collaboration to overcome resource limitations in such an extensive manner that is not a primary concern for firms in institutionally developed countries. For example, Roth and Kostova (2001) noted that firms in transition economies tend to substitute formal business relationships by informal relationships. Notwithstanding, extant research has focused essentially on developed countries, primarily on the U.S. (Saxenian, 1994; Human & Provan, 2000) and Europe (e.g., Piore & Sabel's (1984) work on the industrial districts in Europe). Consequently, while it seems reasonable that the configuration of firms' business network may differ in transition countries from that most likely to be observed in more institutionally and economically developed western countries, empirically, we know very little about whether and how the composition of firms' business network may differ in other economic environments, namely in transition economies.

In this study, we contrast the networks of small and large firms in transition economies. This study contributes to our understanding of firms'

networks in transition economies as a facilitating mechanism for firms' ability to ride through the transition period. This study further permits us to draw some dissimilarities among transition countries evidencing that more fine grained examinations, in contrast to studies that group all transition countries together, are required to understand contextual factors as well as firms' characteristics that influence the composition of firms' networks. Specifically, on a sample of firms from twenty six transition economies, we empirically test whether the composition of firms' business network varies for small and large firms. The remaining of this study is structured in three main sections. The first section entails a brief literature review with the development of hypotheses, anchored in the idea that firms rely on their business networks where the composition of these networks differs significantly depending on firms' size and country of origin. The second section develops the empirical method and includes the description of the data, variables, and results. The third section comprises a discussion of the results, implications, and avenues for future research.

FIRMS' BUSINESS NETWORKS

The composition of a firm's business network refers to the types of organizations or the portfolio of members that are included in the organization's business network (Baum et al., 2000; Gulati et al., 2000). Following Hite and Hesterly (2001) we restrict our analysis to the firm's ego network, and to the actors directly connected with a focal firm. Therefore, we focus on network composition in terms of the partners with which each focal firm has direct business relationships.

Small firms have, *per* definition, a limited pool of managerial, financial, informational, and human resources (Stinchcombe, 1965; Beamish, 1999). Therefore, small firms may need to rely more on their business networks to overcome resource and informational constraints to improve their likelihood of survival and success (Birley, 1985; Jack & Anderson, 2002). For example, Fontes and Coombs (1997) observed that business relationships are often aimed at accessing complementary activities or at compensating for deficiencies. Business relationships also

expose firms to information and other resources not yet held, hence, providing growth opportunities.

Partnering with other organizations may be an effective way to minimize transaction costs, increase market power, promote learning, share risk (Larson, 1992; Gulati et al., 2000; Lu & Beamish, 2001), obtain endorsement (Stuart et al., 1999), and favor the access to an array of physical and intangible resources. We will review some arguments for why a firm enters a network in the following section but it is worth noting outright that, in this study, we build on Hite and Hesterly's (2001) conceptual idea that firms' membership in a network of business relationships may not only be a resource dependence necessity but also a strategy. Firms engage in business relationships not only to overcome current resource limitations but also to realize strategic objectives such as survival, growth, or market entry. If this is the case, not only we could expect to observe firms of different sizes engaging in dissimilar network arrangements, but we may also expect that the business environment of the firm (i.e., the institutional environment) will lead firms to seek different portfolios of relationships.

Formalization of business ties

The business networks of small firms are likely to be predominantly composed of informal and path dependent business relationships. Informal relationships are frequently the owners' personal relationships (Dubini & Aldrich, 1991; Hite & Hesterly, 2001) and refer to personal and generally non-contractual relationships (Macaulay, 1963; Granovetter, 1985) such as family ties (Larson, 1992), friendship relationships (Peng & Luo, 2000), affiliation connections (Macaulay, 1963), and community bonds (Galaskiewicz, 1979). Small firms frequently lack influence, endorsement, perception of quality, reliability, reputation, and legitimacy (Boeker, 1989; Larson, 1992). As a result, other organizations may hesitate to form formal relationships with small firms (Stuart et al., 1999). Ferreira (2002) suggested a parenting model whereby new, and possibly small, firms tend to exploit existing informal relationships with their parent firms instead of exploring new relationships with firms outside the parental network of relationships. In sum, the firms' informal network of business relationships

are an important vehicle for information, reputation, advice, referral, market selection, market entry facilitation, and commercial expansion (Oviatt & McDougall, 1995; Jack & Anderson, 2002) particularly for small firms.

In contrast to small firms, large firms are more likely to rely on formal business relationships. Although informal relationships may provide sufficient resources when firms are small, firms' growth often requires additional resources not met by existing informal relationships. For example, large firms may need to seek financial institutions with the capacity to meet larger financial capital requirements. Alternatively, large firms may seek financing in capital markets going public, which bears significant monitoring by external agents, institutional investors, and financial regulation institutions (Aggarwal & Rivoli, 1991) that are generally outside the possibilities of small firms. Therefore, as small firms grow to become larger corporations it is reasonable to assume that more formal exchange governance mechanisms, possibly governed by contracts, will gain predominance. These may be business relationships with local and national governments, with major clients and suppliers, with foreign firms, and with financial service firms both domestic and foreign. In other words, large firms are likely to be perceived as having higher reputation and stable operations, which facilitates establishing formal ties with other firms. Moreover, prior relationships with other large and prestigious firms increase the likelihood of forming subsequent additional formal relationships (Gulati, 1995) due to acquired legitimacy and reputation (Human & Provan, 2000). To conclude, large firms have accumulated experience, resources, and prior relationships, which downplay the importance of, and dependence on, informal business relationships. Thus, large firms are more likely to have a larger pool of formal, as opposed to informal, business relationships with other agents than small firms.

In transition economies, the transaction costs are generally higher than in institutionally developed countries (Meyer, 2001) and these transaction costs are likely to be higher for exchanges with small firms than with large firms. To engage in business relationships with small firms a focal

firm is subject to higher uncertainty and needs to gather additional information, which is often not available. While external signals may provide some referral, such as small firms' membership in trade and industry associations, these are imperfect sources. Thus, the focal firm is likely to prefer exchanging via formal and contractual arrangements that provide at least some degree of stability to the exchange and decreases the likelihood of opportunistic behaviors even in the presence of ineffective regulatory institutions.

Hypothesis 1: Large firms are more likely to have formal, as opposed to informal, business relationships in their business network than small firms.

Business relationships with financial firms

As firms grow, their financial demands increase and the inability of the personal ties to pool together the financial resources required may determine the need to seek financial institutions. Small firms will find it difficult to attract financial resources from external sources due to high perceived risk (Singh et al., 1986; Baum & Oliver, 1991) and prohibitive costs of public offerings (Aggarwal & Rivoli, 1991). However, as the focal firms grow and become established in the market, accumulate experience, build a track record of success, increase internal formalization, and adopt transparent internal decision-making processes, their credit ratings are likely to improve and attract financial service firms' interest. Therefore, larger firms are likely to 'calculatively' (Hite & Hesterly, 2001) establish ties to co-opt financial service firms and alleviate financial resource dependence (Rowley et al., 2000) that informal ties cannot overcome. Financial service firms such as banks or leasing are also more likely to get involved with larger and established firms than with smaller firms due to lower transaction costs incurred.

In transition economies, the capital market and the financial institutions are generally underdeveloped, ineffective, and inefficient (Perotti, 1993; Newman, 2000). To overcome this limitation, firms may resort to informal sources of capital (Newman, 2000). Alternatively, firms may seek foreign financial service firms. Most local (national or regional) banks in transition economies continue to be largely state owned and tend to

sustain loans to non-performing and over-indebted state-owned firms (Perotti, 1993; Stiglitz, 1994), less often extending loans to private enterprises (Stiglitz, 1994; Jelic et al., 1999). Technologically obsolete local banks are unable to evaluate the viability of private or privatized firms especially when these firms are small.

Hypothesis 2.1. Large firms are more likely to have business relationships to local financial service firms in their business network than small firms.

Foreign financial service firms are also important sources of financial capital for firms. Foreign banks are particularly important given the shortage of liquidity by local banks in transition economies (Stiglitz, 1994). Foreign financial service firms are unlikely to finance the operations and/or investments of small firms except in limited and specific situations of a provable track record of, for example, innovative performance. However, the majority of the small firms do not have the reputation and legitimacy nor the track record of accomplishments needed, which heightens foreign financial firms' uncertainty. Furthermore, the transaction costs of lending to small firms increase in the form of uncertainty and information needs simply because it is more difficult to obtain independent and reliable data on small firms than on large firms, particularly on large public firms. An inefficient pool of regulatory institutions heightens these risks and costs. Hence, it is more likely that foreign financial service firms will engage in business transactions with large and legitimized firms rather than with small firms.

An alternative explanation relies on the search capabilities of firms. In comparison to large firms, small firms may rely more on cohesive informal relationships (i.e., relationships to friends or acquaintanceships) because their search capabilities are limited to the neighboring landscape and are less likely to be aware of the full range of financing possibilities (Hite & Hesterly, 2001). This may signify that small firms do not search for financing opportunities outside their local (regional or national) areas. Therefore, these small firms may be unaware of the possibilities or the procedures to obtain foreign financing. Conversely, large firms possess more resources, broader search capabilities, and more knowledge on

various mechanisms, namely on the processes required to obtain foreign financing by foreign financial services firms.

Hypothesis 2.2. *Large firms are more likely to have business relationships to foreign financial service firms in their business network than small firms*.

Business relationships with foreign partners

Firms in transition economies have significant benefits from interfaces with foreign firms for technological learning, to speed their internationalization, and to detect market opportunities in foreign markets. However, the development of relationships with foreign clients and suppliers is likely to be dependent on the foreign partners' perception of the focal firms' credibility and capacity to meet their obligations. The major barriers for foreign firms' interests in establishing exchange relations with the focal firms include the lack of knowledge about the focal firms' trustworthiness, the inability to measure accurately the focal firms' performance, or the absolute lack of knowledge on the focal firms' existence. In fact, foreign firms will have an even higher difficulty of evaluating the focal firms' status and performance than other domestic firms do when the information available is less reliable. Therefore, large firms are more likely than small firms to have business relationships with foreign organizations.

Large firms have a more developed and possibly more extensive pool of business relationships to both domestic and foreign firms that serve as referrals for legitimacy and corporate strategy (Human & Provan, 2000). These relationships highlight that they are trustworthy and capable. Furthermore, large firms are likely to seek foreign markets (clients) to place their products as a market diversification strategy. However, to access foreign markets focal firms need to have some knowledge of the market, which necessitates local collaboration. Jack and Anderson (2002), for example, found that various market exploiting opportunities are embedded in the local structure and cannot be recognized and explored without social embeddedness – that is, without relationships to locally-based agents. Business relationships to foreign clients and suppliers may be bridges for the detection of market opportunities in foreign markets. In sum, we suggest that large firms are more likely to have business relationships with

foreign clients because large firms have larger manufacturing capacities that may satisfy the clients needs, have more exposure to foreign contacts (e.g. participation in trade fairs, and other events), and are more reliable in terms of meeting and fulfilling contracts than smaller firms. Furthermore, as discussed above, the added reputation and credibility of large firms lowers transaction costs, which is particularly important in transition economies.

Hypothesis 3.1. Large firms are more likely to have business relationships with foreign client firms in their business network than small firms.

It is likely that managers' discretionary freedom in small firms to make decisions without significant control from external agents and institutions may increase the perceived risk of doing business with these small firms (Huang et al., 2003). Although this is likely to occur in any country and any economic system, it is likely to be more seriously considered in the face of ineffective institutions. Conversely, the external monitoring mechanisms adopted by large firms, particularly publicly-traded firms, reduce managers' discretionary decision making power (Huang et al., 2003). The difference is more than trivial as it decreases the perception of risk associated with a focal firm, particularly in what concerns payments to suppliers, meeting deadlines, and use of the firm's funds. To conclude, it is likely that large firms may seek foreign supply partners to satisfy resource needs not being met in the home market. Furthermore, procuring inputs on a worldwide scale provides larger control over timing, quantities, and qualities and provides a cost arbitrage advantage.

Hypothesis 3.2. Large firms are more likely to have business relationships to foreign supplier firms in their business network than small firms.

Business relationships with the government

The government is a major economic player in any economy and particularly in economies that are still in transition from a centrally planned economic system. The government or government agencies are major clients, suppliers, and investors in the majority of the industries (Henisz, 2001). As a large client, the government is likely to have strict criteria to ascertain from which firms it should procure goods and services. In fact, in many countries, governmental agencies specify the norms and

requirements that suppliers need to fulfill to qualify (e.g. ISO 9000 and 14000). The government also procures in large quantities and seeks firms with higher stability and reputation. Finally, the government often pays its purchases after several months requiring firms to have the financial capacity to carry accounts. Therefore, we suggest that the government is more likely to procure from large established firms and, hence, large firms are more likely to have business ties to governmental agencies for supply purposes.

Hypothesis 4.1. *Large firms are more likely to have business relationships to the government and governmental agencies in their business network than are small firms*

Governments invest in firms for a variety of reasons, some of which strategic, others political, and yet others for social motives. For example, the government may be a partner or an investor in industries that are considered to be of strategic interest for the country but that require too large of an investment to trigger private interest (e.g., railroads, military equipment and defense, and energy). Other times, the government invests in firms to prevent bankruptcy and to avoid the political and social distress that follows a large loss of jobs. In addition, the government or affiliated agencies often invest in large development projects that require the pooling of private and public finances (e.g., large dams, highways) and may do so by acquiring an equity stake in an incumbent firm. Therefore, it seems reasonable to suggest that the government as an investor is keener on investing in firms with an established reputation, that are larger and more able to offer warranties. The informational market imperfections in transition economies make this preference more salient.

Hypothesis 4.2. *Large firms are more likely to have business relationships to the government and governmental agencies as investors in their business network than are small firms*

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DATA AND METHODS

Sample

The data used in this study was drawn from a survey conducted by the World Bank and the European Bank for Reconstruction and Development (EBRD). The survey and data are publicly available in the series Business Enterprise Environment Survey[1] (BEEPS survey). The survey data was collected through phone interviews to top managers (e.g. CEO, President, Director, Manager, Owner, Proprietor) of firms from twenty-six transition economies during 1999-2000. We excluded the surveys with missing data in the variables of interest, state-owned firms, cooperatives, and non-profit organizations. We also excluded firms founded prior to 1985 because the majority of the firms in the dataset were younger than ten years and the remaining were predominantly state-owned. Our final sample was composed of 3,048 firms. The countries included in the dataset are: Albania, Armenia, Azerbaijan, Belarus, Bosnia, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Poland, Rep. Serpska, Romania, Russia, Slovakia, Slovenia, Turkey, Ukraine, and Uzbekistan.

Measures

Dependent variables. The dependent variables reflect the composition of a firm's network of business relationships and specifically the existence of business relationships with a certain economic agent. We coded into dummy variables each of the following nine business relationships that may exist in a firm's network: relationships with foreign firms as clients (FOREIGCL), foreign firms as suppliers (FOREIGSUP), foreign firms as equity owners or shareholders (FOREIGPT), government and/or governmental agencies as client (GOVERCL), government and/or governmental agencies as equity owners or shareholders (GOVERPT), national financial service firms (banks) as investors (FINNABA), and foreign financial service firms as investors (FINFORBA). The focal firm's informal relationships (FININFOR) reflect whether the firm relies on family, friends, and other traditional informal sources (e.g., money lender, supplier credit)

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[1] Survey and dataset accessible at http://econ.worldbank.org.

for resources. Given the emphasis of prior literature on family and friends as the main informal resource suppliers, we identified the relationships with families and friends (FINFAMIL) as a sub-case of informal relationships.

Independent and control variables. Firm size (Size) was measured by the fixed assets as a categorical variable ranging from 1 (fixed assets less than $250,000) to 10 (fixed assets greater than $500 million). We achieved similar regression results when using the sales volume and the number of employees as alternative measurements of firms' size. The correlation between firms size measured by fixed assets and measured by sales was .7 and statistically significant.

Prior research has indicated that the likelihood of forming business relationships with certain agents may be associated with the firm's age, industry background, physical location, legal form, and public status. Therefore, we included several control variables in our logistic regression models to account for these alternative explanations. Firms' age has been conceptually argued to influence the composition of their network (e.g., Hite & Hesterly, 2001; Huang et al., 2003). For example, older firms may have more experience and resources to build their business relationships with various market players. Firms' age was constructed as the difference between the year of founding and 2000. Age in our sample varies from one to fifteen (i.e., founded in 1985 or later).

The firms' industry may also have an effect on its network composition. For example, the differences in market characteristics may lead to variations in opportunities to form partnerships. The control for industry[2] is set as dummy variable that equals 1 for service firms and 0 for manufacturing firms. Participation in trade associations (Trade association) is a dummy variable that captures whether the firm is member of a trade association. Participation in trade associations may enhance firms' visibility, reputation, legitimacy, endorsement, and extension of their information channels facilitating the formation of business relationships. We also control for firms' legal form (Legal form) such as single proprietorship, partnership,

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[2] Although a larger differentiation of industries would be desirable this is not permitted given the data used.

and corporation. In addition, we included two controls for firm location: the country of the firms (26 dummies) and the size of the city where they are located (Large city). We classify the city as large if it has more than 250.000 citizens or if it is the country's capital. Finally, we coded the firms origin in three dummy variables: private firms (equals 1 if the firm is private since establishment), joint ventures (JV) (equals 1 if the firm was established as a joint venture between domestic and foreign partners), and privatized firms (equals 1 if the firm resulted from the privatization of a previously state-owned firm).

RESULTS

In Tables 1 and 2, we provide descriptive statistics and correlations for all variables. Although there are a number of significant correlations, none is high enough to raise multicollinearity concerns (Hair et al., 1995). We used variance inflation factors (VIF) to test for multicollinearity and none of the VIF scores approached the commonly accepted threshold of 10 to indicate multicollinearity. One of the noteworthy correlations in Table 2 is between firm size and age which is very low (0.14) and significant. In prior studies these variables have been confounded, which may explain the difficulties in clearly distinguishing the independent effects of size and age. The unexpected low correlation between firm size and age is an advantage in our sample because we avoid possible confounding effects of these two variables on our dependent variables, as may occur whenever there is a high correlation between firms' size and age. However, the low correlation may also reflect limitations of our sample. Firm age ranges from one to fifteen years old, which, under most industry conditions, implies relatively young firms. The mean age of the firms in our sample is 6.95 years, 33 percent are at most five years old and 91 percent are at most ten years old. Firms at this stage may still suffer from a liability of newness or of adolescence.

[Insert Table 1 & 2 here]

Results of the logistic regression models used to test the hypotheses are presented in Table 3. The dependent variables capture whether the focal

firms have a certain type of business relationship (client, supplier, and investor) with a certain agent (e.g., family/friends, national financial firms, government, foreign financial firms). To test these hypotheses we ran nine logistic regressions and examined the probability of occurrence of a certain business relationship. With the significance level at 99.9%, our logistic regression models were significant as indicated by the models' Chi-square values.

[Insert Table 3 here]

Hypothesis 1 suggested that large firms were more likely to have formal relationships, and, conversely, that small firms were more likely to rely on informal relationships. Models 1 and 2 tested this hypothesis. In Model 2, firm size was significantly related to the formation of informal relationships (β=-0.15, p< .01). However, the coefficient estimated in Model 1 is not statistically significant. As firms' size increases, it seems that they are less likely to maintain informal business relationships to family and friends. Therefore, hypothesis 1 received only partial support.

Hypothesis 2 advanced that, in contrast to small firms, large firms were more likely to have relationships with both national financial firms (Hypothesis 2.1) and foreign financial firms (Hypothesis 2.2). In fact, we found firm size to be significantly related to the likelihood of having business relationships with local financial firms in Model 3 (β=0.13, p< .001) and with foreign financial firms (banks) in Model 4 (β=0.35, p< .001). Therefore, both Hypotheses 2.1 and 2.2 were supported.

Model 5 and Model 6 tested the third set of hypotheses. Both coefficients of firms' size were positive and significant (β=0.27, p<0.001 in Model 5; β=0.31, p< .001 in Model 6). In addition, we used Model 7 to examine whether larger firms tended to have foreign firms as equity investors. The coefficient is positive and statistically significant (β=0.29, p<.001). Hence, Hypotheses 3.1 and 3.2 were supported confirming that large firms are more likely to have foreign firms in their business networks as clients (Hypothesis 3.1) and as suppliers (Hypothesis 3.2).

Hypotheses 4.1 and 4.2 proposed that firms' size is positively associated with their involvement with the government. Both statements found strong

support (β=0.07, p<0.01 in Model 8; and β=0.14, p< .01 in Model 9). Therefore, Hypotheses 4.1 and 4.2 were also supported.

Additional results

Firms' legal form

We extended our analysis to firms' legal form. We observed that firms originated as joint ventures with foreign firms were more likely to be involved with foreign firms as suppliers, clients, and/or investors (see models 4, 5, and 6 in Table 3). Joint ventures were also more likely to obtain financial resource from foreign financial institutions than either private firms or privatized state-owned firms. This result seems to indicate that business relationships are cumulative and entail a positive spillover. However, the small number of joint ventures in the sample requires caution in potential extrapolations. In addition, private firms are more likely to have a higher proportion of informal business relationships. A simple explanation is that these firms may have a liability of newness and that it is likely to be more difficult for new firms to establish formal ties due to a lack of reputation and legitimacy, as discussed previously. It may also be specific to our data where new firms predominate. Furthermore, firms that result from privatization of formerly state-owned enterprises have more relationships with national financial service firms. A possible explanation is that privatized firms have to rely more on financial institutions for resources because they have lost, at least partially, the financial backing of the government.

Countries environmental idiosyncrasies

To examine whether the relationships verified on the composition of business networks in transition economies are universal or particular to all countries, we conduct a sub-group analysis for selected countries. To select these countries, we utilized the CIA World Factbook (www.cia.gov) to determine the population and GDP per capita (at purchasing power parity: PPP). We also looked at the countries that either joined or which are most likely to join the European Union[3]. We restricted the analyses to the

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[3] The European Union candidate countries are: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, and Turkey.

following countries: Bulgaria (GDP$_{pc}$ PPP[4]: $6.600, population: 7.621), Czech Republic (GDP$_{pc}$ PPP: $15.300, population: 10.257), Poland (GDP$_{pc}$ PPP: $9.500, population: 38.625), Hungary (GDP$_{pc}$ PPP: $13.300, population: 10.075), Turkey (GDP$_{pc}$ PPP: $7.000, population: 67.309), Ukraine (GDP$_{pc}$ PPP: $4.200, population: 48.396), and Russia (GDP$_{pc}$ PPP: $8.800, population: 144.978).

The results in Table 4 below show that, in these countries, firms' business relationships with the government still play a major role beyond a level we expect in more institutionally developed countries. In Ukraine, about 65 percent, and in Poland and Russia, about 55 percent of firms have supply ties with the government. The extremely high participation of the government as a client may reflect reminiscences of a centrally planned economy. However, given that our sample is limited to privately-held firms the government appears as a small investor. Perhaps, even though the government may be decreasing its economic participation in these countries, the reconfiguration of firms' business network is taking time to form and that these firms are still highly dependent on procurement ties with governmental agencies.

[Insert Table 4 here]

In general, firms across all these seven countries carry a substantial portion of informal ties such as the ties to family and friends. This finding is consistent with Roth and Kostova's (2001) study. Yet, a closer observation revealed that the importance of informal relationships differs pronouncedly across countries. For example, approximately 45% of the informal relationships of Bulgarian firms are composed of families and friends while these account for 10% for Polish firms. Therefore, although informal relationships play an important role in the networks of firms in transition economies, other macro-level factors (e.g., national culture, maturity of capital market) may still lead to different emphasis on firms' reliance on personal ties for business relationships.

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[4] GDP per capita PPP – Gross Domestic Product per capita at purchasing power parity. These values refer to the year 2002 or latest available.

Business relationships to foreign investors are particularly frequent in Hungary and Czech Republic. However, foreign firms are more important as clients and suppliers than as investors across our sample. This picture may be changing as a growing number of foreign firms (namely from Western Europe) relocate the more labor-intensive activities to transition economies. The prospect that more of these countries may join the European Union is likely to bring even more economic, political, and social stability to the region. Financing from foreign banks plays, still, a limited role in the pool of financing sources, but we may expect their importance to increase as political and economic risk decrease and larger multinationals set operations in these countries.

DISCUSSION AND CONCLUSION

In this study we examined the composition of the network of business relationships of firms of different sizes and from transition economies. The results indicate that in contrast to smaller firms, larger firms are more like to have formal business relationships, and relationships with local and foreign financial institutions, government/government agencies, and foreign firms. This study contributes to a better understanding of small and large firms' business network. Furthermore, it contributes not only to the social network literature by investigating empirically the composition of firms' business networks in terms of the type and the role of the network members, but also to the international business literature by exploring firms' business relationships in the context of transition economies. We tested some hypotheses that have been conceptualized, although not empirically tested, in prior research.

While business networks have been studied in developed countries, considerably less attention has been devoted to firms' networks in transition countries. The institutional, political, and economic context in transition economies may not allow generalizations to developed countries. However, the expected economic development of the transition economies, particularly those in Eastern Europe, and the fact that at least some of these countries have joined the European Union makes them an interesting object of study.

In fact, this setting is important as it allows us to observe countries whose business environments are substantially different from that of the US or Western European countries. New insights, with the potential for theory generation, may also emerge from analyzing business networks in countries that are shifting from a centrally planned economic system to a market-based economic system.

Our study further sheds some insights into how the configuration of firms' business networks may affect transition economies' ability to be innovative. For example, if the national firms have business relationships predominantly to other national firms, this may hinder their ability to introduce major modifications in the technological path of the country (Kogut, 1991). Conversely, if national firms have ties that span the national boundaries it is likely they may engage in a mix of exploitation and exploration of various technological trajectories (Kogut, 1991; March, 1991). For example, small firms are likely to be constrained to local searches (Lipparini & Sobrero, 1994), because their ties tend to be local and less diverse. Conversely, large firms are more likely to have broader ties and be able to explore both locally and internationally. Large firms also have larger resources to commit to those searches. Nevertheless, the impact of firms' business ties for innovation in transition economies warrants additional research.

How do firms construct, re-construct, and adjust their network of business relationships throughout their life cycles? Hite and Hesterly (2001) suggested that firms' networks evolve to accommodate emerging resource needs and changes in external pressures. While small and new firms may establish relationships with the purpose of overcoming a lack of legitimacy and reputation, in later stages, the main purpose of business relationships may be to satisfy resource needs or different types of legitimacy (e.g. legitimacy to operate in foreign markets, to partner with the Government). However, this reasoning does not address explicitly the institutional environment factors. The understanding of firms' business networks requires that we examine the resource dependencies that lead to certain compositions of firms' business networks in each stage of firms evolution

(Pfeffer & Salancik, 1978), the environmental institutional effects (DiMaggio & Powell, 1983), and the firms' strategies (Hite & Hesterly, 2001). Furthermore, given that size is a major dimension along which firms evolve, this analysis has a potential for extension in other dimensions that also characterize the evolution of firms such as age, and product or market portfolio.

In addition to empirical evidence for the hypotheses advanced, some of our other results are of noticeable interest. The low correlation between age and size is interesting and may reflect the profound institutional, economic, and political shifts taking place in transition economies. Thus, this low correlation may be a natural outcome when studying firms from transition economies rather than an artifact of the data used. In addition, given that access to economic agents is important in establishing business relationships, we included the size of the city in which the firm is located. The results indicate that the larger the city the more likely the firm has relationships to a variety of agents. Firms in larger cities have easier access to the government, to foreign agents and to local financial institutions. Thus is, larger cities seem to be more munificent (Wan & Hoskisson, 2003) and firms in these cities resort to informal ties less often (the coefficients for FINFAMIL and FININFOR are negative and significant in models 1 and 2 in Table 3) than firms in smaller cities.

We further note that membership in trade associations seems to be particularly relevant for forming ties with foreign firms regardless of the function of the tie. This is consistent with the idea that membership in trade associations increases the firms' visibility in the international markets and may serve as a reputation referral decreasing the perceived transaction costs incurred by foreign firms. Interestingly, privatized firms seem to suffer more from higher hazards in establishing business relationships than private firms, which may be due to the recency of the privatization projects and to the often quite radical modernization and restructuring that firms undergo post-privatization. It is possible that the restructuring is increasing the perceived risks of carrying exchanges with these firms.

Finally, we suggest that country idiosyncratic variables may be strong determinants of the composition of firms' network. National culture, societal norms, and values may influence the types of ties established. For instance, Hungary and Poland are predominantly Catholic, whereas the central Asian countries in the sample are predominantly Muslim, which may have an impact on financing. Governmental influences, regulatory and legal policies, and social characteristics are other possible contextual factors. For example, it may be that inter-firm trust and stable business relationships are major and effective governance mechanisms against risks of opportunistic behaviors (Williamson, 1985; Dyer & Singh, 1998). In fact, trust among partner firms has been noted as an essential condition for efficient economic transactions. Trust may even be a substitute to overcome institutional failures in transition countries. Future research may assess what is the role of trust for the formation of business relationships in transition economies and how the profound economic transformations affect the stability of trust-based exchanges. In this regard, it is possible that the informal business relationships tend to be more reliant on inter-firm trust than on formal and contractual relationships.

Limitations and other research avenues. This study is based on a cross-sectional analysis. The data only permits us to characterize the situation in a single point in time. In addition, we have access to past data simply based on top managers' recall. Scholars have questioned the reliance on executives' recall of previous company issues. For instance, Golden (1992) suggested that retrospective reports of important organizational phenomena may be inaccurate and somewhat misleading. However, retrospective reports have been commonly used in strategic management and organization theory research. For example, Miller, Cardinal, and Glick (1997) responded to Golden's critique by showing that retrospective reporting is a viable research methodology if the measures used are adequately reliable and valid. Notwithstanding, further insights may be achieved by utilizing longitudinal data and data from diverse sources rather than from a single source. Future research may use data dedicated to support this line of research rather than publicly available data. However,

the cost of surveying and interviewing firms in each of these countries is likely to be a prohibitive constraint.

We were primarily interested in the composition of the network of business relationships and therefore, we did not delve substantially into contextual factors (e.g., cultural variations, extensiveness of corruption, demography, taxation). However, contextual factors are important to understand how and why certain network compositions may emerge and persist. Further, it is probable that industry characteristics moderate some of the relationships we advanced because different industries have different capital and technological intensities, different needs for inter-firm collaboration, different practices in what relates to procurement relations and venture capital, and so forth. Our restriction of industry controls to service versus manufacturing was imposed by the data. However, future research may provide additional insights into industry variations.

While we restricted our analyses to the ego network and the types of partners that compose firms' business network, future research may examine the specific functional composition of the network (e.g., ties for R&D, specific supply components, distribution channels). An immediate question is; how do firms' business networks influence R&D, innovation outcomes, specialization, and business scope in transition economies?

Finally, future research may examine whether the formation of business relationships is cumulative. If prior affiliations provide endorsement and increase the likelihood that the focal firms will be able to develop subsequent business relationships with other organizations (Baum & Singh, 1994), we could expect that prior ties to the government would provide that legitimacy. For example, business relationships with the government or with foreign firms could be a signal of quality, managerial ability, stability, honor payments and agreements. However, that does not seem to be the case in our sample where privatized firms which should benefit from prior ties to the government, do not seem to hold any advantage. Therefore, future research may advance our understanding on the extent to which the firms' current network of business relationships is a determinant of their future network composition.

To conclude, the study of the composition of firms' business network contributes to our understanding of the organization of economic exchanges and the idiosyncrasies of firms' interactions in transition economies. While firms in transition economies are predictably similar because of a somewhat common recent history and institutional background, they are also predictably dissimilar from Western firms. Understanding firms' business network can help determine how firms overcome the uncertainties and limitations imposed by severe institutional and economic transformations occurring in transition economies. The ability to establish a variety of ties determines these firms' ability to obtain the resources needed to survive and grow during and post the transition period. The inter-country comparison showed substantial differences evidencing different progress in the transition process. However, overall, informal relationships and ties to the government are still very significant. Larger firms seem to be more capable of establishing business relationships, than smaller firms, with both domestic and foreign firms, which raises some concerns on the national ability to develop a stable industry and to innovate.

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TABLE 1. Means and Standard Deviations

Variable	Obs	Mean	Std. Dev	Min	Max
FOREIGPT	2964	0.14	0.34	0	1
FOREISUP	2963	0.33	0.47	0	1
FOREIGCL	2907	0.26	0.44	0	1
GOVERPT	2964	0.06	0.24	0	1
GOVERCL	2821	0.46	0.50	0	1
FINFAMIL	2838	0.19	0.39	0	1
FININFOR	2838	0.08	0.28	0	1
FINNABA	2838	0.21	0.41	0	1
FINFORBA	2838	0.03	0.16	0	1
Size	2968	1.97	1.66	1	10
Age	2968	6.95	2.57	1	15
Industry	2967	0.52	0.50	0	1
Country	2968	14.77	7.48	1	26
Large city	2968	0.50	0.50	0	1
Private firm	2968	0.69	0.46	0	1
Privatized firm	2968	0.28	0.45	0	1
Joint venture	2968	0.03	0.18	0	1
Legal form	2967	2.68	1.53	1	6
Trade association	2968	0.22	0.41	0	1

TABLE 2. Correlations Matrix

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	FOREIGPT	1.00																		
2	FOREISUP	0.30*	1.00																	
3	FOREIGCL	0.24*	0.43*	1.00																
4	GOVERPT	0.07*	0.05*	0.11*	1.00															
5	GOVERCL	-0.00	0.11*	0.16*	0.12*	1.00														
6	FINFAMIL	-0.15*	-0.13*	-0.13*	-0.10*	-0.13*	1.00													
7	FININFOR	-0.03	-0.00	0.01	-0.04*	0.01	0.20*	1.00												
8	FINNABA	0.02	0.12*	0.11*	0.02	0.05*	0.01	0.05*	1.00											
9	FINFORBA	0.23*	0.14*	0.12*	0.07*	0.01	-0.05*	0.00	0.05*	1.00										
10	Size	0.21*	0.28*	0.28*	0.16*	0.12*	-0.14*	-0.01	0.16*	0.18*	1.00									
11	Age	0.03	0.11*	0.14*	0.01	0.12*	-0.08*	-0.01	0.16*	0.02	0.14*	1.00								
12	Industry	0.04*	-0.03	-0.09*	-0.10*	-0.13*	0.07*	0.01	-0.00	0.02	-0.13*	-0.03	1.00							
13	Country	-0.04*	-0.09*	0.01	0.06*	0.16*	-0.09*	-0.03	0.08*	-0.03	0.08*	0.06*	-0.10*	1.00						
14	Large City	0.18*	0.14*	0.03	-0.00	0.01	-0.06*	-0.02	-0.06*	0.04*	0.01	-0.00	0.12*	-0.02	1.00					
15	Private Firm	-0.08*	-0.06*	-0.08*	-0.29*	-0.13*	0.21*	0.06*	-0.03	-0.04*	-0.19*	-0.00	0.25*	-0.11*	0.12*	1.00				
16	Privatized Firm	-0.06*	0.01	0.05*	0.28*	0.13*	-0.19*	-0.06*	0.05*	0.01	0.19*	0.01	-0.27*	0.11*	-0.16*	-0.93*	1.00			
17	Joint Venture	0.37*	0.15*	0.07*	0.04*	0.02	-0.04*	-0.01	-0.04*	0.08*	0.03	-0.02	0.02	0.00	0.10*	-0.27*	-0.11*	1.00		
18	Legal Form	0.13*	0.11*	0.13*	0.28*	0.16*	-0.19*	-0.08*	0.08*	0.06*	0.23*	0.01	-0.17*	0.14*	-0.01	-0.40*	0.39*	0.05*	1.00	
19	Trade association	0.12*	0.19*	0.21*	0.04*	0.07*	-0.08*	-0.02	0.15*	0.08*	0.27*	0.16*	-0.02	0.05*	0.03	-0.03	0.02	0.04*	0.12*	1.00

Note: *$p < 0.05$

TABLE 3. Logistic Regression Models

	FININFOR (Model 1)	FINFAMIL (Model 2)	FINNABA (Model 3)	FINFORBA (Model 4)	FOREIGCL (Model 5)	FOREISUP (Model 6)	FOREIGPT (Model 7)	GOVERCL (Model 8)	GOVERPT (Model 9)
Intercept	-0.18	-0.94†	-3.77***	-3.49***	-1.89***	-0.34	-0.19	-1.53***	-4.96***
Firm size	0.00	-0.15**	0.13***	0.35***	0.27***	0.31***	0.29***	0.07**	0.14**
Firm age	-0.04*	-0.07**	0.12***	-0.01	0.09***	0.07***	0.00	0.08***	0.02
Industry	0.06	0.06	0.17†	0.32	-0.33***	-0.10	0.26*	-0.35***	-0.17
Country	0.00	-0.02*	0.02**	-0.04*	-0.01	-0.04***	-0.03**	0.03***	0.01
Large city	-0.30***	-0.46***	-0.36***	0.33	0.14	0.61***	0.95***	0.15†	0.29†
Private firm	0.30	1.44**	0.75*	-1.21**	-0.65**	-1.60***	-3.55***	-0.18	-1.80***
Privatized firm	-0.14	0.24	0.73*	-1.22**	-0.77**	-1.72***	-4.06***	0.09	0.13
Legal form	-0.07*	-0.20***	0.07*	0.09	0.12***	0.10**	0.26***	0.13***	0.63***
Trade association	-0.01	-0.20	0.53***	0.42†	0.66***	0.55***	0.35*	0.11	-0.05
Model Chi-square	59.46***	260.19***	175.03***	80.76***	322.20***	438.69***	491.90***	208.34***	356.78***
N	2836	2836	2836	2836	2905	2961	2962	2819	2963

Note: Cell entries are unstandardized coefficients.

† p<.10; * p<.05; ** p<.01; *** p<0.001

FININFOR- informal relationships, FINFAMIL - relationships with family members and friends, FINNABA - financing by national bank, FOREIGCL - foreign client, FOREISUP - foreign supplier, FOREIGGPT - foreign investor/partner, GOVERCL - government as client, GOVERPT - government as investor/partner.

TABLE 4. Comparison of Network Composition in Selected Countries

%	Bulgaria	Czech Republic	Poland	Russia	Turkey	Hungary	Ukraine
FOREIGPT	10.22	21.24	18.52	6.51	9.23	23.48	12.96
FOREIGSUP	24.14	27.43	29.63	15.75	26.15	30.43	27.31
FOREIGCL	21.84	28.57	35.00	9.39	29.69	21.62	23.11
GOVERPT	9.09	0.00	4.50	9.16	0.00	5.22	5.56
GOVERCL	32.47	44.86	54.49	54.45	30.16	33.64	65.00
FINFAMIL	44.58	29.00	7.60	15.42	30.77	21.93	18.98
FININFOR	14.46	26.00	11.39	7.05	3.08	4.39	8.80
FINNABA	22.89	12.00	36.08	20.26	43.08	14.04	19.44
FINFORBA	2.40	9.00	3.80	1.32	3.08	2.63	1.39

Note: the values indicate the % of firms' business relationships. These values do not add to 100% since each firm may carry simultaneously several types of ties and to multiple agents.