



## Research article

## Legal and financial constraints and firm growth: small and medium enterprises (SMEs) versus large enterprises

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## ABSTRACT

We investigate the impact of financing and legal obstacles on firm growth across different firm sizes before and after the global financial crisis (GFC). Using two enterprise surveys in Vietnam, we find firms facing higher financing obstacles have lower sales and employment growth. The smallest firms are the most adversely affected by financing obstacles. The legal obstacles impede the employment growth of SMEs more than large enterprises, which is attributable to the tendency of firms to avoid tall poppy syndrome and the scrutiny of tax officials. Furthermore, we find that the negative effects of financing obstacles on small firms' sales and employment growth reduce in the post-GFC period. We attribute it to a higher proportion of small firms being able to borrow from commercial banks after the financial crisis, partly due to the introduction of new policies supporting SMEs from the Vietnamese Government. Overall, our findings recommend to policymakers that improvement in access to finance is imperative for productivity increases and job creation for small and medium firms.

## 1. Introduction

The development level of legal and financial systems affects firm growth. Differences in the legal and financial systems can explain much of the variation in firm performance across countries (Wu et al. (2018) Alam et al. (2020); Wu et al. (2018); Beck et al. (2005)). In countries with underdeveloped systems, firms are affected by all obstacles more than countries with less developed systems. Also, companies in developed countries report fewer financing constraints than companies in developing countries, and smaller firms tend to report finance as a constraint more often than larger firms (Bloom et al. (2010)). One issue of interest to policymakers is how market and institutional developments affect the growth of firms. This issue is even more important in developing countries, where markets and institutional are less developed. Also another concern is whether the effect varies with firm of different sizes. This paper uses firm-level data of more than 1500 companies in Vietnam collected in two surveys in 2009 and 2015 to assess the impact of financial and legal obstacles on sales and employment growth, focusing on differences by size.

Vietnam represents a compelling case as an emerging country with undeveloped borrowing markets and a large population of 96 million residents as of 2019.<sup>1</sup> Since the bond market in Vietnam is not well-developed, informal sources of finance play an essential role in accommodating the financial needs of firms without a sufficient credit quality score (Bach et al. (2021); Phan (2018); Vo (2017); Lin et al. (2013); Kale and Meneghetti (2011)). Strong small and medium enterprise (SME) development in this populous country is important to international SME growth, contributing to job creation and poverty alleviation. Understanding the effect of financing and legal obstacles on firm growth in Vietnam applies to a wide range of other nations, especially in the Asia-Pacific and Latin America regions, which have similar levels of financial market development and common business environment factors. While there is extensive literature examining the impact of the business environment on firm growth, little is known about the effects of financing and legal obstacles on different dimensions of firm growth across a range of firm sizes in such a typical emerging country. Thus, our study aims to fill this gap.

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<sup>1</sup> See the United Nations data source: <https://data.un.org/en/iso/vn.html>.

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The 2030 Agenda for Sustainable Development adopted in 2015 by all United Nations member states identifies 17. These goals are in line with the long-term development strategy of Vietnam UN (2018). After more than two decades implementing the socio-Economic Development Plan since 2001, Vietnam has achieved several Sustainable Development Goals -related results. The country aims to become an upper-middle-income country by 2030 and to strengthen sustainability and growth inclusiveness along the way. However, the economy faces slower economic growth and not enough jobs to keep up with a growing labour force. For these reasons, the Vietnamese Government identifies creating sustainable jobs as central to achieving the development paradigm. Understanding how business obstacles affect employment and sales growth is important to address the sustainable development goal of full and productive employment in Vietnam (Rosa (2017); Hilson (2020); Rai et al. (2019)).

This paper investigates the effect of obstacles in the legal system and access to finance on firm growth in Vietnam before and after the global financial crisis of 2008–2009 (GFC). Using two enterprise surveys in 2009 and 2015 of over 1500 firms in both state-owned and private sectors, we examine whether financing and legal constraints affected the sales and employment growth during the 2006–2008 and 2012–2014 periods.<sup>2</sup> We also study how the impact of financing and legal obstacles on sales and employment growth differ across different firm sizes and if these impacts changed after the GFC.

Our study contributes to the literature in a number of ways. Firstly, to the best of our knowledge, this is the first study examining how barriers in access to finance and legal systems affect firm growth in Vietnam. Second, we focus on two dimensions of growth – sales growth and employment growth – to provide a more comprehensive picture of the impact of the business environment on firm growth. Hence, our study complements Beck et al. (2005) and Ayyagari et al. (2016), who only focus on sales growth. Finally, we are the first to examine whether the financial and legal obstacles have different impacts on the growth of firms of varying sizes after the GFC; the existing literature utilizes the data during the pre-GFC period only.

The paper proceeds as follows. The following section discusses related literature. In Section 3, we describe the data selection and research method. Section 4 analyses the empirical results on the impact of the obstacles on sales and employment growth across firm sizes and conditional on the pre-GFC and post-GFC environment. Section 5 discusses of the results and the implications on relevant government policies and strategies. The conclusions and limitations of the research are presented in Section 6.

## 2. Related literature

There is a growing literature that evaluates the effect of the business environment on the firm performance. Several studies that examine the relationships between business obstacles and firm growth use business environment measures at macro level and combine these with firm-level data (Aterido et al. (2011); Daway-Ducanes and Gochoco-Bautista (2021)). A basic assumption behinds these studies is that if a certain condition constrains firm growth, the industries that are more sensitive to that condition will be affected relatively more than others. Becchetti and Trovato (2002) and Demirel and Danisman (2019) show that industries that rely on external finance grow faster in financially developed countries. Also, industries that are naturally more volatile create fewer jobs in countries with very restrictive hiring and firing regulations. Studies using business environment measures at national level may suffer from two potential shortcomings. First, in most cases, changes in business environmental conditions are captured by country-level variables that

are reflected through explicit regulations or conditions. However, there can be significant gaps between the regulations and the reality. Second, these studies do not assess changes in the business environment within national boundaries, between regions within the country and, in particular, between enterprises.

A growing number of studies explore firm-level data from the World Bank and other national surveys to examine how reported business obstacles affect firm growth and performance (Nizaeva and Coşkun (2018); Fowowe (2017); Beck and Demirguc-Kunt (2006)). These studies highlight the important of finance, legal and corruption. The impact of reported obstacles on firm growth also depends on the level of financial and institutional development of nations. In countries with underdeveloped systems, firms are affected by all obstacles to a greater extent than countries with more developed financial and legal systems (Beck et al. (2005)). Coluzzi, Ferrando and Martinez-Carrascal (2015) find financing obstacle negatively affects firm growth in four out of five countries in the Euro area after controlling for growth opportunities, time, sectoral effects and other firm-level variables.

Financing obstacles were found to have no significant impact on sales and employment growth in 27 Eastern European and Central Asian countries during the period 2002–2009 (D'Souza et al. (2017)). Bui and Pham (2021) find financing obstacle negatively affects employment growth in Europe and Central Asia countries after controlling for growth opportunities, time, sectoral effects and other firm-level variables. The literature has largely support the government intervention to increase financial access as a way to promote firm growth (Kersten et al. (2017); Bartelsman et al. (2013); Hsieh and Klenow (2009)). Meanwhile, the effect of legal obstacles on firm growth is inconclusive. Tarullo (2019) find that better legal protection is linked to better outcomes for the financial system, both at the aggregate and firm levels. Allen, Qian and Qian (2005) show that the private sector in China has been the fastest-growing despite the country having relatively weak legal protection and inadequate formal financing sources. Bui, Lambert, Phung and Reynolds (2021) find no significant relationship between the labour regulation obstacle and employment growth at the firm level in East Asia and Pacific nations.

Another focus of this paper is whether there are significant differences in the impact of business obstacles on firm types, particularly by firm size. Bloom, Mahajan, McKenzie and Roberts (2010) find that larger firms in developing countries have already overcome financial constraints, while it is a binding factor for growth for smaller firms. Beck, Demirguc-Kunt and Maksimovic (2005) conclude that small and medium-sized firms are likely to face greater obstacles in obtaining finance and accessing legal systems. Thus, it is of importance for national regulators and policymakers to understand the impact of financing and legal obstacles on firm growth for small and medium enterprises (SMEs) versus large firms in an emerging country where informal sources of financing are actively used by SMEs. This paper expands the literature in several dimensions. First, we look at both employment growth and sales growth to provide a more comprehensive measures of growth at the firm level. Second, instead of using subjective firm response as measures of financing and legal obstacles at the firm level, we take the average of the self-reported obstacles across all firms in the same firm size category (small, medium, or large) in the same industry and geographical location. Finally, we examine the dynamic of the effect before and after the global financial crisis.

## 3. Methods

### 3.1. Data

We explore the two most recent Enterprise Surveys (ES) in Vietnam in 2009 and 2015 that represent samples of the private sector and cover a broad range of business climate topics, including access to finance and the legal system. Information on firm performance is also collected in the surveys. The surveys were conducted by the World Bank and its private

<sup>2</sup> The 2009 and 2015 surveys collect the sales and employment data from the previous year and 3 years prior, which allows us to estimate the sales and employment growth for the 2006–2008 and 2012–2014 periods.

contractors to warrant the quality of the information related to business-government relations and other sensitive topics. The World Bank also guarantees the privacy of the respondents and the confidentiality of the data.<sup>3</sup> The stratified random sampling method is utilized to allow the precision of population estimates.<sup>4</sup>

In the surveys, firm managers were requested to rate the levels of financing and legal obstacles for the operation and growth of their businesses. Financing obstacles relate to a firm's ability to access external financial sources, including collateral requirements of banks, bank paperwork, bureaucracy, high interest rates, and the need for special connections with lenders. The legal obstacles refer to the firm's assessment of the court system's efficiency, including the information about the length and the costs of the legal process as well as whether the legal system can enforce its decisions. The perceived severity of the obstacles is ranked from 0 to 4, denoting no obstacle (0); minor obstacle (1); moderate obstacle (2); major obstacle (3); and very severe obstacle (4). This raw rating data provides a summary measure of the extent to which financing and legal obstacles affect firm growth (Beck, Demirgüç-Kunt and Maksimovic ((2005))); Tarullo (2019)). One concern is that the self-reported financing and legal obstacles might be subject to bias if the managers of slow-growing firms blame the barriers for their slow growth (Wellalage et al. (2019); O'Brien, Nedelkoska and Frasher (2017)).<sup>5</sup> However, the surveys' objective is to evaluate the business environment, not the firm performance; thus, the unaudited self-reporting is not a significant source of bias. More importantly, in the surveys, firms were asked about the business environment first, and specific questions on performance, such as sales and employment, were asked at the end of the interview. Thus, this sequence reduces the likelihood of firms blaming the constraints for their poor performance. Beck, Demirgüç-Kunt, Laeven and Maksimovic (2006) find that while firms report certain obstacles, not all of them are binding constraints. The level of constraints might depend on firm size, industry, and geographical characteristics. Hence, we construct financing and legal obstacle measures by taking the average of the self-reported financing and legal obstacles across all firms in the same firm size category (small, medium, or large) in the same industry and geographical location.

Consistent with Rahaman (2011), we employ sales growth and employment growth as dependent variables in our analysis. Following Lee et al. (2020), and Chauvet and Jacolin (2017), we define sales growth as the average growth of sales over the past three years.<sup>6</sup> Employment growth is a dummy variable that takes the value of 1 if the number of full-time permanent staff increases over the last three years and equals 0 otherwise (Haynes and Brown (2009)). The definitions of all other firm-specific variables are presented in Appendix Table A1.

To minimize the effect of outliers, we winsorize the top and bottom 2.5 percent of the sales growth and owner experience in 2009 and 2015.

### 3.2. Methodology

In this study, we employ various multivariate regressions to examine the links between the obstacles and firm growth. Since firm growth might be affected by various firm-specific characteristics, we follow Beck et al. (2005) to control the impact of these variables in our regression models. Specifically, we include indicators of firm size, ownership, industry, and

market structure as control variables. Since smaller firms are likely to face more vigorous financing and legal obstacles (Luo et al. (2018)), we construct two dummy variables, *Small* and *Medium*, that take the value of one if a firm is classified as small and medium, respectively.<sup>7</sup> By definition, a sub-sample of large firms is the base group in our empirical analysis.

We consider the impact of firm ownership on firm growth by including two variables, *Government* and *Foreign*, which capture whether a firm is government-owned and whether a firm is foreign-owned. The rationale of these inclusions is that government-owned firms might grow at different rates compared with firms without government-contributed capital because of their other objectives. Also, foreign-owned firms might have a different growth rate than firms that do not have any foreign owners because foreign-owned firms are less likely to be affected by the financing obstacles but might face more legal issues.

We also control industry-specific effects by including a dummy variable, *Manufacturing*, to capture whether a firm operates in manufacturing sectors. Because firm growth may depend on the market structure in which they operate, we include a variable indicating whether a firm is an *Exporter*. We also control for the impact of other corporate factors in our models, which include the experience of a firm's CEO, *Experience*; the international recognition to a firm, *International*, which is equal to 1 if a firm has at least one internationally recognized quality certification; and the quality of a firm's financial statement, *Certified*, that is equal to 1 if the firm's financial reports were certified by an external auditor.

Furthermore, because the firm growth rate might be lower after the GFC, our control variable set also includes a *Year2015* dummy that takes the value of 1 for the period after the GFC.<sup>8</sup> Finally, our regression models capture the geographic factor by including dummy variables representing six main regions in Vietnam, including Central North, Mekong River, N Central & Cent Coastal, Red River Delta, South East, Southern Central Coastal. The regression equation is written as follows:

$$Firm\_Growth_{it} = \alpha + \beta_1 FC_{it} + \beta_2 LC_{it} + X'_{it}\theta + \eta_t + \varepsilon_{it}, \quad (1)$$

where  $FC_{it}$  and  $LC_{it}$  are financing and legal obstacles measures of firm  $i$  in year  $t$ , respectively.  $X_{it}$  is a vector of the control variables described above.  $\eta_t$  is year dummy and  $\varepsilon_{it}$  denotes the error term.

We perform pooled ordinary least squares regressions to estimate Eq. (1), where sales growth is the dependent variable of interest. Logistic regression is utilized where employment growth is the dependent variable of interest. We report the marginal effect at the mean for interpretation purposes. As a robustness check, we also perform probit regressions to estimate Eq. (1), where employment growth is the dependent variable of interest, and the results are qualitatively identical.<sup>9</sup> Robust standard errors are reported in all regression results.

We then investigate whether these obstacles affect firms differently due to their size by including interaction terms between financing and legal obstacles and firm size in Eq. (2). Specifically, for either financing or legal obstacles, we regress the firm growth proxies on firm size, the obstacles, the interaction of the obstacles with the two firm-size dummy variables, and the set of control variables as in Eq. (1). To examine whether the effect of obstacles is dissimilar between firms with different sizes, we test whether the estimated interaction coefficients in the below equation are statistically significantly different from zero.

<sup>3</sup> For additional detailed information on sampling methodology and other aspects of the World Bank's Enterprise Survey, see [www.enterprisesurveys.org](http://www.enterprisesurveys.org).

<sup>4</sup> The strata for Enterprise Surveys are firm size, business sector, and geographic region.

<sup>5</sup> Other types of cross-country firm-level data, such as audited accounting data, are also subject to data bias since the quality of audit may vary systematically across countries (Beck, Demirgüç-Kunt and Maksimovic (2005)).

<sup>6</sup> We utilize sales growth rather than other productivity measures as the latter are noisier and only available for a much smaller number of firms (Ayyagari et al. (2008)).

<sup>7</sup> The detailed definitions of all variables are presented in Appendix Table A1.

<sup>8</sup> The surveys collect information on the firm performance in the most recent three years. Therefore, the sales and employment growth data in the 2009 survey measure the growth during 2006–2008 period, which was barely affected by the GFC.

<sup>9</sup> The results are not reported here for brevity and are available upon request.

Table 1. Descriptive statistics.

Variables	2009				2015				Difference
	Mean	Std. Dev	Min	Max	Mean	Std. Dev	Min	Max	
Sales growth	0.247	0.292	-0.236	1.302	0.082	0.237	-0.358	0.834	0.166***
Employment Growth	0.709	0.454	0	1	0.715	0.452	0	1	-0.006
Small	0.222	0.416	0	1	0.350	0.477	0	1	-0.127***
Medium	0.414	0.493	0	1	0.387	0.487	0	1	0.0280
Government	0.084	0.277	0	1	0.034	0.180	0	1	0.050***
Foreign	0.134	0.341	0	1	0.087	0.282	0	1	0.047***
Manufacturing	0.749	0.434	0	1	0.689	0.463	0	1	0.060***
Exporter	0.369	0.483	0	1	0.285	0.452	0	1	0.084***
Experience	16.082	7.388	5	32	16.840	7.499	5	35	-0.758**
International	0.229	0.420	0	1	0.169	0.375	0	1	0.060***
Certified	0.342	0.475	0	1	0.308	0.462	0	1	0.033
Central North	0.101	0.301	0	1	0	0	0	0	
Mekong River	0.112	0.315	0	1	0.144	0.351	0	1	
N Cent & Cent Coastal	0	0	0	0	0.242	0.429	0	1	
Red River Delta	0.313	0.464	0	1	0.294	0.456	0	1	
South East	0.369	0.483	0	1	0.320	0.467	0	1	
South Central Coastal	0.105	0.307	0	1	0	0	0	0	
Financing Obstacles	1.057	0.473	0	3.000	0.899	0.443	0	3.000	0.158***
Legal Obstacles	0.101	0.193	0	1.400	0.435	0.257	0	1.500	-0.334***

Notes: The value in the "Difference" column is calculated as the difference between the means of each variable in 2009 and 2015.

$$\begin{aligned}
 \text{Firm\_Growth}_{it} = & \alpha + \beta_1 FC_{it} + \beta_2 FC_{it} * \text{small} + \beta_3 FC_{it} * \text{medium} \\
 & + \beta_4 FC_{it} * \text{year2015} + \beta_5 LC_{it} + \beta_6 LC_{it} * \text{small} \\
 & + \beta_7 LC_{it} * \text{medium} + \beta_8 LC_{it} * \text{year2015} + X'_{it} \theta + \eta_t + \varepsilon_{it},
 \end{aligned} \quad (2)$$

Finally, we investigate how the impact of these obstacles on firm growth changes from before to after the financial crisis. We extend Eq. (2) by adding a three-way interaction of the obstacles with the two firm size dummies and a *Year2015* dummy. The *Year2015* dummy variable takes the value of 1 if the survey year is 2015 and 0 otherwise.

$$\begin{aligned}
 \text{Firm\_Growth}_{it} = & \alpha + \beta_1 FC + \beta_2 FC * \text{small} * \text{year\_2015} \\
 & + \beta_3 FC * \text{medium} * \text{year2015} + \beta_4 FC * \text{small} \\
 & + \beta_5 FC * \text{medium} + \beta_6 FC * \text{year2015} + \beta_7 LC \\
 & + \beta_8 FC * \text{small} * \text{year2015} + \beta_9 FC * \text{medium} * \text{year2015} \\
 & + \beta_{10} FC * \text{small} + \beta_{11} FC * \text{medium} \\
 & + \beta_{12} FC * \text{year2015} + X'_{it} \theta + \eta_t + \varepsilon_{it},
 \end{aligned} \quad (3)$$

### 3.3. Financing, legal obstacles and firm growth in Vietnam

Table 1 shows sales growth decrease significantly from 24.7 percent in 2009 to 8.2 percent in 2015 which is consistent with the literature (Claessens et al. (2000); Cowling et al. (2018)). The proportion of firms reporting an increase in the number of full-time permanent staff is the same in both pre-GFC and post-GFC periods. Financing situations improved in 2015 compared to 2009, but legal obstacles become more severe. Table A2 in the appendix shows the pairwise correlation matrix for all variables used in our analyses in 2015. As expected, financing and legal obstacles are negatively correlated with sales growth.

Figure 1 presents the percentage of firms in the manufacturing and service sectors by firm size in the two surveys. The figure shows that the proportions of small firms in the manufacturing and service sectors are more or less the same in both 2009 and 2015. The percentages of SMEs operating in the service sector are higher than that of large firms. However, nearly 90 percent of large firms operate in the manufacturing sector in both periods. Manufacturing companies tend to have a higher level of investment in fixed assets. In contrast, most service companies have human capital as the primary input and intangible output that is not

widely accepted as collateral with which to apply for loans from formal financing sources. Thus, it is likely that SMEs face higher financing obstacles than large firms, which is consistent with Silva and Carreira (2016), who indicate that firms operating in the service sectors are severely affected by financing obstacles compared to those in manufacturing.

Figure 2 presents the sources of financing for fixed assets by firm size. We observe that the proportion of small firms that borrow from banks to fund their investment in fixed assets is approximately eight percent, but this proportion is nearly 18 percent for large firms in 2009. In 2015, the portion of funding sourced from banks increased for all firm sizes. However, the difference in bank funding between large and small firms is greater in 2015. This pattern is consistent with Beck and Demirgüç-Kunt (2006), who find small firms have a lower proportion of their investment in fixed assets funded with formal sources of external finance.

Table 2 presents the changes in financing sources during the periods surrounding the GFC. Table 2 shows that firms use internal funds to finance a significant proportion of their new investment. Borrowing from commercial banks accounts for 9.67 percent and 22.69 percent of total funding for new investment for small and large firms in 2015, respectively. These proportions of bank and non-bank financial institution borrowings in Vietnam are much smaller than in other countries, suggesting that some firms in Vietnam may need to rely on informal sources of financing to ease the financing constraints.<sup>10</sup> In 2015, 0.59 percent of the total investment of small firms is funded by non-bank financial institutions, which is a remarkable improvement compared to the rate of zero percent in 2009. Financing from commercial banks and non-bank institutions increases after the GFC for both small and large firms, indicating an improvement in the financial institutions and legal system in Vietnam over the period (Fan et al. (2012);). We attribute these changes to the introduction of several policies by the Vietnamese Government

<sup>10</sup> Beck et al. (2008) investigate the financing pattern of firms in 48 countries and find, on average, borrowing from banks is 15 percent and 27 percent for small and large firms, respectively.

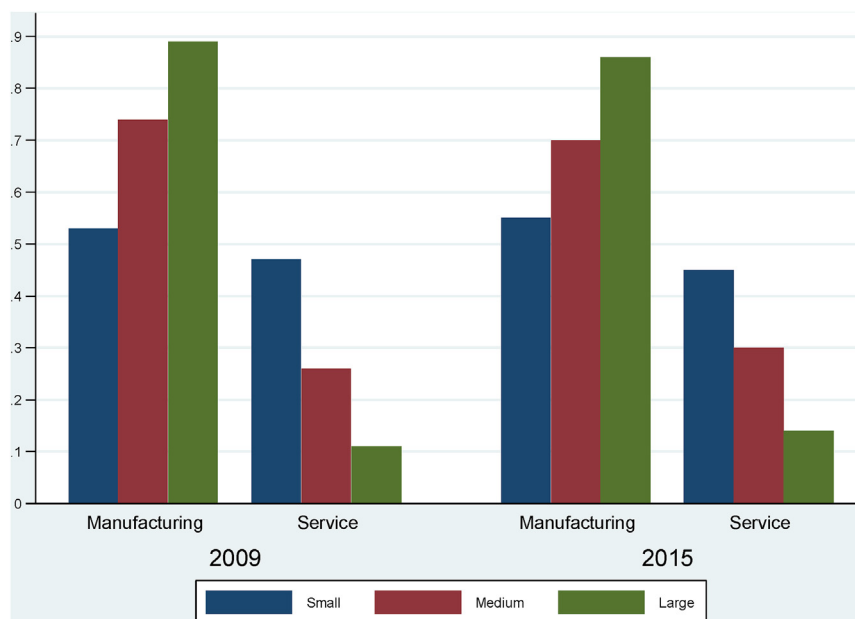


Figure 1. Firm size and sectors.

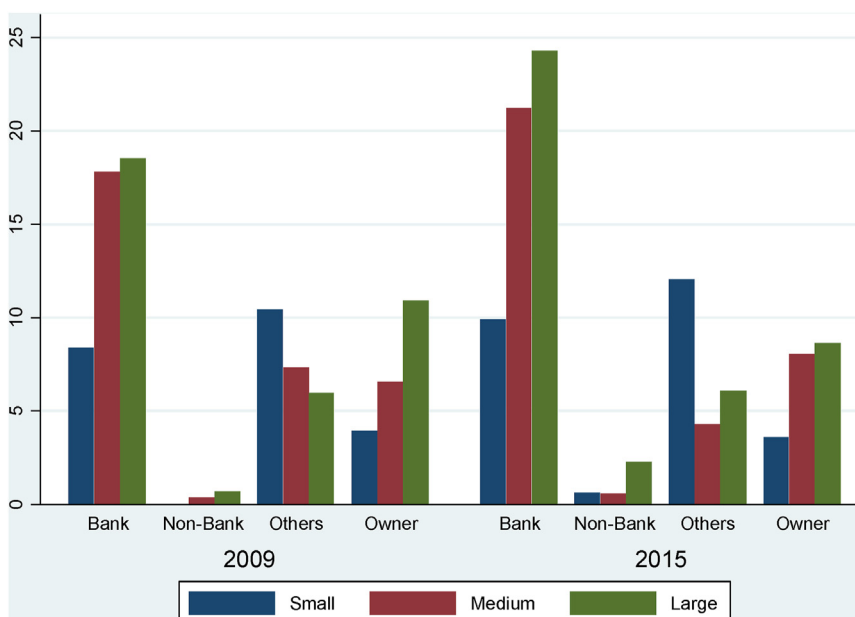


Figure 2. Sources of finance for investment in fixed assets.

Table 2. Changes in sources of funds before and after GFC.

Sources	Small			Medium			Large		
	2009	2015	Diff	2009	2015	Diff	2009	2015	Diff
Internal fund	78.17	75.08	-3.09	68.14	64.74	-3.40	63.93	60.18	-3.76
Bank Borrowing	8.62	9.67	1.05	17.76	20.26	2.50	19.41	22.69	3.28
Borrowing: Non-Bank FI	0.00	0.59	0.59	0.34	0.56	0.22	0.62	2.07	1.45
Owners' Contributions	3.62	3.82	0.21	6.55	7.98	1.43	10.62	7.82	-2.80
Others	9.60	12.25	2.65	7.22	5.74	-1.47	5.42	7.25	1.84

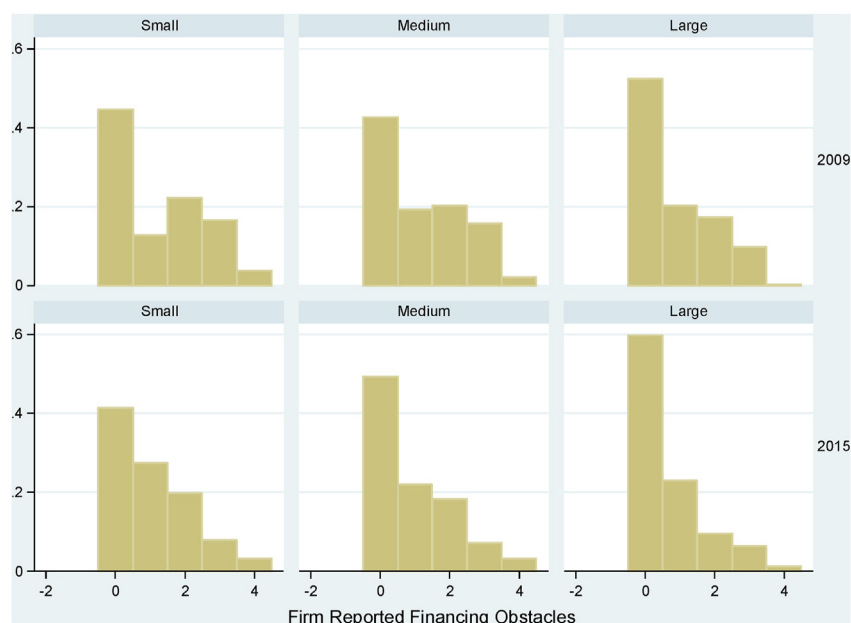


Figure 3. Financing obstacles by firm size.

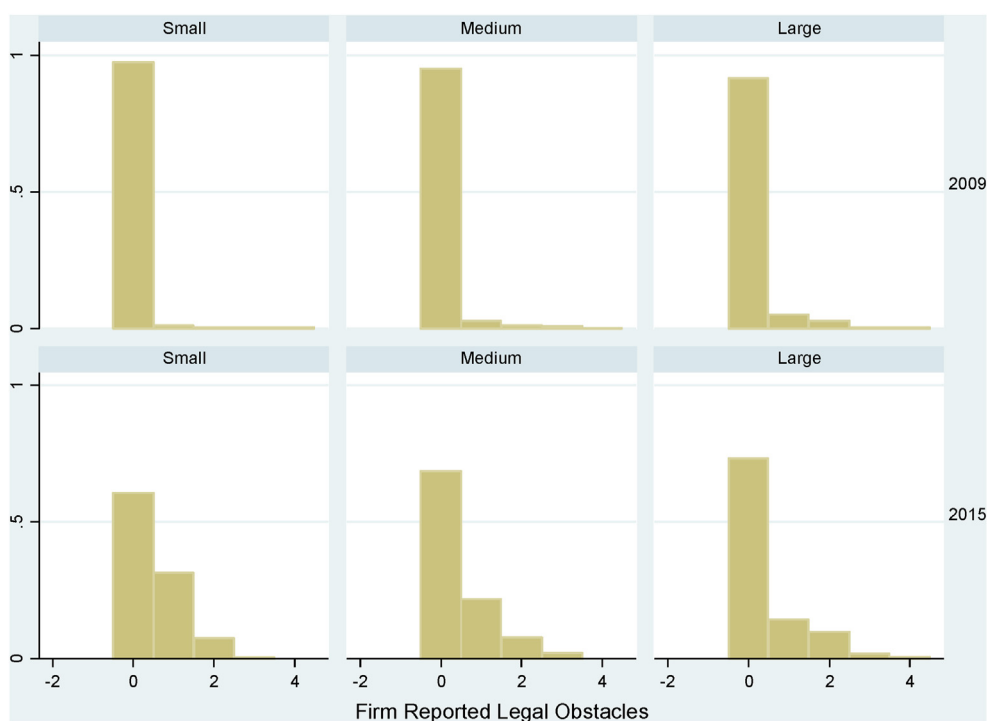


Figure 4. Legal obstacles by firm size.

during the 2010–2015 period, aimed at helping SMEs to access formal finance sources.<sup>11</sup>

Figure 3 presents financing obstacles faced by large, medium, and small firms in 2009 and 2015. Smaller firms perceive more severe

financing obstacles than larger firms. The differences in financing obstacles faced by large and small firms could be explained by small firms' demand for smaller loan sizes, hence suffering higher transaction costs ().

Figure 4 illustrates the legal obstacles for different firm sizes in 2009 and 2015. We observe that all firms reported higher degrees of legal obstacles in 2015. More than 90 percent of firms across all sizes selected 'no legal obstacles' in 2009, but this number decreased to approximately 60 percent in 2015. Small firms face higher legal obstacles than large firms, with 31.48 percent and 7.41 percent of small firms reporting minor and moderate legal obstacles in 2015, respectively.

<sup>11</sup> These include the Government's Decree No. 56/2009/ND-CP in 2009 on the assistance to the development of small and medium-sized businesses; the establishment of the (national) Small and Medium Enterprise Development Fund in 2013 to provide preferential loans to SME through commercial banks; Prime Minister's decision No 03/2011/QĐ-TTg on regulation on guarantee for enterprises' small and medium-sized loans at commercial banks.



**Table 3.** Impact of financing and legal obstacles on sales and employment growth.

	Sales growth			Employment growth		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Financing Obstacles	-0.033*	-0.035*		-0.409**	-0.407**	
	(-1.706)	(-1.814)		(-2.593)	(-2.595)	
Legal obstacles	-0.052		-0.055*	0.080		0.053
	(-1.607)		(-1.740)	(0.251)		(0.169)
Small	-0.046**	-0.044*	-0.055**	-0.724***	-0.727***	-0.853***
	(-2.048)	(-1.944)	(-2.605)	(-3.391)	(-3.426)	(-4.039)
Medium	-0.031	-0.029	-0.039**	-0.233	-0.235	-0.328*
	(-1.574)	(-1.461)	(-2.033)	(-1.304)	(-1.321)	(-1.859)
Government	-0.052*	-0.054*	-0.052*	-0.778**	-0.776**	-0.782**
	(-1.819)	(-1.892)	(-1.827)	(-2.894)	(-2.885)	(-2.915)
Foreign	-0.030	-0.030	-0.028	0.187	0.187	0.199
	(-1.186)	(-1.183)	(-1.135)	(0.790)	(0.790)	(0.853)
Exporter	0.009	0.009	0.009	-0.134	-0.134	-0.139
	(0.487)	(0.491)	(0.477)	(-0.822)	(-0.817)	(-0.850)
Experience	-0.001	-0.001	-0.001	-0.029**	-0.029**	-0.028**
	(-0.811)	(-0.803)	(-0.805)	(-3.212)	(-3.208)	(-3.195)
International	0.017	0.015	0.017	0.081	0.084	0.079
	(0.811)	(0.700)	(0.806)	(0.427)	(0.440)	(0.416)
Manufacturing	-0.015	-0.011	-0.015	-0.387**	-0.392**	-0.379**
	(-0.749)	(-0.576)	(-0.729)	(-2.188)	(-2.234)	(-2.134)
Certified	-0.034**	-0.033**	-0.033**	0.059	0.058	0.081
	(-2.034)	(-1.975)	(-1.985)	(0.371)	(0.366)	(0.511)
Competition	0.026	0.024	0.025	0.516**	0.519**	0.501**
	(1.453)	(1.349)	(1.408)	(3.202)	(3.220)	(3.129)
Year2015	-0.159***	-0.176***	-0.151***	-0.035	-0.010	0.046
	(-8.198)	(-10.653)	(-7.868)	(-0.192)	(-0.067)	(0.255)
Mekong River	0.005	0.005	0.009	0.422	0.419	0.486
	(0.130)	(0.126)	(0.216)	(1.293)	(1.284)	(1.494)
N Central & Cent Coastal	0.040	0.034	0.031	0.526	0.533	0.451
	(0.981)	(0.853)	(0.760)	(1.497)	(1.516)	(1.288)
Red River Delta	0.014	0.016	0.002	0.084	0.080	-0.043
	(0.396)	(0.445)	(0.054)	(0.287)	(0.274)	(-0.148)
South East	-0.026	-0.031	-0.024	0.278	0.284	0.310
	(-0.720)	(-0.861)	(-0.663)	(0.944)	(0.966)	(1.060)
Southern Central Coastal	0.028	0.024	0.016	0.335	0.338	0.198
	(0.553)	(0.491)	(0.324)	(0.844)	(0.851)	(0.502)
cons	0.337***	0.332***	0.312***	1.984***	1.992***	1.640***
	(7.815)	(7.713)	(7.844)	(5.516)	(5.534)	(4.950)
N	1439	1439	1439	1264	1264	1264
F	9.853	10.182	10.122			
r2	0.108	0.107	0.106			

t statistics in parentheses.

\*\*\*p &lt; 0.01, \*\*p &lt; 0.05, \*p &lt; 0.1.

## 4. Results

### 4.1. The impact of financing and legal obstacles on firm growth – full sample

In Table 3, we report how financing and legal obstacles affect sales and employment growth. We find a significant and negative relation between financing obstacles and sales growth across Models 1 and 2<sup>12</sup>. A one-point increase in financing obstacles lowers the sales growth by 3.3 percent when legal obstacles are taken into account (Model 1) and by 3.5

percent when we do not include legal obstacles in the regression (Model 2). Legal obstacles negatively impact sales growth when financing obstacles are not included in Model 3. However, the estimated coefficient of legal obstacles becomes statistically insignificant once we include both financing and legal obstacles (Model 1). This finding suggests that legal obstacles faced by firms mainly arise when firms need funding, which is captured by the financial obstacle variable in Model 1.

We document a similar effect of financing obstacles on employment growth. We find that a one-point increase in financing obstacles lowers the probability of increasing employment by 40.9 percent and 40.7 percent depending on whether legal obstacles are included in our regressions (see Models 4 and 5). Our findings suggest that financing obstacles lead to firms being more vulnerable to liquidity risks and thus increase the demand for more flexible workers. There is no empirical

<sup>12</sup> Results of regressions including both financial and legal obstacles (Models 1 and 4), financial obstacles only (Models 2 and 5) and legal obstacles only (Models 3 and 6)".

**Table 4.** Financing and legal obstacles on sales and employment growth–firm size differences.

	Sales growth			Employment growth		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Financing Obstacles *Small	-0.107** (-2.470)	-0.089** (-2.097)		-0.470 (-1.202)	-0.324 (-0.862)	
Financing Obstacles*Medium	-0.070 (-1.513)	-0.064 (-1.398)		-0.101 (-0.266)	-0.056 (-0.150)	
Legal Obstacles*Small	-0.124** (-2.055)		-0.089 (-1.488)	-1.987** (-2.937)		-1.640** (-2.552)
Legal Obstacles *Medium	-0.096 (-1.544)		-0.076 (-1.259)	-1.159* (-1.751)		-0.977 (-1.496)
Financing Obstacles	0.024 (0.681)	0.019 (0.526)		-0.274 (-0.983)	-0.270 (-1.005)	
Legal Obstacles	0.011 (0.234)		-0.002 (-0.047)	1.121** (2.086)		0.991* (1.881)
Small	0.091* (1.785)	0.039 (0.893)	-0.030 (-1.032)	0.289 (0.572)	-0.389 (-0.891)	-0.443* (-1.685)
Medium	0.054 (1.053)	0.026 (0.564)	-0.019 (-0.736)	0.108 (0.244)	-0.206 (-0.516)	-0.110 (-0.497)
Year2015	-0.152*** (-7.811)	-0.173*** (-10.420)	-0.150*** (-7.854)	-0.018 (-0.096)	0.006 (0.040)	0.030 (0.167)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
_cons	0.262*** (5.058)	0.281*** (5.502)	0.296*** (7.225)	1.606*** (3.630)	1.861*** (4.324)	1.433*** (4.241)
N	1439	1439	1439	1264	1264	1264
F	8.584	9.230	9.315			
r2	0.115	0.110	0.108			

t statistics in parentheses.

\*\*\*p &lt; 0.01, \*\*p &lt; 0.05, \*p &lt; 0.1.

evidence of a significant effect of legal obstacles on firm employment growth (see Table 3, Models 4 and 6).

The growth rates of government-owned firms are slower in both sales and employment compared to firms with non-government ownership. We do not observe any statistically significant differences in the growth of foreign firms compared to domestic-only firms. Manufacturing firms also appear to have higher employment growth but no significant difference in sales growth compared to service firms. The coefficient estimates of the year dummy variable are negative and statistically significant in Models 1–3, indicating that sales growth in the period after the GFC is lower than in the years preceding the GFC which is reasonable since the GFC had a significantly negative impact on the worldwide economy.

#### 4.2. The impact of financing and legal obstacles on firm growth – firm sizes

In Table 4, we present how financing and legal obstacles affect employment and sales growth differently across different firm sizes by including the interaction term between firm size dummies and individual obstacles. Although our regressions include the control variables that may affect firm growth, we do not report these coefficients for reasons of brevity.<sup>13</sup> We find sales growth of the smallest firms is negatively affected most by financing and legal obstacles, while the large firms are affected least by these constraints. Specifically, when both obstacles are included (Model 1), a one-point increase in financing obstacles lowers sales growth for small companies by 8.9 percentage points more than for large companies. We also document the adverse impacts of legal obstacles on the sales growth of small firms. Specifically, a one-point increase in legal

obstacles lowers sales growth for small firms by 12.4 percentage points more than for large firms (see Model 1).

We find no empirical evidence of the different impacts of financing obstacles on the employment growth of small and medium firms compared to large firms. However, the estimated coefficients of the interaction variables between legal obstacles and small and medium firms are negative and statistically significant (Models 4 and 6). A one-point increase in legal obstacles reduces the employment growth of small and medium firms by 1.987 percent and 1.159 percent more than for large firms, respectively (Model 4).

#### 4.3. The dynamic impact of financing and legal obstacles on firm growth across firm sizes

In Table 5, we present an analysis of whether the effects of financial and legal obstacles on firm growth across different firm sizes change over the period. The estimated coefficients of three-way interaction variables between financing obstacles, firm size (*Small*), and the year dummies are positive and statistically significant in all Models 1 and 2. These suggest that financing obstacles have a lesser effect on sales growth for small firms in 2015 compared to 2009. Specifically, with the same level of financing obstacles, the sales growth of small firms in 2015 is 17.7 percent and 21.3 percent higher compared to those of 2009 with legal obstacles variables included and excluded in the regression models, respectively. Our findings suggest that the higher the percentage of borrowing from the formal financing sector, the lower the negative impact of financing obstacles on firm growth. The impact of financing obstacles on the employment growth of small firms is less severe in 2015 than in 2009 (see Models 4 and 5).

We do not find empirical evidence that the effects of legal obstacles on firm growth across firm sizes are different after the GFC. The coefficient estimates of the three-way interaction of legal obstacles with the firm size

<sup>13</sup> The full regression results are available upon request.



**Table 5.** Financing and legal obstacles on sales and employment growth: firm size and GFC differences.

	Sales growth			Employment growth		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Financing Obstacles *Small*year2015	0.177* (1.799)	0.213** (2.249)		1.614** (2.127)	1.553** (2.121)	
Financing Obstacles*Medium*year2015	0.125 (1.195)	0.151 (1.484)		1.033 (1.370)	1.040 (1.400)	
Financing Obstacles*Small	-0.147* (-1.947)	-0.156** (-2.189)		-1.153** (-2.411)	-1.072** (-2.271)	
Financing Obstacles*Medium	-0.091 (-1.162)	-0.108 (-1.421)		-0.536 (-1.172)	-0.571 (-1.280)	
Financing Obstacles*year2015	-0.075 (-0.974)	-0.093 (-1.287)		-1.381** (-2.566)	-1.379** (-2.668)	
Legal Obstacles*Small*year2015	0.216 (0.903)		0.223 (0.975)	1.523 (1.013)		1.316 (0.912)
Legal Obstacles*Medium*year2015	0.044 (0.241)		0.075 (0.432)	0.952 (0.635)		0.978 (0.657)
Legal Obstacles * Small	-0.346 (-1.572)		-0.356* (-1.730)	-2.546** (-2.133)		-2.030* (-1.817)
Legal Obstacles *Medium	-0.175 (-1.142)		-0.203 (-1.404)	-1.329 (-1.166)		-1.204 (-1.101)
Legal Obstacles*year2015	-0.174 (-1.347)		-0.200* (-1.679)	-0.549 (-0.539)		-0.558 (-0.567)
Small*year2015	-0.134 (-1.268)	-0.199** (-2.035)	0.043 (0.644)	-2.018** (-2.108)	-2.107** (-2.600)	-0.680 (-1.321)
Medium*year2015	-0.103 (-0.942)	-0.156 (-1.519)	0.008 (0.129)	-1.216 (-1.393)	-1.228 (-1.604)	-0.518 (-0.989)
Financing Obstacles	0.054 (0.797)	0.069 (1.125)		0.349 (1.031)	0.402 (1.274)	
Legal Obstacles	0.128 (1.092)		0.152 (1.447)	1.174 (1.430)		1.055 (1.412)
Small	0.110 (1.311)	0.087 (1.054)	-0.042 (-0.994)	1.092* (1.840)	0.720 (1.221)	-0.231 (-0.785)
Medium	0.086 (1.048)	0.077 (0.943)	0.000 (0.006)	0.563 (1.112)	0.435 (0.860)	0.049 (0.202)
Year2015	-0.060 (-0.866)	-0.082 (-1.274)	-0.117** (-2.860)	1.356** (2.475)	1.474** (3.125)	0.365 (0.981)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
_cons	0.324*** (4.122)	0.322*** (4.056)	0.373*** (6.710)	1.087** (2.306)	1.159** (2.488)	1.406*** (4.152)
N	1439	1439	1439	1264	1264	1264
F	5.230	5.593	6.390			
r2	0.087	0.081	0.084			

t statistics in parentheses.

\*\*\*p &lt; 0.01, \*\*p &lt; 0.05, \*p &lt; 0.1.

dummy (*Small*) and the year dummies are positive yet statistically insignificant across all Models 1, 3, 4, and 6. These indicate that the legal obstacles negatively affect small and medium firms in 2015 by a similar magnitude as in 2009.

## 5. Discussion

Our estimates of financing obstacles on employment and sales growth are consistent with the current literature that firms with a higher level of financing obstacles tend to have lower growth (Moscalu et al. (2020); Fowowe (2017)). Financing constraints affect the structure of employment in two opposite ways. Financing obstacles create higher demand for more productive permanent workers to increase productivity. However, the obstacles also generate demand for more flexible fixed-term employment to meet the demand for

flexibility. The first effect is stronger for firms with short-term financing constraints, while the second effect is more substantial when firms expect long-term financing constraints (Caggese and Cuñat (2008)). In our study, we measure the employment growth using the change in the number of permanent full-time employees. Our findings suggest that financing obstacles lead to firms being more vulnerable to liquidity risks and thus decrease the demand for permanent workers (Musso and Schiavo ((2008)); Benito and Hernando ((2008)); Fernandes et al. (2019))).

The estimated coefficient of legal obstacles becomes statistically insignificant once we include both financing and legal obstacles which is different from current literature (see, for example, Nizaeva and Coşkun (2018); Beck et al. (2005)). The availability of informal financial markets with minimal regulation in Vietnam helps to reduce the impact of legal obstacles on the firm growth.

We find sales growth of the smallest firms is negatively affected most by financing and legal obstacles which are consistent with current literature (see, for example Beck, Demircuc-Kunt and Maksimovic (2005); Czarnitzki and Hottenrott (2011)). Small firms have less access to formal finance and face higher legal obstacles than do larger firms. In addition, financing and legal obstacles create fixed costs in business operation that disadvantage smaller firms.

The estimated coefficients of the interaction variables between legal obstacles and small and medium firms are negative and statistically significant in the employment growth model. Two reasons could explain the negative impact of legal obstacles on employment growth. First, firms in Vietnam are reluctant to employ more permanent staff because they prefer to maintain their companies as small or medium firms rather than develop them into a single large company (Taussig (2005)). The largest and most successful firms normally attract harmful attention from local authorities and corrupt officials, which subsequently increases enterprise costs (Webster and Taussig (1999); Taussig (2005)). Second, keeping the firms small and medium-sized helps gain tax incentives and avoid scrutiny from tax and licensing officials (see Cuong et al. (2008)).

There are several policy implications in our results. This paper shows that small and medium firms face greater financial and legal obstacles compared to large firms. An important policy implication can draw from our study is the need to enhance financial and legal development such as access to finance, stability and effectiveness of financial sector, as it is also an effective way to mitigating the effect of negative shocks.

## 6. Conclusion

This paper sheds light on the role of financing and labour regulations obstacles that firms report on their employment and sales growth rates. Using two enterprise surveys in 2009 and 2015 of over 1500 firms in Vietnam, we test whether financing and legal obstacles significantly correlate with the firm sales and employment growth rates and how these relationships change after the GFC. We also investigate if the extent to which different obstacles constrain the firm depends on firm sizes.

We find the impacts of financing and legal obstacles on firm growth in Vietnam vary across firm sizes and between pre- and post-GFC periods. We find that financing obstacles significantly lower the sales growth rate and employment growth of firms in Vietnam, which is in line with the literature. Furthermore, we find that legal obstacles mainly relate to the fundraising activities of firms in Vietnam, where informal sources of financing play an essential role in meeting the funding needs of firms.

We also document that the financing and legal obstacles impede the sales growth rate of small firms more than large firms that are consistent with the existing literature. As a new finding, we document that legal obstacles more negatively affect the employment growth of small and medium firms than large firms in Vietnam. This is attributable to the tendency of firms to avoid "the tall poppy syndrome" and scrutiny from tax and licensing officials in the country.

Finally, our study examines the impact of the obstacles on firm growth across firm sizes before and after the GFC. We find that the negative effects of financing constraints on the sales and employment growth of small firms are less in the post-GFC period. We postulate that this is because a higher proportion of small firms could borrow from commercial banks after the financial crisis period, partly due to the

introduction of new policies supporting SMEs from the Vietnamese Government. While legal obstacles have a more negative impact on small firms than large firms, we do not document any empirical evidence of differences in the effects of legal obstacles on small and medium firms between the pre- and post-GFC periods. Overall, our findings recommend to policymakers that improvement in access to finance is imperative for productivity increases as well as job creation for small and medium firms.

One limitation of this study is associated with the potential self-reporting bias. The presence of self-reporting bias cannot be eliminated however, reporting bias in the World Bank ES is considered to be insignificant to this study since the main purpose of the survey is to collect data about the business environment, not the individual firm, and the survey is designed to minimise any such bias. One possible expansion of this work is to include objective measures of the business environment. For example, instead of relying only on the extent to which firms complain about financial constraints, other information on the actual access to bank loans or trade credit can be included in the regression models. Another limitation is the availability of firm-level data. Employment and sales growths are correlated with other firm-level variables such as board diversity, nationality and gender of board members, ownership structure, and voluntary reporting disclosure (Zamil et al. (2021); Khatib et al. (2021)). The inclusion of these variables may improve the accuracy of the estimation.

## Declarations

### Author contribution statement

Anh Tuan Bui: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Thu Phuong Pham: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Linh Chi Pham and Khanh Van Ta: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data.

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### Data availability statement

Data associated with this study is online at World Bank Enterprise Survey [www.enterprisesurveys.org](http://www.enterprisesurveys.org).

### Declaration of interests statement

The authors declare no conflict of interest.

### Additional information

No additional information is available for this paper.

## Appendix

Table A1: Variable Definitions

Variables	Description
Sale growth	Average sales growth over the past three years.
Employment growth	Dummy variable that takes the value of 1 if the number of full-time permanent staff increase compared to the past three years.
Small	Dummy variable that equals one if the firm is small (employs 5–50 employees) and equals 0 otherwise.
Medium	Dummy variable that equals one if the firm is medium (employs 51–500 employees) and equals 0 otherwise.
Government	Dummy variable that takes the value of 1 if the firm has government ownership.
Foreign	Dummy variable that takes the value of 1 if the firm has foreign ownership.
Manufacturing	Dummy variable that takes on the value one if a firm is in the manufacturing industry.
Exporter	Dummy variable that takes on the value one if firm exports and take the value of 0 otherwise.
Experience	Number of years the firm's top managers worked in the sector.
International	Dummy variable that takes the value of one if a firm has at least one internationally recognized quality certification.
Certified	Dummy that indicates if the firm's financial statement was checked and certified by an external auditor.
Year2015 (GFC)	Dummy variable that takes on the value one if the year of the survey is 2015.
Central North	Dummy variable that takes on the value one if a firm locates in Central North.
Mekong River	Dummy variable that takes on the value one if a firm locates in Mekong River.
N Central & Cent Coastal	Dummy variable that takes on the value one if a firm locates in North Central and Central Coastal.
Red River Delta	Dummy variable that takes on the value one if a firm locates in Red River Delta.
South East	Dummy variable that takes on the value one if a firm locates in South East.
Southern Central Coastal	Dummy variable that takes on the value one if a firm locates in Southern Central Coastal.
Financing Obstacles	A measure of the level of financing obstacles to the operation and growth of their business, which is estimated by taking the average of self-reported financing obstacles across all firms in the same firm size category (small, medium, or large), in the same industry, and located in the same region.
Legal Obstacles	A measure of the level of legal obstacles to the operation and growth of their business, which is estimated by taking the average of self-reported legal obstacles across all firms in the same firm size category (small, medium, or large), in the same industry, and located in the same region.

Table A2: Correlation of variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
Sales growth	(1)	1													
Employment growth	(2)	0.340	1												
Small	(3)	-0.053	-0.148	1											
Medium	(4)	-0.002	0.004	-0.582	1										
Government	(5)	-0.012	-0.035	-0.137	-0.084	1									
Foreign	(6)	0.011	0.064	-0.177	-0.131	0.075	1								
Exporter	(7)	0.010	0.062	-0.286	-0.044	0.103	0.279	1							
Experience	(8)	0.029	-0.036	-0.199	0.076	0.117	0.058	0.152	1						
International	(9)	-0.039	0.068	-0.274	-0.119	0.248	0.326	0.284	0.1242	1					
Manufacturing	(10)	0.053	0.035	-0.217	0.012	0.071	0.190	0.263	0.0914	0.186	1				
Certified	(11)	-0.024	0.027	-0.195	-0.078	0.239	0.197	0.098	0.0898	0.255	0.072	1			
Competition	(12)	0.016	0.065	0.021	0.025	0.038	-0.025	-0.151	0.016	0.044	0.435	0.024	1		
Financing Obstacles	(13)	-0.064	-0.169	0.202	0.066	-0.126	-0.155	-0.171	-0.035	-0.138	-0.021	-0.132	0.050	1	
Legal obstacles	(14)	-0.103	0.042	0.083	-0.076	0.072	0.018	0.020	-0.043	0.068	-0.089	-0.027	0.008	-0.073	1

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