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Financial And Legal Obstacles And Small And Medium Firm Performance: Evidence from Middle Income East Asian

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Abstract

This paper explores the impact of financial and legal obstacles that affect small and medium enterprises (SMEs) in middle-income East Asian countries by utilizing the most recent and unique dataset from the World Bank Enterprise Surveys. We particularly assess whether and at what level the effects on SMEs differ from those on large firms; We also examine how financial and institutional development levels contribute to firm performance. Our findings provide important guidance for regulators, including the authorities of middle-income nations, who seek to facilitate SMEs' development.

Keywords: Sales Growth; Employment Growth; Financial Obstacles; Legal Obstacles.

JEL Classifications: G38, G01, G00.

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1. Introduction

There is no doubt that SMEs play an important role in creating jobs and stimulating national economic growth (Ayyagari, Demirgüç-Kunt, and Beck (2003); Beck, Demirguc-Kunt, and Levine (2005); Audretsch and Keilbach (2004); Van Stel, Carree, and Thurik (2005); Ayyagari, Demirguc-Kunt, and Maksimovic (2011)). For example, Ayyagari et al. (2011) investigate 47,745 firms in ninety-nine countries during the 2006-2010 period and find that firms with less than 250 employees hire 66.38% of the total permanent, full-time employment in the countries. More specifically, about 78% and 66% of the labor force work in SMEs operating in low-income and high-income countries, respectively. SMEs contribute to GDP variously depending on the degree of economic development. SMEs created only 16% of GDP in low-income countries compared with 51 per cent in high-income nations (Ayyagari, Beck, and Demirgüç-Kunt (2003)). Krishnan and Scullion (2017) conclude that amongst developing nations, SMEs account on average for more than 90% of the total number of businesses and provide 50–60% of national employment. In OECD and G20 countries, the contribution of SMEs is much higher, with over 99% of the companies are SMEs, making a decisive contribution to growth in these nations.

To date, the available empirical evidence shows that the difference in the contribution of SMEs to GDP is attributed to the diverse investment climate among nations. Poor investment climate such as underdeveloped infrastructure and financial and legal systems not only discourage investment but also increase the cost of firms and constrain their growth. Moreover, the effects of changes in the investment climate on firm performance vary between firms, industries, and regions. The literature shows that small firms are usually the most affected by the constraints (Beck, Demirguc-Kunt, and Maksimovic (2005), Bigsten and Söderbom (2006), Aterido and Hallward-Driemeier (2007)). There are numerous empirical

studies concerning the effect of the financial and legal environment and corruption on SME performance in North and Latin America, Europe, and Africa. However, similar issues for developing countries in Asia have been under-researched.

In this article, we aim to answer the following research questions:

- How do financial and legal obstacles affect firm performance in middle-income East Asian countries?.
- How does this affect differ between large and SMEs?
- How does this affect differ between middle-income East Asian countries with varying levels of financial and institutional development?

This paper contributes to the literature in four ways: *Firstly*, Beck et al. (2005) investigated the issue for a sample of the worldwide countries, but could not include several mid-income East Asian countries due to data limitations in World Business Environment Surveys (WBES). Our research covers a much wider range of developing countries in Asia with the availability of the World Bank Enterprise Surveys (ES); thus, we can provide a fully detailed research agenda concentrating on SME performance in mid-income nations in the region. *Secondly*, we examine the effect of business climate on SME performance utilizing several measures such as sales growth rates, employment, and total factor productivity (TFP). Thus, our research goes beyond Beck et al. (2005), who examined the impact on a firm's growth rate only. *Thirdly*, we exploit the unique data of the ES updated recently to address the obstacles of SME performance around the Global Financial Crisis, thus differentiating our research from most of the existing literature. Specifically, Beck et al. (2005); Dollar, Hallward-Driemeier, and Mengistae (2005), and Escribano and Guasch (2005) all address this issue using the sample during the Internet bubble period of 1995-1999 or later but prior to the crisis. *Finally*, the project's results will provide policy-makers with a comprehensive

analysis of the obstacles to SME performance after the Global Financial Crisis. The results have important policy implications for regulatory policy to support SME development.

2. Literature Reviews

Dollar et al. (2005) investigate the relationship between firm performance and business climate using the ES in Bangladesh, China, India and Pakistan. The business climate is represented by days to clear customs (import/export), power loss as a percentage of sales, days for a phone line, and sharing with an overdraft facility. They find that the business climate affects productivity, wages, profit rates and the growth rates of output, employment and capital stock. Specifically, power outages and customs delays are the most serious bottlenecks to firms' productivity and profitability. Also, the availability of financial services has a strong positive effect on growth rates of assets, employment, and output, suggesting that the government should provide a good regulatory framework for infrastructure, access to the international market, and financial services to support firms.

Hallward-Driemeier, Wallsten, and Xu (2006) use the ES of 1,500 firms in China to investigate similar research questions. They run regressions of firm performance, measured by sales growth, employment growth, investment rates and total factor productivity, on climate indicators and control variables. They show that the effects of government regulatory burden and corruption on firm performance are statistically significant. More specifically, an increase in mean regulatory burdens of one standard deviation would decrease the sales growth by 42.6 percent. Further, a reduction of the mean score of corruption by one standard deviation would increase sales growth by 24.7 percent. Access to external finance is important to the growth and productivity of firms. Efficient investment projects can be done only when businesses do not face credit constraints. However, Hallward-Driemeier et al.

(2006) find no correlation between the average access to finance in a region and industry and firm performance. This fact can be explained by the inefficiency of the state-owned banking sector in China (Boyreau-Debray and Wei (2005); Cull and Xu (2000); Cull and Xu (2003)). About half of the firms in the do not have borrowing from commercial banks or other financial institutions and only on average about 20 per cent of working capital is funded by a bank.

Hashi (2001) discusses how financial and institutional obstacles affect the expansion of SMEs in Albania during the 1990s. Using the Albania enterprise survey in 1997, the author highlights that own savings are the major source of initial capital, followed by loans from family and friends, banks and the informal capital market. The informal capital provides around 10% of finance for the initial capital, almost the same as that supplied by commercial banks. The low rate of borrowing from banks can be explained by the unwillingness of state banks to lend money to SMEs and the SMEs' reluctance to apply for loans. Hashi (2001) also find a negative correlation between financial constraints and the firms' assets and employment growth. In particular, for an increase in financial constraint, measured by adding up the number of different dimensions of financing which firms regard as a moderate or severe problem, the firm assets and employment growth rates reduce by 0.633 and 0.253 per cent, respectively.

Honorati and Mengistae (2006) analyse the impact of corruption, access to finance, labour regulation, and quality of power supply on the growth of India's manufacturing industry in the period of 2002-2005. Using the two enterprise survey data in 2002 and 2005 of the Firm Analysis and Competitiveness Survey of India, they conclude that the business environment plays an important role in enterprise performance in India. They find firms in the areas where

labour regulation is greater, power shortages are more severe and financial constraints are stronger have lower business growth rate.

Several other studies address this issue utilizing a larger number of countries worldwide. Carlin, Schaffer, and Seabright (2006) develop a Lagrangian model to predict the relationship between reported constraints and characteristics of the firm, using an enterprise survey of 20,000 firms in about sixty countries. The cost of constraints is measured by managers' answers to survey questions on what aspects of their external environment results in deteriorating performance and growth of their firm. The business climate is measured by seventeen indicators of the harshness of the investment climate on a four/five-point scales. The model controls for country dummies, ownership of the firm and big cities. Their model shows that crime and/or corruption are the most important constraints in all groups of countries except the OECD.

Beck et al. (2005) used the WBES in fifty-four countries to investigate how financial, legal and corruption obstacles affect the firm's growth. They apply Ordinary Least Squares regressions at firm-level obstacles (financing, legal and corruption) on firm size. After controlling for country-level institutional development, they find that small and medium-size enterprises encounter higher financing and corruption obstacles than large firms. Although the large firms report higher legal obstacles than the small firms, these differences are not statistically significant.

Aterido and Hallward-Driemeier (2007) investigate the relationship between employment growth and investment climate constraints, controlling for firm characteristics and other factors. The authors measure investment climates using sixteen variables which are classified

into four groups (finance, regulations, corruption and infrastructure). They employ firm size, firm age, location, and ownership to control for firm characteristics and exporter, industry and country to control for other factors in their model. Using the ES database from over 100 countries during the 2000-2006 period, they find that the impact of investment climate on the employment growth differs with firm size. Smaller firms experience greater difficulty in accessing numerous forms of finance after controlling for age, export status, ownership and industry. Their access to formal credit is also much lower than larger companies. Bigsten and Söderbom (2006) find that poor business climate reduces overall employment in the business sector in a research on the African business environment. Their finding shows that more than 60 percent of the small firms, but only 10 percent of large firms encounters credit constraints in the sample.

Ayyagari and Demirgüç-Kunt (2008) employ firm-level survey data on the relative importance of different features of the business environment including access to finance, property right protection, provision of infrastructure, inefficient regulation and taxation, and broader governance features such as corruption, macroeconomic and political stability on firm growth. They find that although firms report many obstacles to growth, not all the obstacles are equally constraining. Finance, crime and political instability are the only obstacles that have a direct impact on firm growth and finance is the most robust one among those.

Kauffman (2005) highlights the importance of access to finance to the growth of SME in Africa. The author shows differences in the development of financial systems and government policies explain for great variation of the development of the private sector throughout Africa. Specifically, modern financial systems and clear government policies in

favour of private enterprise links to the flourishing of SMEs in South Africa, Mauritius and North Africa. Elsewhere in Africa the rise of a small-business class has been hindered by political instability or strong dependence on a few raw materials. Limited ability to access to finance hampers SMEs emergence and eventual growth in these countries. Their main sources of capital come from retained earnings, informal savings and loan associations. The disadvantage of loan associations is that they are unpredictable and high risk because they focus on a specific region and/or sector. Access to formal finance is poor because of the high risk of default among SMEs and inadequate financial facilities.

3. The relationship between Firm-Level Obstacles and National Institutional Development

3.1 Overview of Obstacles and Institutional Development

We explore the ES, which is representative of a country's private sector. The surveys cover a broad range of business environment topics, including access to finance, corruption, infrastructure, crime, competition, and performance measures. A Global Methodology was developed and applied by the World Bank and its partners since 2005 (see www.enterprisesurveys.org for detailed information). Although previous similar datasets such as Africa Regional Program on Enterprise Development (RPED) in 1992-1995 period, Business Environment and Enterprise Performance Survey (BEEPS) in 1999, WBES in 1998-2000 period are useful for the countries and issues they are designed for, their comparability is limited since they have different questionnaires and priority (Dethier, Hirn, and Straub (2011)).

The population of the ES is consistently defined in all countries. Since the survey follows a uniform implementation methodology and a core questionnaire, indicators created from the survey are comparable across countries. In each country, about eighty questions (around 50-

60 percent) are core modules; and the remaining consists of country specific questions which depend on each country's data needs.

Our dataset includes firm survey responses from over 10,000 firms in 13 Middle-income countries in the East Asia. These countries are selected based on the classification updated in 2012 by Beck, Demirguc-Kunt, Eric Levine, Cihak, and H.B. Feyen (2012). List of countries in the sample, the year of survey, sample size in each country and the keys macroeconomics indicators is presented in Table 1. Since the main purpose of ES is to identify constrains to firm growth, in the first part the surveys collect general information about the firm and the investment climate it faces including many questions on finance, legal, and corruption issues. In the second part, accounting information about the firm such as production costs, investment flows, balance sheet, number of employees, industry, if the company receives subsidies from government or local authority and so on are collected.

Consistent with the literature, we define small firms as those with 5-50 employees. Medium-sized firms recruit 51-500 employee and large firms are those employ more than 500 employees. One of the advantages of the ES survey is it coves a large number of SMEs. Sixty percent of observations in the sample are small firms, 35% are from medium firms and the remaining 5% are from large firms. We also employ data on GDP per capita, GDP in US dollars, GDP growth, an inflation, and financial system development, legal development in each country. Country level variable are 3-year average prior to the survey.

Table 1 reports the surveyed year, number of firm and key economic indicators in each country in the sample. Since the growth rate of individual firms and the growth rate of the economy are highly correlated, we employ two measure of economy's growth rate to control for country differences i.e., GDP per capita and GDP growth rate. There is considerable

variation in GDP per capita of these countries. They range from Cambodia with an average GDP per capita of \$973, to Malaysia with per-capita income of \$10,029. We also utilize the average annual growth rate of GDP in the last three years prior to the survey as a control variable. Countries in the sample also vary significantly in their GDP growth, from a low of -10.69 per cent in Timor-Leste to 11.99 per cent in Mongolia. Finally, the average inflation rate also provides an important control, since it indicates whether local currency provides a steady measure of value in agreements between firms.

Table 1: Economics indicators

Year is the year of survey. Obs is the number of firms in the sample. GDP and GDP per capita are real and in U.S. dollars. Inflation is the log difference of the consumer price index. Growth is the growth rate of GDP in current U.S. dollars. All country variables are 3-year averages prior to the survey. Finance and Legal obstacles are average of the constrained which were reported by individual firms. They take values between 1 and 4, with higher values indicating greater obstacles. Definitions and sources of data are presented in detail in Table 1 in the Appendix

Country	year	Obs	GDP		GDP per capita	Inflation	Finance	Legal
			(10 ⁹ USD)	Growth			Obstacles	Obstacles
Thailand	2016	1000	410.00	2.23	5629.903	1.89	1.79	0.28
Mongolia	2013	360	9.96	11.99	3023.179	14.98	2.03	0.30
Cambodia	2016	373	16.70	7.18	973.655	1.22	1.72	0.94
Lao PDR	2016	368	13.20	7.64	1470.291	1.28	1.54	0.60
Vietnam	2015	996	154.00	5.64	1434.609	4.09	1.77	0.44
Indonesia	2015	1320	907.00	5.53	3556.134	6.39	2.07	0.74
Philippines	2015	1335	269.00	6.63	2394.687	4.10	1.83	0.64
Papua New Guinea	2015	65	21.90	7.97	2140.317	5.21	1.60	1.14
Timor-Leste	2015	126	5.46	-10.69	3377.349	0.44	2.04	0.67
Malaysia	2015	1000	325.00	5.39	10029.440	3.17	1.71	1.29
Myanmar	2016	607	61.80	7.80	1263.89	9.49	1.94	0.44
China	2012	2700	6260.00	9.86	4558.03	5.41	1.44	0.27
Solomon Islands	2015	151	1.12	3.27	1470.32	5.17	1.48	1.61

Table 2 reports the sample statistics of our variables. In addition to the financial and legal obstacles we also utilize other firm-level specific information better to understand the nature of these obstacles to firm growth. It should be noted that firm-level information comes from unaudited self-reports by firms. It is possible that unsuccessful firms may blame institutional

obstacles for their poor performance. The incentives to distort data are likely higher in financial statements than in survey responses since financial statements affect operational and financing decisions. Although the possibility of data bias due to unaudited self-reporting can never be eliminated, we believe that it is unlikely to be a significant source of bias in this study. The stated purpose of the WBES survey is to evaluate the business environment, not firm performance. Table 2 shows firms are facing much higher financial than legal obstacle. On average, financial obstacle is rated 1.73 compared to 0.56 of legal constrain.

We include dummy variables that identify firms as government-owned or foreign ownership. Government-owned firms might grow at different growth rates because their objectives or their exposure to obstacles might differ from those of other firms. For example, they can have advantages in dealing with the regulatory system, and less subject financial constraints. The growth rate of foreign institutions can also be different because foreign entities might find it more difficult to deal with local judiciary. However, foreign institutions might be less affected by financing obstacles, since they could have access to the international financial system.

The growth rate of firms can also depend on the market structure in which they operate. Therefore, we also include dummy variables to capture whether the firm is an exporting firm, manufacturing, and service industries.

Table 2: Summary Statistics

Growth is the average sale growth in the last three years. Govt, Foreign and Exporter are dummy variables that take the value of 1 if the firm has government, foreign ownership or export activity and 0 if not. Expe is the experience (in year) of the top manager. Inter is dummy variables that take the value of 1 if the firm is internationally recognized and 0 if not. Manuf and Service are dummy variables that take the value of 1 if the firm is in manufacturing and service industry and 0 if not. GDP growth and GDP per capita are real and in U.S. dollars. Inflation is the log difference of the consumer price index. Growth is the growth rate of GDP in current U.S. dollars. F_Obs and L_Obs are Finance and Legal obstacles which were reported by individual firms. They take values between 1 and 4, with higher values indicating greater obstacles

Variable	Obs	Mean	Std.Dev	Min	Max
Firm growth	8,739	0.03	0.14	-0.50	0.50
Government	10,401	0.02	0.14	0.00	1.00
Foreign	10,401	0.12	0.32	0.00	1.00
Exporter	10,393	0.24	0.42	0.00	1.00
Experience	10,401	15.42	10.75	-9.00	70.00
International	10,051	0.30	0.46	0.00	1.00
Manufacturing	10,401	0.71	0.45	0.00	1.00
Service	10,401	0.18	0.39	0.00	1.00
GDP growth	10,401	6.75	3.14	-10.70	11.99
GDP capita	10,401	3925.81	2440.61	973.66	10029.44
inflation	10,401	4.90	2.75	0.44	14.98
Finance Obstacle	5,705	1.73	0.82	1.00	4.00
Legal Obstacle	8,883	0.56	0.88	0.00	4.00

Following the ES surveys, we define small firms as those with 5-50 employees; medium-sized firms are those with 51-500 employees and large firms are those that employ more than 500 employees. For each country, we also use data on GDP per capita, GDP in U.S dollars, growth rate of GDP and inflation collected in the three recent years prior to the surveys.

Table 3 shows the correlation matrix for the variables in our study. Government owned firms have higher rates of growth while foreign firms and exporters have lower growth rates. Also, firms faster-growing countries have higher growth rates. As expected, higher financing, legal,

obstacles correlate with lower firm growth rates. Correlations also show that government-owned and foreign firms face lower financing and higher legal obstacles. Both financing and legal obstacles seem to be higher for manufacturing firms while firms in service industries are less affected by all obstacles.

Table 3: Correlations

Growth is the average sale growth in the last three years. Govt, Foreign and Exporter are dummy variables that take the value of 1 if the firm has government, foreign ownership or export activity and 0 if not. Expe is the experience (in year) of the top manager. Inter is dummy variables that take the value of 1 if the firm is internationally recognized and 0 if not. Manuf and Service are dummy variables that take the value of 1 if the firm is in manufacturing and service industry and 0 if not. GDP growth and GDP per capita are real and in U.S. dollars. Inflation is the log difference of the consumer price index. Growth is the growth rate of GDP in current U.S. dollars. F_Obs and L_Obs are Finance and Legal obstacles which were reported by individual firms. They take values between 1 and 4, with higher values indicating greater obstacles

	Growth	Govt	Foreign	Exporter	Expe	Inter	Manuf	Service	GDP growth	GDP capita	inflation	F_Obs
Govt	0.01											
Foreign	-0.08	0.04										
Exporter	-0.02	0.06	0.28									
Expe	0.02	0.01	-0.07	-0.01								
Inter	0.00	0.10	0.15	0.23	0.02							
Manuf	-0.05	-0.03	0.10	0.23	0.04	0.15						
Service	-0.01	-0.01	-0.06	-0.14	-0.06	-0.18	-0.73					
GDP growth	0.10	-0.02	-0.08	-0.10	0.04	0.24	-0.07	-0.01				
GDP capita	-0.11	0.11	0.12	0.23	-0.14	0.26	0.22	-0.22	-0.05			
inflation	0.13	-0.04	-0.09	-0.15	0.04	-0.02	-0.02	-0.02	0.49	-0.19		
F_Obs	-0.03	-0.01	-0.07	-0.04	0.06	-0.16	0.02	0.00	-0.11	-0.07	0.10	
L_Obs	-0.05	0.02	0.11	0.08	-0.09	-0.09	0.05	-0.01	-0.22	0.16	-0.16	0.16

3.2 Firm-Level Obstacles and National Institutional Development

In this section we explore the relation between the financing and legal obstacles and firm size, controlling for country-level institutional development. To capture institutional development, we use independently computed country-level measures of the size of the financial sector and the development of the legal sector. Earlier work has shown that the level of financial development affects firm growth. Following (Beck-2005) we utilize *Priv*, which is the ratio of domestic banking credit to the private sector divided by GDP as a measure of financial development. The higher the ratio, the bigger the size of the financial sector. We also use *Laworder* as our proxy for legal development and is an index of the efficiency of the legal system. Figure 1 plots the relationship between the average firms' report of their obstacles and the development of finance and legal system in each country in the sample. As expected, country with higher financial and legal development, the lower the average of obstacles.

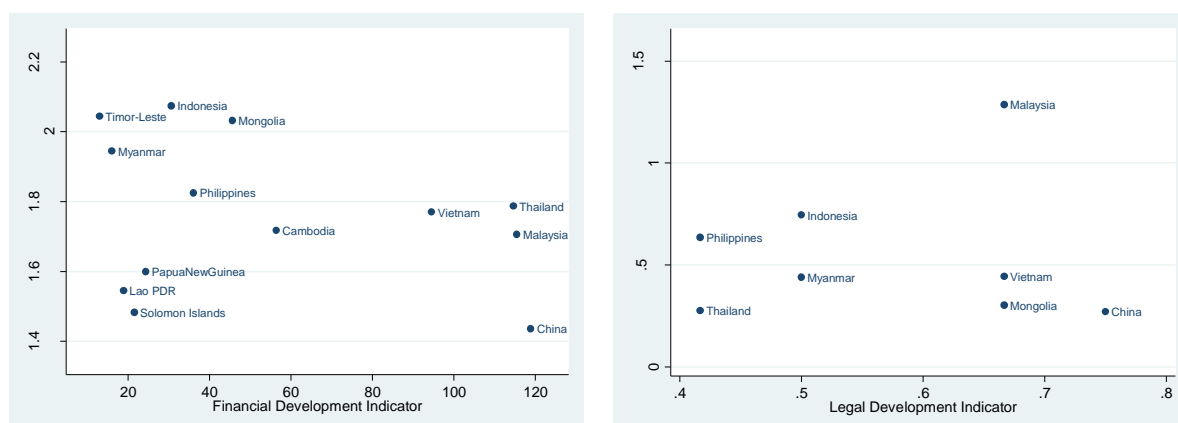


Figure 1: Financial, Legal Obstacles and Country's Financial and Legal Development

Table 4 presents results of regression of the firm-level survey responses on size dummies and the country-level variables. The three size dummy variables are small, medium, and large which take the value of 1 if the firm is small or medium or large, respectively, and 0 otherwise. We also report the interactions between country-level variables and firm size. Table 4 shows that on average, the firms' perception of the financing obstacles they face relates to firm size, with smaller firms reporting significantly higher obstacles than large firms. In contrast, smaller firms report lower legal obstacles than do larger firms, but these differences are not significant.

Table 4 also indicates that in countries with more developed financial and legal systems, firms report lower financing obstacles. These effects are more significant, and the coefficients are greater in absolute value for the largest firms, particularly for financial development. Table 5 shows that even after we control for the quality of a country's institutions, firm size is an important determinant of the level of financial and corruption obstacles.

Table 4: Firm-Level Obstacles and Institutional Development

The regression estimated is

$$\begin{aligned} \text{firm level obstacle} = & \beta_0 + \beta_1 \text{priv} * \text{small} + \beta_2 \text{priv} * \text{medium} + \beta_3 \text{priv} * \text{large} \\ & + \beta_4 \text{rl} * \text{small} + \beta_5 \text{rl} * \text{medium} + \beta_6 \text{rl} * \text{large} \\ & + \beta_7 \text{small} + \beta_8 \text{medium} + \beta_9 \text{large} + \varepsilon \end{aligned}$$

Financing and Legal obstacles at firm level are summary obstacles as indicated in the firm questionnaire. They take values of 1–4, where 1 indicates no obstacle and 4 indicates a major obstacle. *Priv* is domestic bank credit to the private sector divided by GDP. *Laworder* is a national indicator (values between 1 and 6) that takes higher values for legal systems that are more developed. *Small*, *Medium*, and *Large* are dummy variables that take the value 1 if a firm is small (or medium or large) and 0 otherwise

	Financing Obstacles		Legal Obstacles	
Priv	-0.004*** (-8.724)		0.001* (1.735)	
Small*priv		-0.003*** (-6.428)		-0.001** (-2.966)
Medium*priv		-0.004*** (-5.871)		-0.002*** (-3.977)
Large*priv		-0.006** (-3.283)		-0.004** (-2.574)
Rl	-0.575*** (-4.196)		-1.501*** (-8.956)	
Small*rl		-0.390** (-2.319)		-0.079 (-0.666)
Medium*rl		-0.546** (-2.524)		-0.178 (-1.090)
Large*rl		0.523* (1.710)		0.572** (2.263)
Small	0.140** (3.037)	0.545*** (4.997)	-0.073 (-1.300)	0.063 (0.731)
Medium	0.093* (1.950)	0.668*** (5.361)	-0.100* (-1.724)	0.221** (2.252)
Constant	2.286*** (29.687)	1.740*** (23.528)	1.682*** (17.849)	0.597*** (9.482)
N	4361	5013	4361	7971
F	85.278	41.394	33.435	9.947
r2	0.073	0.062	0.030	0.010

4. Firm growth and reported obstacles

Consistent with the existing literature, we measure the effect of business climate on the firm performance using the following regressions:

$$\text{Firm Performance} = \beta_1 + \beta_2 \left(\begin{array}{c} \text{Business Climate} \\ \text{indicators} \end{array} \right) + \beta_3 \left(\begin{array}{c} \text{Firm} \\ \text{Characteristics} \end{array} \right) + \beta_4 \left(\begin{array}{c} \text{Additional} \\ \text{Controls} \end{array} \right) + \varepsilon$$

We measure firm performance using growth rates of sales and employment. Earlier literature provides evidence that firm performance is affected by the business climate indicators including financial constraints (see Carlin, Schaffer, and Seabright (2006); Ayyagari, Demirgüç-Kunt, and Maksimovic (2008)) and market regulation (see Aghion and Griffith (2005); Carlin et al. (2006)). Thus, we include these two factors in our regressions.

Firm characteristics are firm size, export, and foreign ownership. Firm size dummy variables are included to examine whether large and SMEs are differently impacted. Consistent with Beck et al. (2005), we include a dummy variable for foreign-controlled firms to control for potential different level of financing obstacles and political influences. Dummy variables that classify whether the firm is an exporting firm, whether it receives subsidies from local and national governments, and the number of competitors it faces in its market are taken into account to capture the market structure impact on the firm performance.

We also include other control variables such as inflation, GDP growth, GDP per capita which are 2007-2009 averages following Beck, Demirgüç-Kunt, and Levine (2000). In our regressions, the country-level effects will be controlled using country dummies, industry dummies, and big city to eliminate any contamination of the business climate coefficients which correlated but unobserved country-level effects on firm performance.

to test the hypothesis that an obstacle is related to firm growth, we test whether obstacles coefficient is significantly different from zero. This impact variable measures the total effect of the obstacle on growth, taking into account both the level of the mean reported obstacle and the estimated relation between the reported obstacle and observed growth. Table 5 shows how firm growth is related to the financing and legal, obstacles reported by firms. When entered individually, all reported obstacles have a negative and significant effect on firm growth, as expected. The impact of the obstacles on firm growth evaluated at the sample mean is negative, and in all cases, substantial.

Table 5 shows that financing and legal obstacles are both significant and negative, but legal loses its significance in the presence of financing variable. This suggests that the impact of legal on firm growth is captured by the financial obstacles. When we look at the control variables, we see that the growth rates of government-owned firms are lower, and the growth rates of exporters are higher. Foreign firms also appear to grow faster, although this result is only significant at 10% in two specifications. We do not observe significant differences in the growth rates of firms in different industries. The coefficient of inflation is significant and positive in two of the four specifications. A significant inflation effect most likely reflects the fact that firm sales growth is given in nominal terms. The GDP growth rate and firm growth are significant and positively correlated, indicating that firms grow faster in an economy with greater growth opportunities.

Table 5: The impact of financial and legal obstacles on firm growth

Firm Growth is the percentage change in firm sales over the past 3 years. *Government* and *Foreign* are dummy variables that take the value of 1 if the firm has government or foreign ownership and 0 if not. *Exporter* is a dummy variable that indicates if the firm is an exporting firm. *Manufacturing* and *Services* are industry dummies. *Inflation* is the log difference of the consumer price index. *GDP per capita* is real GDP per capita in U.S. dollars. *Growth* is the growth rate of GDP. Financing, Legal, and Corruption are summary obstacles as indicated in the firm questionnaire. They take values between 1 and 4, where 1 indicates no obstacle and 4 indicates major obstacle.

	Specification 1	Specification 2	Specification 3
Government	0.005 (0.315)	0.014 (1.410)	0.017 (1.053)
Foreign	-0.027*** (-4.030)	-0.013** (-2.645)	-0.029*** (-4.114)
Exporter	0.010* (1.837)	0.005 (1.311)	0.011** (2.130)
Experience	0.000 (0.038)	-0.000** (-3.136)	-0.000 (-0.204)
International	0.013** (2.636)	0.007** (2.056)	0.004 (0.772)
Manufacturing	-0.024*** (-3.634)	-0.014** (-2.804)	-0.028*** (-4.174)
Service	-0.035*** (-4.479)	-0.017** (-2.932)	-0.034*** (-4.336)
GDP growth	-0.001* (-1.755)	0.001* (1.877)	0.001 (1.231)
GDP per capita	-0.000** (-3.224)	-0.000*** (-4.318)	-0.000*** (-5.573)
Inflation	0.009*** (10.741)	0.005*** (6.885)	0.005*** (5.552)
Legal Obstacles		-0.004** (-2.239)	0.000 (0.024)
Financial Obstacles	-0.006** (-2.422)		-0.008** (-2.833)
Constant	0.033** (3.053)	0.038*** (5.092)	0.061*** (5.514)
N	4592	7301	3982
F	18.948	16.121	13.152
r2	0.044	0.024	0.038

Source: Authors' estimation

Considering that firm sizes reinforces the results reported in Table 5. Table 6 reports that relation between financial and legal obstacles and firm growth depends on the size of the firm and institutional setting. Specification 1 shows that small firm are the most severely affected by financial obstacle. On average, with a unit increase in financial obstacle, small firms experience a 1 percent drop in sale growth compare to other firms with similar characteristic. There is no significant difference impact of legal constrain between small and large firms (specification 2). When we control for both constrains (specification 3), the interaction coefficient of legal obstacle and firm size is positive suggesting that legal obstacles affect small firms less than large and medium firms.

Table 6: The impact of financial and legal obstacles on firm growth-large compared to small

Firm Growth is the percentage change in firm sales over the past 3 years. *Government* and *Foreign* are dummy variables that take the value of 1 if the firm has government or foreign ownership and 0 if not. *Exporter* is a dummy variable that indicates if the firm is an exporting firm. *Manufacturing* and *Services* are industry dummies. *Inflation* is the log difference of the consumer price index. *GDP per capita* is real GDP per capita in U.S. dollars. *Growth* is the growth rate of GDP. Financing and Legal obstacles are summary obstacles as indicated in the firm questionnaire. They take values between 1 and 4, where 1 indicates no obstacle and 4 indicates major obstacle. Obstacles are also with size dummy variable (Small).

	Specification 1	Specification 2	Specification 3
Government	0.011 (0.759)	0.016 (1.604)	0.021 (1.357)
Foreign	-0.026*** (-3.903)	-0.011** (-2.158)	-0.027*** (-3.786)
Exporter	0.013** (2.407)	0.009** (2.246)	0.015** (2.939)
Experience	0.000 (0.142)	-0.000** (-2.699)	-0.000 (-0.265)
International	0.011** (2.181)	0.011** (3.024)	0.003 (0.547)
Manufacturing	-0.020** (-3.006)	-0.012** (-2.352)	-0.023*** (-3.460)
Service	-0.031*** (-4.039)	-0.016** (-2.887)	-0.031*** (-4.007)
gdp_growth	-0.002** (-2.105)	0.001 (1.530)	0.001 (0.963)
gdp_capita	-0.000*** (-8.084)	-0.000*** (-7.256)	-0.000*** (-9.187)
inflation	0.010*** (11.809)	0.005*** (7.673)	0.006*** (6.869)
l_sale	-0.007*** (-9.416)	-0.004*** (-6.788)	-0.006*** (-8.124)
F_Obstacle	0.002 (0.664)		0.004 (1.114)
F_Obstacle_small	-0.010*** (-3.900)		-0.016*** (-4.970)
L_Obstacle		-0.006** (-2.216)	-0.010** (-2.743)
L_Obstacle_small		0.004 (1.232)	0.018*** (4.052)
_cons	0.176*** (9.466)	0.109*** (8.371)	0.183*** (9.774)
N	4581	7289	3977
F	23.286	17.719	16.476
r2	0.062	0.031	0.059

5. Conclusion

In this paper, we investigate whether the financial and legal obstacles that firms report affect their sale growth rates. By making use of World Bank enterprise survey, we investigate a rich set of obstacles reported by firms and directly test whether any of these reported obstacles are significantly correlated with firm growth rates. The database also allows us to focus on differences in firm size, since it has good coverage of small and medium-sized enterprises in 11 countries in East Asia. We investigate if the extent to which the firms are constrained by different obstacles depends on the level of development of the financial and legal systems. We are particularly interested in investigating the previously unexamined national level of corruption and its impact on firm growth.

Our results indicate that the extent to which financial and legal underdevelopment constrain a firm's growth depends very much on a firm's size. We show that it is the smallest firms that are consistently the most adversely affected by all obstacles. Taking into account national differences between financial and legal development, we see that firms that operate in underdeveloped systems with higher levels of corruption are affected by all obstacles to a greater extent than firms operating in countries with less corruption. We also see that a marginal development in the financial and legal system and a reduction in corruption helps relax the constraints for the small and medium-sized firms, which are the most constrained. All two obstacles, financial and legal do affect firm growth rates adversely. But not all specific obstacles are equally important, and the ones that affect firm growth are not necessarily the ones rated highest by the firms themselves.

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Appendix

Table A1: Variables and Sources

Variable	Definition	Original Source
GDP	GDP in current U.S. dollars, average of the last three years before the survey	WDI
GDP per capita	Real per capita GDP, average of the last three years before the survey	WDI
Growth	Growth rate of GDP, average of the last three years before the survey	WDI
Inflation rate	Log difference of Consumer Price Index	IFS, line 64
Priv	$\{(0.5) * [F(t)/P_e(t) + F(t-1)/P_e(t-1)] / [GDP(t)/P_a(t)]$, where F is credit by deposit money banks to the private sector (lines 22d), GDP is line 99b, P _e is end-of period CPI (line 64) and P _a is the average CPI for the year.	IFS
Laworder	Measure of the law and order tradition of a country. It is an average of the last three years before the survey. It ranges from 6, strong law and order tradition, to 1, weak law and order tradition	ICRG
Firm growth	Estimate of the firm's sales growth over the past 3 years	ES
Government	Dummy variable that takes on the value 1 if any government agency or state body has a financial stake in the ownership of the firm, 0 otherwise.	ES
Foreign	Dummy variable that takes on the value 1 if any foreign company or individual has a financial stake in the ownership of the firm, 0 otherwise.	ES
Exporter	Dummy variable that takes on the value 1 if firm exports, 0 otherwise.	ES
Subsidized	Dummy variable that takes on value 1 if firm receives subsidies (including tolerance of tax arrears) from local or national government.	ES
Manufacturing	Dummy variable that takes on the value 1 if firm is in the manufacturing industry, 0 otherwise.	ES
Services	Dummy variable that takes on the value 1 if firm is in the service industry, 0 otherwise.	ES
Firm size dummies	A firm is defined as small if it has between 5 and 50 employees, medium-sized if it has between 51 and 500 employees, and large if it has more than 500 employees.	ES
Size	Logarithm of firm sales	ES
Financing obstacle	How problematic is financing for the operation and growth of your business: no obstacle (1), a minor obstacle (2), a moderate obstacle (3), or a major obstacle (4)?	ES
Legal obstacle	How problematic is functioning of the judiciary for the operation and growth of your business: no obstacle (1), a minor obstacle (2), a moderate obstacle (3), or a major obstacle (4)?	ES