

## Does Nature of Financial Institutions Matter to Firm Growth in Transition Economies?

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### **Abstract**

*Drawing on firm-level data set on transition economies, this paper investigates the relationship between financial institutions and firm growth. The paper focuses in perspective of growth, how the impact of various sources of external finance varies across firm size. Primarily, it is shown a differential impact of institutions on firm growth, precisely, in terms of employment and sale, growth augments by equity market, local banks, foreign banks, state-owned banks, trade credit and leasing, while informal lending abates growth. In particular, the results suggest that local banks and trade credit improve sale growth of small and medium firms, while these financial institutions are insignificant for large firms. By contrast, state owned banks and informal institutions constrain employment growth of small firms. It is confirmed that irrespective of firm size lease financing exerts statistically significant positive impact on firm growth. Moreover, financial system differences across the regions play vital role in firm growth-finance relationship.*

**Keywords:** Firm growth, Firm size, Formal financial institutions, Informal finance, Transition economies

**JEL Classification Codes:** G20, G29, L25, O17

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## 1. Introduction

Waves of studies on the determinants of firm growth have been outset by Gibrat's Law (Gibrat, 1931). This law simply establishes the independent relationship between firm growth and firm size by showing systematically skewed pattern of the distributions of firms' size in stochastic terms. Some empirical studies in relation to service sector and larger firms provide the evidence of validity of law, i.e. Audretsch, et al (2004), Becchetti and Trovato (2002). But predominant studies<sup>1</sup> reject the law on grounds of experiencing diverse behavior of firms across industries and size clusters.

Despite the studies discussing firm growth and size relationship, there is extent body of empirical research focuses on the other determinants of firm growth. Firm growth is determined by a combination of factors that are concerned not only to characteristics of the firm but also to its environment as well. Generally, these firm-specific characteristics are age, ownership structure, location, industry sector, legal form and innovation. At the same time, there is considerable evidence that external financial sources determine the firm growth as well (see Levine, 2005). These financial sources maintain differential growth relation with firm depending on the debt attributes along with each financial source, firm's characteristics and business environment. So, understanding the impact of these financial sources on firm growth can inform government policies that shape the financial system facing firms and facilitates corporate to arrange balanced capital structure according to their financial environment.

Although firm growth- financial sources nexus has been investigated in academic sphere but literature suffers from several deficiencies. For instance, individual studies could not encapsulate the global business environment impacts, as these studies use national-level data assume that the investment climate is the same across the region, when in fact there are global economic variations. Moreover, only predominant financial sources are examined in the studies. Impact of financial sources on different sizes of firms in developing economies is ignored, as well.

This study attempts to fill a gap in the literature by examining data collected as part of the Business Environment and Enterprise Performance Survey (BEEPS) of about 6,619 firms in 26 transition countries from Eastern Europe and Central Asia. Paper tries to integrate the literature and bring harmony by using same firm-level data set for eight financial sources concurrently. Specifically, firm growth in term of sale and employment is measured with eight external financing sources equity capital, local and private banks, foreign banks, state-owned banks, family-friends, trade credit,

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<sup>1</sup> Santarelli, et al, 2006 perform the comparison of 60 empirical studies testing Gibrat's law. Each study is explicitly discussed with used data characteristics, research method and major findings in sense of acceptance/rejection of Gibrat's law.

leasing and informal finance. To analyze this relation precisely, sample data is categorized with respect to firm size: small, medium and large. This paper also includes the regional financial differences by comparing the firm data from East European and Central Asian regions and tries to find out the impact of financial structure differences on the firm growth.

This paper concludes that formal financial sources support firm growth. Specifically, financing from, equity market, local banks, foreign banks, state-owned banks, trade credit and leasing support firm's sale and employment growth. Finance from family/friends supports only to sale growth while informal sources do not support either form of firm growth. On investigation of impact of these sources of finance across firm size, the analysis finds that local banks and trade credit dampen sale growth of large firms. On the other hand, equity capital enhances sale growth of only large firms but is insignificant for small and medium size firms. In terms of firm employment growth, state owned banks, informal lending and trade credit do not appear significant for small firms. For medium size firms, there is only informal financial source that abates firm growth. Family and friends, informal lending, and trade credit are among the external sources that reduce employment growth of large firms. In the regional analysis, firms in Eastern European countries experience the same growth relationship, while Central Asian firms do not maintain positive relation with equity, state-owned banks, foreign banks, family/friends and informal finance.

The remainder of paper is organized as follows. Section two reviews the related literature. The third section describes the data sets and descriptive summary. The fourth section contains the explanation of empirical model. The estimated results and discussion are presented in the fifth section. Finally, section six concludes.

## **2. Literature review**

Perhaps the most salient external determinant of firm growth is the financial system. Generally, firms do not make their capital structure entirely with their internal funds to meet their investment needs. For getting different benefits associated with debt, firms raise external finance through debt financing. As capital market is imperfect, so firms may have to face different obstacles. Well developed financial institutions make easier for firms to access external finance that facilitate firms to grow. Firm growth and financial system nexus has been analyzed by Levine (2005). He describes the financial system in terms of information, enforcement, and transaction costs. According to him, in a well functioning financial system, financial institutions and markets reduce or eliminate the effects of information, enforcement, and transaction costs. Outcomes of these functions may appear in savings, access to external finance, firm growth and hence economic growth. In a sample of 30 developed and underdeveloped countries Demircuc-Kunt and Maksimovic (1998) find countries that have developed financial and legal system

foster firm's access to external financing and firm growth rate. So well-functioning legal and financial institutions affect firms' ability to get external finance and firm's ability to access finance raise firm's growth opportunities and hence, profit.

Lack of internal funds forces firms to seek external finance from other intermediaries that exist in underlying financial system. An underdeveloped financial system amplifies the magnitude of market imperfections in terms of information asymmetry and transaction cost which prevent firms to grow. Further, it makes firms financially constrained, for which it is complex or too expensive to get external finance and forced to limit its investment options, and hence its growth. Financial development also disproportionately affects on small firms. Beck et al (2008) besides confirming above mentioned view, also suggest that financial development boosts growth of firms that rely heavily on external finance by reducing the transaction costs and informational barriers and supports more the industries that comprises of small firms. Beck and Demircug-Kunt (2006) confirm this view by adding not only small firms face higher financial constraints but also these obstacles have almost twice the effect on small firms relatively on large firms. Beck et al (2006, also cited in Beck and Demircug-Kunt, 2006) examine the firm's characteristics that determine the faced financial obstacles. They find that size, age and ownership predict financial obstacles best. Therefore, smaller, younger, and local firms report higher financial obstacles. According to the Batra et al (2003), in World Business Environment Survey (WBES)<sup>2</sup> small firms report finance is a major obstacle, 39% compared to 36% for medium-size firms and 32% for large firms and in the global sample, finance is cited as the second leading general constraint to firm growth.

A coupled area of lively debate regarding supply side of external financing is the various financial institutions that provide credit. These sources of finance range from, equity capital, banks, leasing agreements, trade credit to informal institutes, moneylenders and family-friends. Firm make decision to choose among various available sources of external finance depends on flexibility for renegotiations on loan covenant, transaction cost, interest rate, agency cost, and lender relationship. Due to these choice determining attributes, debt sources exert differential impacts on the firm growth across firm size, therefore small firms may have different debtor than large firms. Beck and Demircug-Kunt (2006) show that large firms use bank finance 13% more than small firms. Unlikely large firms, mostly small firms do not have option of equity finance. Conversely, small firms finance their large share of investments with money lenders or family and friends.

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<sup>2</sup> The World Bank conducted this survey of over 10,000 firms in 80 countries. 90% of surveyed firms were small and medium size.

Studies have shown that banks are the predominant source of external finance for small firms<sup>3</sup>. Bank lending is based on different types of information for managing the lending risk. In order to mitigate information asymmetry, banks not only rely on hard information but also use soft information that obtains through lending relationship. There is extant research focuses on bank characteristics in perspective of small firm finance. Berger and Udell (1996) establish a view that small and local banks may have comparative advantage over large banks because they engage in lending relationship that relies on soft information which acquire through personalized direct contacts with small firms. So, small firms are more accessible to small and local banks. On the other hand, recent studies argue it and show that large and foreign banks can approach small firms in more effective way rather than small banks through arms-length lending technologies<sup>4</sup> (Taketa and Udell, 2007 and Beck, Demirguc-Kunt, and Peria, 2008). Haas and Naaborg (2005) partially support the view that foreign banks focus on multinationals and larger local firms<sup>5</sup> in the initiation but they observe their gradually progress towards small firms lending. Rationale behind this might be that on new entry in new market foreign banks face competition for large firms as customers eventually they have to move down to small firms. Although academic literature concur with the utmost contribution of these various natures of banks for the firm's capital but could not evidently describe the most efficient banking nature<sup>6</sup>.

Trade credit is considered as alternative to bank credit. Reliance on trade credit increases when firms face information asymmetry and bankruptcy problems. Trade credit relaxes the borrowing constraints, in case firm undergoes default trade creditor is permitted to cease the available goods. Fisman and Love (2003) examine the efficiency of trade credit in markets with less developed financial-legal system and observe that firms having access to trade credit maintain higher growth rate rather than firms don't.

Lease is a contractual agreement for the use of an asset for a particular period of time in exchange of regular certain payments by lessee (user) to lessor (owner). Gallardo (1997) identifies the prime benefits of lease financing are its availability, simplicity, no need for collateral, less transaction cost and tax break<sup>7</sup>. Like other alternative financing lease financing may also face outcomes of weak institutional system. According to Brown et al (2008), as leasing mainly focus on small firms and

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<sup>3</sup> see Beck, Demirguc-Kunt, and Maskimovic, 2008, and Beck, Demirguc-Kunt, and Peria, 2008

<sup>4</sup> Financial statement lending, real estate based lending, asset based lending, factoring, and leasing. All these lending technologies are based on hard information.

<sup>5</sup> Berger and Udell, 2002, and Keeton, 1996 establish the view that foreign banks lend less to small firms rather than to large corporate firms.

<sup>6</sup> See (Kumar and Gulati 2008) for comparative literature review of the efficiency of banking sector.

<sup>7</sup> "Lessees can offset their full lease payments against income before tax, compared to just the depreciation allowance or interest charges on bank loans" and lessor can take the benefit of depreciation expense as a shield against taxes on lease revenue. Gallardo (1997, p. 7).

in less developed economies, there is least governmental motivation to develop required legal and institution system to support leasing.

Informal finance stems as a response to the failure of formal financial system to meet the firms' demand of capital. In economies with weak financial system it acts as a substitute to formal institutions and serves firms that cannot access the formal financial system. Major source of informal finance are the micro-lending firms, ROSCAs (Rotating Savings and Credit Associations), savings groups, pawnbrokers, loan brokers, money guards, and money lenders. Despite the less legal and institutional development in weak economies, informal finance facilitates firms to grow. Besley and Levenson (1996) observe the growth pattern of Taiwanese firms and Allen et al (2005) examine Chinese firms. Both these studies agree on positive impact of informal finance on firm growth. On the contrary stream, Ayyagari et al, (2007) contradict this view and show that finance from informal sources does not support firm growth or neither offers an alternative substitute to formal financing institutes.

At some extent this work is related to Brown et al (2008) but differs significantly in the way question being asked, the analysis, and the outcomes. Brown et al (2008), measure the firm's access of external capital across the developed and underdeveloped countries in perspective of institutional development and its affect on growth. The way in which this investigation improves upon existing work is by using 8 integrated sources of external finance, gauging growth not only in terms of sale but also employment as well, measuring effects across firm size in isolation, and taking advantage of a unique data set of firms in transition economies.

### 3. Data and Summary Statistics

This paper utilizes data from 2005 Business Environment and Enterprise Surveys (BEEPS) conducted jointly by World Bank and the European Bank for Reconstruction and Development (EBRD). This survey contains comprehensive panel data set from a representative sample of over 9,000 firms in transition countries (Eastern Europe and Central Asia)<sup>8</sup>. Data set provides information about firm's financial sources, particularly, the survey asks for percentage usage of each external financial source. Respondents had to answer the question explicitly in percent, in what proportion firm has utilized each external source over the last 12 months. Firm's 8 financial sources that are analyzed in this analysis are equity capital, local banks, foreign banks, state-owned banks, family/friends, trade credit, informal sources and leasing. 90% of surveyed firms are small (2-49 employees) and medium size (50-249)<sup>9</sup>. Firm sale growth is defined as percentage change in

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<sup>8</sup> Data classification in terms of countries is available in Norris and Inchauste (2007).

<sup>9</sup> This enterprise size classification is presented itself by World Bank and EBRD in survey report. Moreover this classification has been utilized in Gorodnichenko et al (2007) and Anderson John (2005).

sale volume in last three years from 2002 to 2005 and firm employment growth is defined as percentage increase in permanent full time employees over the period of last three years from 2002 to 2005<sup>10</sup>.

The number of observations utilized in this work is determined by the response rate for particular questions. Many firms have not provided complete response for questions that were asked. Therefore, observations with low response rate were excluded from the dataset and it left 6619 observations for this analysis.

Towards end, to observe the impact of regional differences in terms of financial system on firm growth, sample data is divided into two regions: East European region and Central Asia. Turkish sample firms are excluded from the sample to achieve the exact results by restraining strictly within the regions. By splitting the data into two categories, East European region contains 4197 firms sample and 964 firms belong to Central Asian region.

Table 1 contains the descriptive statistics for the used variables. Data shows that firms rely most on local banks and informal finance is least used resort. Mean of local banks 9.64% and informal sources 0.74%. Upper and lower utilization limit for each financial source is 100% and 0%. The number of small firms that are included in this sample are 4449, comprising 67% of total sample, 1456 medium firms (22%), and 717 (11%) large firms.

**Table 1: Model Variables Description**

	Definition	Mean	SD
<b>Dependent Variable</b>			
<i>Firm_growth in terms of sale</i>	Percentage change in sale volume in last three years	23.533	34.157
<i>Firm_growth in terms of employment</i>	Percentage change in full time employment in last three years	2.014	12.879
<b>Independent variables</b>			
<i>Equity</i>	Raised capital through public equity	4.656	19.226
<i>Local_banks</i>	Borrowing from private, local, and commercial banks	9.648	24.560
<i>Foreign_banks</i>	Borrowing from banks having foreign ownership	1.599	10.841
<i>Stateowned_banks</i>	Borrowing from banks having government ownership	1.877	11.228
<i>Family_fr</i>	Loans from family and friends	2.873	13.242
<i>Informal_fin</i>	Loans from informal sources, i.e. money lenders, and pawn shops	0.749	6.292
<i>Trade_credit</i>	Borrowing in form of trade goods	1.379	8.592
<i>Leaseing_finance</i>	Borrowing in form of leasing	3.692	15.510

<sup>10</sup> In the survey questionnaire, firms were asked to answer the following questions in a quantitative term to achieve the sale growth and employment growth: "Over the last 36 months how has the sale changed (increased/decreased) and what the percent of change is for your company, in real terms (i.e., after allowing for inflation)?" and "How many permanent, full-time employees does your firm have now and how many did it have 36 months ago?". Further these measures of sale and employment growth has been utilized in Gorodnichenko et al (2007).

To measure the multicollinearity between exogenous variables correlation matrix is developed (table 2). The negative links between various financial sources might not be surprising because with a few exceptions each source is counterpart to each other. For instance, when firm get debt from local or foreign banks it might not tend to go after informal sources or family/friend credit simultaneously. Further, as a majority of sample is of small firms, their capital needs often comprise of relatively small amount and can fulfill through one financial source.

**Table 2: Correlation Matrix**

Variable	1	2	3	4	5	6	7	8
1 Equity	1							
2 Local_banks	-0.070	1						
3 Foreign_banks	-0.068	-0.019	1					
4 Stateowned_banks	0.193	-0.041	0.118	1				
5 Family/fr	0.295	-0.023	0.058	0.165	1			
6 Informal_fin	-0.107	-0.010	-0.100	-0.347	-0.198	1		
7 Trade_credit	-0.111	0.045	0.041	0.054	0.042	-0.220	1	
8 Leasing_fin	-0.284	-0.076	0.017	0.276	0.193	-0.192	-0.048	1

**4. Empirical Model**

The analytical model that I am using to investigate the relationship between financial sources and firm growth is as follows:

$$\begin{aligned}
 Firm\_growth_{it} = & \alpha + \beta_1 equity_{it} + \beta_2 local\_banks_{it} + \beta_3 foreign\_banks_{it} \\
 & + \beta_4 stateowned\_banks_{it} + \beta_5 family\_fr_{it} + \beta_6 informal\_fin_{it} + \beta_7 trade\_credit_{it} \\
 & + \beta_8 leasing\_fin_{it} + \epsilon_{it} \tag{1}
 \end{aligned}$$

Firm\_growth refers to the growth of firm i in year t in terms of sale and employment. For observing the relationship between financial sources and firm growth across firm size, I regress Firm\_growth for the sample of small, medium and large firms independently.

The primary goal with this empirical model is to answer the following questions: how financial sources (equity, local banks, foreign banks, state-owned banks, family-friend, informal finance, trade credit and lease financing) affect on the sale and employment growth of small, medium, large size firms and as whole on the entire sample in transition economies? And does the affect of these financial sources on firm growth contrast across regions (East European and Central Asian regions)?

As a baseline of this analysis, firm growth changes with availability of external finance. It has been seen that state-owned banks often influenced by government’s indirect guidance and favor firms with state ownership. Kleinknecht et al (1998) observe this relation in transition economies where large share of state-owned



firm's lending comes from state-owned banks. This lending occurs at favorable cost and terms that support firm growth. Therefore, I suspect a relationship that ownership of firm influences the state-owned bank's lending decision that impact on the firm growth. By observing this circular relation, it is predicted that endogeneity issue might arise pertaining to the relationship between state owned banks and firm growth that can bias the results of the regression. So, *stateowned\_banks* is treated as endogenous variable. To address this issue, model needs a variable that is highly correlated with *stateowned\_banks* (financing from state owned banks) and orthogonal to *firm\_growth*. So, a potential instrumental variable is the *state\_ownership*, which affects the state-owned banks lending but does not influence directly the firm growth. *State\_ownership* is a dummy variable measured as 1 or 0. Firms having state ownership in any percent are represented as 1 otherwise 0.

To testify the endogeneity, Durbin–Wu–Hausman test is utilized. If the credit lending of *stateowned\_banks* is correlated with the error terms of the *firm\_growth* equation, then OLS estimates are inconsistent, otherwise the IV estimates will be consistent. Wu–Hausman test directly compares the OLS and 2SLS estimates and determines whether the differences are statistically significant. In line with this approach, test uses the same base equation as 1, but add the residual value to regression. First estimate the residual value from *stateowned\_banks* by regressing it on instrumental variable *state\_ownership* and all exogenous variables. Then add *res\_val* to the base equation, estimated the equation, and tested for the significance of *res\_val*.

$$Stateowned\_banks_{it} = f(state\_ownership_{it}, \sum_{j=1}^7 ES_{ijt}) \quad (2a)$$

$$Firm\_growth_{it} = f(res\_val, \sum_{j=1}^8 ES_{ijt}) \quad (2b)$$

Where, the subscripts *i* and *t* in all cases denotes the firm and period, respectively. *State\_ownership* is instrumental variable and represents firms having state ownership in any portion,  $ES_{ijt}$  refers to the external source *j* of firm *i* at time *t*.

In table 3, Wu-Hausman test for sale growth for entire sample indicates that coefficient on *res\_val* is 5.344 and p-value is 0.207. Similar results are found for employment growth with -2.713 coefficient value and p-value is 0.090. As the t-statistics on *res\_val* (see in table 3) both sale and employment growth is greater than the critical value, so, null hypothesis of no endogeneity can not be rejected for entire sample.

**Table 3: Durbin-Wu-Hausman tests**

Residual variables	Sale growth			Employment growth		
	Coefficient	t-Ratio	P-value	Coefficient	t-Ratio	P-value
Equity	-0.104	-1.160	0.248	0.061	1.790	0.073
Local_banks	-0.069	-0.760	0.446	0.067	1.980	0.048
Foreign_banks	-0.108	-1.060	0.291	0.084	2.180	0.030
Stateowned_banks	-5.322	-1.260	0.210	2.723	1.700	0.089
Family/fr	-0.0778	-0.077	0.442	0.054	1.430	0.154
Informal_fin	-0.172	-1.190	0.236	0.062	1.150	0.251
Trade_credit	0.052	1.020	0.307	0.019	1.010	0.315
Leasing_fin	0.002	0.040	0.972	0.041	1.680	0.094
Res_value	5.344	1.260	0.208	-2.713	-1.700	0.090
Cons	35.12	3.510	0.000	-4.557	-1.210	0.228

Instrument variable: state\_ownership

Same Wu-Hausman test are re-run for small, medium and large firms and results are given in table 4, 5 and 6, respectively. For all sizes of firms (explicitly for sale growth and employment growth), the t-statistics are not significant. This implies that potential endogenous variables are not correlated with the error terms of the growth equations (are exogenous).

**Table 4: Durbin-Wu-Hausman tests for small firms**

Residual variables	Sale growth			Employment growth		
	Coefficient	t-Ratio	P-value	Coefficient	t-Ratio	P-value
Equity	0.008	0.14	0.892	0.017	1.530	0.126
Local_banks	0.046	0.770	0.439	0.10	0.910	0.364
Foreign_banks	0.075	0.870	0.384	0.013	0.820	0.409
Stateowned_banks	0.623	0.210	0.835	0.707	1.270	0.202
Family/fr	0.033	0.530	0.597	0.028	2.410	0.016
Informal_fin	-0.002	-0.020	0.984	0.020	0.960	0.336
Trade_credit	0.037	0.620	0.534	0.002	-0.200	0.839
Leasing_fin	0.088	1.770	0.077	0.018	2.020	0.043
Res_value	-0.639	-1.210	0.831	-1.710	-1.280	0.200
Cons	21.028	3.470	0.001	2.308	-2.060	0.039

Instrument variable: state\_ownership

**Table 5: Durbin-Wu-Hausman tests for medium firms**

Residual variables	Sale growth			Employment growth		
	Coefficient	t-Ratio	P-value	Coefficient	t-Ratio	P-value
Equity	-0.255	-0.310	0.756	0.173	1.350	0.724
Local_banks	-0.158	-0.170	0.864	0.156	0.280	0.777
Foreign_banks	-0.320	-0.360	0.717	0.189	0.360	0.720
Stateowned_banks	-10.668	-0.270	0.790	6.196	0.260	0.796
Family/fr	0.454	0.050	0.961	0.246	0.450	0.656
Informal_fin	-0.250	-0.340	0.733	0.080	0.180	0.854
Trade_credit	-0.166	-0.110	0.914	0.311	0.340	0.733
Leasing_fin	-0.141	-0.250	0.800	0.531	0.160	0.874
Res_value	10.742	0.270	0.788	-5.186	-0.260	0.796
Cons	55.787	0.470	0.641	10.614	-0.150	0.882

Instrument variable: state\_ownership

**Table 6: Durbin-Wu-Hausman tests for large firms**

Residual variables	Sale growth			Employment growth		
	Coefficient	t-Ratio	P-value	Coefficient	t-Ratio	P-value
Equity	0.419	2.810	0.005	0.323	0.470	0.635
Local_banks	0.260	1.650	0.098	0.624	0.860	0.387
Foreign_banks	0.277	1.630	0.103	0.013	0.170	0.864
Stateowned_banks	8.206	1.830	0.068	1.445	0.700	0.481
Family/fr	0.571	1.030	0.304	-0.053	-0.210	0.832
Informal_fin	0.928	2.12	0.034	0.021	0.110	0.913
Trade_credit	-0.654	-0.050	0.293	-0.129	-1.800	0.072
Leasing_fin	0.489	2.820	0.005	0.015	0.190	0.848
Res_value	-8.135	-1.810	0.070	-1.469	-0.720	0.475
Cons	-5.299	-0.360	0.722	2.141	0.310	0.753

Instrument variable: state\_ownership

## 5. Results and Discussion

Table 7 presents the regression results in which dependent variable is firm sale growth. Column 1 refers to entire sample, and columns 2 to 4, respectively to small firms, medium firms, and large firms. Column 1 indicates a strong positive impact of external capital utilization on sale growth. Except for the informal finance, the coefficients associated with the sale growth are positive. The local banks coefficient is positive and significant at 10%. Lease financing has positive correlation with sale growth and significant at 5% level.

**Table 7: The OLS Regression (Dependent Variable: Sale growth)**

Variable	Parameter estimates and t-statistics			
	Entire sample	Small firms	Medium firms	Large firms
Intercept	22.523 (0.511)	22.310 (0.612)	23.637 (1.131)	21.508 (1.608)
Equity	0.006 (0.021)	-0.003 (0.025)	-0.035 (0.053)	0.191** (0.080)
Local_banks	0.043* (0.017)	0.034* (0.021)	0.090* (0.036)	-0.011 (0.048)
Foreign_banks	0.011 (0.038)	0.060 (0.053)	0.084 (0.077)	0.009 (0.084)
Stateowned_banks	0.022 (0.037)	-0.015 (0.048)	0.073 (0.073)	0.074 (0.099)
Family/fr	0.043 (0.031)	0.022 (0.033)	0.292** (0.107)	0.008 (0.458)
Informal_fin	-0.009 (0.066)	-0.021 (0.075)	-0.057 (0.159)	-0.393 (0.323)
Trade_credit	0.073 (0.048)	0.038 (0.059)	0.243* (0.108)	-0.037 (0.140)
Leasing_fin	0.077** (0.027)	0.081* (0.034)	0.007 (0.053)	0.210** (0.080)
Adjusted R <sup>2</sup>	0.147	0.046	0.090	0.086
Observations	6619	6619	6619	6619

\* Significant at two-tail t-test 1% level of significance.

\*\* Significant at two-tail t-test 5% level of significance.

\*\*\* Significant at two-tail t-test 10% level of significance.

A second proxy for measuring the firm growth is the change in firm employment. In Table 8, I substitute the sale growth with employment growth as dependent variable in the model. Column 1 indicates that capital from all external sources exert positive impact on firm employment growth, except finance from family/friends and informal sources.

**Table 8: The OLS Regression (Dependent Variable: Employment growth)**

Variable	Parameter estimates and standard errors			
	Entire sample	Small firms	Medium firms	Large firms
Intercept	1.839 (0.193)	-0.882 (0.113)	7.901 (0.676)	6.982 (0.735)
Equity	0.005 (0.008)	0.004 (0.004)	0.047 (0.032)	0.008 (0.036)
Local_banks	0.010** (0.006)	0.003 (0.003)	0.013 (0.021)	-0.013 (0.022)
Foreign_banks	0.023 (0.014)	0.002 (0.009)	0.053 (0.046)	0.035 (0.038)
Stateowned_banks	0.010 (0.014)	-0.003 (0.008)	0.010 (0.043)	0.022 (0.045)
Family/fr	-0.006 (-0.011)	0.015* (0.006)	0.104* (0.064)	0.157 (0.209)
Informal_fin	-0.019 (-0.025)	-0.002 (0.013)	-0.030 (0.095)	-0.074 (0.147)
Trade_credit	0.008 (0.018)	0.006 (0.010)	0.075 (0.065)	-0.106 (0.064)
Leasing_fin	0.003 (0.010)	0.010* (0.006)	0.032 (0.031)	0.035 (0.036)
Adjusted R <sup>2</sup>	0.114	0.061	0.061	0.028
Observations	6619	6619	6619	6619

\* Significant at two-tail t-test 1% level of significance.

\*\* Significant at two-tail t-test 5% level of significance.

\*\*\* Significant at two-tail t-test 10% level of significance.

This firm growth pattern driven by various external financial sources suggests that external formal financing supports firm growth. Last decade has experienced waves of reforms for restructuring financial institutions and improved enforcement quality in transition economies which facilitated the availability of debt financing that leads to firm growth. This is consistent with finding of previous empirical studies that claiming a positive relationship between external finance and firm growth (for example, Beck and Demircuc-Kunt, 2006, Ayyagari et al, 2005, Demircuc-Kunt and Maksimovic, 1998, and Brown et al, 2008). Results of this study are persistent only for formal financing, when I turn to informal sources it provides an indirect relation with firm growth. Reason might be well understandable, in transition countries financial reforms fueled the competition among financial institutions<sup>11</sup> that forced them to offer more affordable and less costly loans that

<sup>11</sup> By privatizing banking sector, entry relaxation of foreign banks, legalizing the various activities of informal sector.

range from minimal interest rate to sophisticated loan arrangement to meet the capital demands of firms. As a result, comparative advantages of informal sources diminish to firms and are considered as an imperfect substitute to formal sources. Data from an investment climate survey (World Bank, 2006) also supports the negative relation between firm growth and informal finance.

As small firms keep lower work force and in case of growth small firms have less opportunities to increase work force rather than larger firms. Therefore, there is possibly that employment growth varies across firm size. Along this, I suspect that above relationship between sale growth and external financing might also vary across firm size. To testify these possibilities, I include the firm size linkage in growth-external finance relationship. In Tables 7 and 8, columns 2, 3 and 4 indicate the results for small, medium and large firms, respectively.

Equity capital significantly supports only sale growth of large firms. Generally, equity financing is regarded as external financial source for large firms. While, small and medium size firms utilize equity finance only when internal resources and debt finance have been exhausted. I find that equity financing do not support sale growth of small and medium size firms. The rationale can be like this, first, investors are very reluctant to invest in small and medium size firms because these firms are considered as riskier and have less chance for growth and success. Secondly and importantly, external equity financing incur significant extra costs to these firms as investors demand a high rate of return due to high risk involvement. Contrary to what was expected, equity capital boosts the employment growth of all sizes of firm. This unexpected finding might have elucidation that external variables do not insert homogeneous effects on sale and employment growth among small and medium size firms. Small and medium size firms can retain profit with sale growth for a particular period of time while maintaining the employment level unchanged. Inline with this, Kleinknecht et al (1998) show the higher coefficients of employment growth than the coefficients of sale growth among small firms. So, equity capital have differential effects, having negative impact on sale growth and positive on employment growth of small and medium size firm.

Local banks facilitate the sale and employment growth of small and medium firms, while it keeps employment graph toward escalation regardless of firm size. Bank's choice of firms as customer to lend depends upon the bank nature. In transition economies, local and private banks are relatively in smaller sizes, so they lend more to small and medium size firms. Evasion of larger firms as focused customer might be due to lending limits of local banks.

Results suggest that external capital provided by foreign banks positively relates to the firm growth irrespective of firm size. Entry of foreign banks enhances the supply of credit in the capital market. In transition markets foreign banks have penetrated to small and medium size firms due to their arm-length technologies and also facilitate equally large domestic and foreign firms. Giannetti and Ongena

(2007) also observe the same positive relationship between foreign banks lending and firm growth in Eastern European firms.

Growth of medium and large firms maintains positive association with capital from state-owned banks. One of the reasons for this association is the fact that state-owned banks maintain formal tight lending requirements that do not suite to small firms. These requirements not only limit to demand of financial statements, feasibility reports and collateral but also difficulties in renegotiation on loan extension. Further, state-owned banks offer more funds to larger firms due to their larger lending capacities and large share of total credit of these banks goes to state-owned firms.

Results indicate that finance from family/friends insert positive impact on sale volume of all sizes of firms, in contrast, it does not support employment growth of large firms. It is possible because sample contain a lot of firms having family ownership. Family owned firms avoid as much as possible turning to external sources to sustain firm independence. Firms turn to external sources after exhausting their internal sources and family owned firms treat finance from family/friend as internal source because they do not need to follow formal lending procedure instead relaying on social relation. In contrast, for large firms only insignificant portion of external capital comes from trade credit that is not able to enhance the firm employment level.

Finance from trade credit facilitates the sale and employment growth of small and medium firms. Growth of larger firms do not facilitates with trade credit. In general, larger firms enjoy better access to external capital sources than small firms. As follows, larger firms are potentially more suitable for bank financing because of their high profitability, more liquidity, large tangible assets and long banking relationship. Therefore, these firms not often turn to relative costly financial source, trade credit. In this scenario, it is assumed that observed negative relation between trade credit and growth of larger firms might have a reason that in spite of having apt financial bank source, turning to trade credit do not support their growth rate. In contrast, small and medium firms that relay on trade credit grow faster. This notion is consistent with Fisman and Love (2003) and Brown et al (2008).

Lease financing results are presented in Table 7 and 8 under "lease financing". A positive relation is observed for both sale and employment growth with all sizes of firms. Sale growth of large firms is significant at 1% level and results of small firms are significant at 5% level for sale and employment. Specific features of leasing agreements insert a positive impact on sale and employment growth of all sizes of firms. Prominent leasing benefits includes, faster and easier than borrowing, long term financing at fixed rate, profits are earned through the use of assets rather than from the ownership, moderate interest rate and no collateral requirement

facilitates firms to grow. Brown et al (2008) supports this view and analyze the role of lease financing in perspective of quality of legal enforcement. They have shown that International Finance Corporation (IFC) has promoted lease financing at extensive level and it inserts a positive impact on firm growth.

To determine the impacts of regional differences in financial structure on firm growth, a comparative analysis of East European and Central Asian regions has been performed and results are shown in Table 9.

As East European countries are termed as advanced transition economies, among eight of them have completed the transition process and joined the European Union in 2004. Although financial development is not homogeneous cross whole region, however, contemporary East European economy is characterized by exceptional growing financial market with liberalized, well developed banking sector and attraction to foreign investment. In public sector, banks dominate capital markets in reallocating funds from savers to borrowers and are a dominant source of finance, security plays a minor role as financial source, while trade credit represents a considerable contribution after the banks. Foreign investment plays an important role in these financial systems, especially in banking sector (approximately 70 percent of bank assets are owned by foreign banks in this region) and a greater share of total bank lending comes from banks located abroad.

Results (Table 9) for East European firms do not contradict in any way with above obtained results for the entire sample (Table 7 and 8). Firm growth boosts by all financial sources except for informal finance.

Since last decade, the Central Asian countries have also trying to transform themselves into market oriented economies. They have entered into a stage of financial deregulation and liberalization. Although the first half of the 1990s Central Asian economies suffered deep recession but afterwards stability and growth of the regional economy has gradually improved. Their financial reform process embarked on the large-scale privatization program, trade and price liberalization, foreign participation in banking sector and foreign direct investment. According to Anzuini and Levy (2004) besides the gradual progress, the region lacks financial depth and keeps low level of financial intermediation. Stock market capitalization in the region is at very low scale (7.8% of GDP in Kazakhstan and less than 3.7% in Azerbaijan, Uzbekistan, and Tajikistan in 2003). Although Kazakhstan and Kyrgyz Republic keep relative active derivative market where most actively traded instruments are short-term government bonds but as a whole equities and corporate bonds are still minor products in the region. Consequently, in the private sector, informal finance, trade credit and credit unions fill the financial gap caused by a low level of credit availability to firms.

**Table 9: The OLS Regression (Dependent Variable: Sale growth and employment growth)**

Variable	East EU		Central Asia	
	Sale growth	Employment growth	Sale growth	Employment growth
Intercept	22.114 (0.653)	1.586 (0.229)	22.861 (1.118)	1.513 (0.446)
Equity	0.018 (0.023)	0.004 (0.008)	-0.168 (0.307)	-0.016 (0.122)
Local_banks	0.032** (0.021)	0.001 (0.007)	0.204* (0.053)	0.014 (0.021)
Foreign_banks	0.016 (0.044)	0.019 (0.015)	-0.123 (0.145)	-0.018 (0.057)
Stateowned_banks	0.055 (0.043)	0.022*** (0.015)	-0.084 (0.119)	-0.024 (0.047)
Family/fr	0.055*** (0.040)	0.001 (0.014)	-0.038 (0.092)	-0.034*** (0.036)
Informal_fin	-0.049 (0.090)	-0.017 (0.013)	-0.064 (0.160)	-0.031 (0.063)
Trade_credit	0.052 (0.059)	0.003 (0.020)	0.056 (0.264)	0.086 (0.105)
Leasing_fin	0.039 (0.033)	0.006 (0.011)	0.023 (0.180)	0.032 (0.072)
Adjusted R <sup>2</sup>	0.018	0.014	0.177	0.030
Observations	4197	4197	964	964

\* Significant at two-tail t-test 1% level of significance.

\*\* Significant at two-tail t-test 5% level of significance.

\*\*\* Significant at two-tail t-test 10% level of significance.

Financial constraints might be the reason for the obtained results in table 9 which show that unlike the Eastern European countries, firms in Central Asian region do not attain positive relation with financial sources like equity, state-owned banks, foreign banks, family/friends and informal finance. This fact may simply indicates that less establish capital market and banking system affects firm's access to finance and consequently on firm growth. So, firms ought to relay on formal financing sources that are available to them like local banks, trade credit and leasing finance and maintain positive growth relation with them.

## 5. Conclusions

This paper assessed the importance of the external financial source for the firm growth. To measure the firm growth I use firm performance in term of sale volume and employment level. For empirical investigation, I exploit the cross-country panel data set sample. I find that formal financing sources facilitate firm growth. Specifically, equity capital, local banks, foreign banks, state-owned banks, trade credit and lease financing support firm growth both in terms of sale and employment. On the other hand informal lending abates both forms of firm growth.



Results indicate that impact of financial sources varies across firm size. On categorization of firms by size, it is found that equity capital facilitates only sale growth of large firms. Local banks and trade credit are more beneficiary for small and medium size firm's sale growth, while employment growth of only medium size firms intensifies through trade credit. Stateowned banks are more significant to growth of medium and large firms. However, impact of financial sources like lease, family/friends, and foreign banks do not varies across firm size. Obtained results for regional comparison exhibit the same firm growth relationship with financial sources for East European firms but firms in Central Asian region do not positive relation with equity, foreign banks, state-owned banks family/friends and informal finance. This finding for East Asian firms explains the way that financial development and economic stability affects firm growth through financial channels. In the further research, it would be interesting to quantify the firm growth pattern against each source and draw out most efficient financial source in the quantitative terms across firm size.

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