CORRUPTION, PROVINCIAL INSTITUTIONS AND CAPITAL STRUCTURE: NEW EVIDENCE FROM A TRANSITIONAL ECONOMY

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Abstract. *Using a unique firm-provincial level panel dataset from 2005 to 2011, this study for the first time investigates the role played by corruption and provincial institutions in determining a company's capital structure in Vietnam's legal environment. Contrasting to the majority of previous studies, the results show that corruption has an insignificant influence on a company's bank loans, consistent with institutional theory. However, the role of corruption is different for types of various capital structures after controlling for both unobservable characteristics and endogeneity problems. More specifically, corruption has significantly positive influence on short-term capital structure, but a negative impact on long-term loans. All of these results hold after a series of robust tests.*

Key words: *corruption, financial transparency, capital structure and SMEs*

1. Introduction

Theoretically, corruption has been considered as a crucial factor in constructing a state's legal system, resource distribution and firms' behavior (Fan, Titman, & Twite, 2012). Corruption affects a company's capital structure decision in different ways. On the one hand, corruption can lead to a decrease in bank credit. When investors intend to invest in a company, they expect to regain their capital based on criteria specified in the contract (Bolton & Dewatripont, 2005; Leland & Pyle, 1977). However, investors suffer a higher risk in seriously corrupt countries and in the condition of the loose legal environment. These higher risks and potential implementation costs make banks reluctant to offer credits or increase the credit standard in a manner that will increase the cost of securing external funding banks (La Porta, Lopez-de-Silanes, Shleifer & Vishny, 1997; Porta, Lopez-de-Silanes, Shleifer & Vishny, 1998; Shleifer & Vishny, 1993). In other

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words, banks are not motived to grant more loans or offer more credits to firms, or even upgrade the credit standards in the context of higher corruption.

By way of contrast, other perspectives (e.g., Stiglitz & Weiss, 1981) show that there is a positive linkage between corruption and capital structure. Adverse selection caused by asymmetric prior information between bank and debtors can lead to credit rationing. The existence of credit rationing suggests that some debtors choose to pay an interest rate far in excess of the official rate. Consequently, they are motivated to bribe bank officers to obtain credit. When debtors actively bribe bank officers to increase their chances of receiving credit, the corruption increases the company's bank credit.

In another approach, the role of firms' corruption behavior on the performance and capital structure is explained by institutional theory. This is considered as one of the most popular perspectives in transitional economies (e.g., Hoskisson, Eden, Lau & Wright, 2000; Wright, Filatotchev, Hoskisson & Peng, 2005). This approach shows that paying bribe is simply an entry cost of firms to join an established game and hence it may not affect the efficiency and firm capital structure (North, 1990). The story can go as follows: When firms pay informal costs, this puts the pressure on neighbouring firms to follow their behaviours. As a result, corruption may have little impact on their performance.

In the light of above theoretical perspectives, many empirical studies have been conducted from various countries, but the findings are inconclusive, making it hard to make generalized inferences. For example, Welch (2011) takes advantage of the data from banks and regional corruption indexes, finding that Russia's corruption resulted in blocked bank credit. Similarly, De Carvalho (2008) used corporate data on Brazil and found that corruption prevents corporations from obtaining bank credit. On the other hand, Chen, Liu, and Su (2013) indicate that corruption contributes to companies' receipt of bank credit. Similarly, Fungáčová, Kochanova and Weill (2015) analysed data from 14 transition countries. Their common finding is that there is a positive correlation between corruption level and a company's receipt of bank credit.

Compared with previous studies on capital structure, this study has several differences. Firstly, this study examines not only firm-level corruption but also the effects of quality of provincial institution on capital structure. Secondly, most studies focus on the analysis in the US and other developed countries. There is less empirical evidence on capital structure in developing countries, especially for transitional nations. This question is conducted by studying the context of Vietnam because there is no empirical evidence of the impact of bribe on firm capital structure in Vietnam. Also, despite implementation of the anti-corruption and anti-waste laws and various anti-corruption campaigns, bribes to public officials remain a major challenge for business environment in Vietnam. Furthermore, this study considers not only the effects of corruption on capital structure but also on types of capital structure. Finally, in terms of methodology, several empirical challenges arise when considering the linkage between corruption and firm capital structure. Unobservable characteristics and the endogeneity of ex-

planatory variables are the main concerns; more importantly, the presence of potential dynamic endogeneity that can be understood as the past firms' leverage affecting the current firms' leverage. Following Wintoki et al. (2012), I overcome these problems by using the two-step system dynamic panel GMM models.

Interestingly, contrary to the many findings of previous studies, I find that corruption does not affect firms' capital structure after controlling for heterogeneity, simultaneity and dynamic endogeneity. This finding supports the viewpoints of institutional theory and reflects the fact that corruption is widespread in Vietnam. Accordingly, engagement in corruption is considered as an entry fee and not related with firms' capital structure. However, paying bribe has negative impacts on firms' short-term capital structure and positive linkages with long-term firms' capital structure.

The rest of this paper is structured as follows. The next section presents the background of the study. Data and methodology are presented in Section 3, and Section 4 displays empirical results. The last section contains conclusion and the summary of findings.

2. The background of the study

Table 1 provides the overall situation of capital supply in Vietnam. Despite the fast development of Vietnam's capital market, banks remain the major capital provider for enterprises and private sectors, with over 75 percent in Vietnam. Other channels play a modest role in supplying capital. For example, while market capitalization of listed

TABLE 1. **Capital supply situation in Vietnam**

Financial institutions	The share of total financial assets	The management agency
Banks and non-banks (total assets) • 7 state commercial banks • 2 Vietnam banks for policies • 28 joint-stock commercial banks • 7 banks with 100% foreign capital and 2 joint-venture banks • 50 foreign bank branches and 50 representative offices • 1100 credit funds • 16 financial companies and 11 financial leasing companies	75.2%	The state bank of Vietnam
Bonds (Government, company and bank)	9.3%	The state bank of Vietnam
Insurance and reinsurance company	1.8%	Ministry of Finance
Stock (the market capitalization of listed stocks) • 88 stock companies, 46 fund management companies and 25 investment funds • 8 custody banks • 686 companies listed on the stock market	13.7%	State security commission of Vietnam and Ministry of Finance

Source: State bank, State security commission, Ministry of Finance and ADB

stocks provides 13.7 percent of total financial market, bonds and insurance companies only account for 1.8 percent and 9.3 percent, respectively.

Also, after nearly 30 years of renovation (Doi Moi), the Vietnamese economy has gained many achievements, transforming into one of the most dynamic markets in South East Asia. Besides the rapid growth and development, according to Nguyen and Van Dijk (2012), corruption in Viet Nam is more widespread than before. In spite of the anti-corruption activities implemented by the local government, the Vietnamese ranking was very low at 112 out of 168 countries in terms of corruption level in 2015 according to Transparency International (TI).

In addition, for Vietnam, big gaps between formal institutions laws and the enforcement capacity of the local authorities have been documented. Furthermore, the institutional quality across provinces developed unevenly – several provinces lag behind, others witness a significant improvement in economic governance and business investment (Malesky, 2007). This situation motivates us to consider whether corruption has an effect on the capital structure of firms, and if so, how.

3. Data Sources and methodology

3.1 Data source

This study uses two data sources. First, data are extracted from the surveys by the Danish International Development Agency with the assistance of the Institute of Labour Science and Social Affairs, the Central Institute for Economic Management and the University of Copenhagen. The results of these surveys are based on questionnaires every two years from 2005 to 2011, and this study employs the data in years 2005, 2007, 2009 and 2011. These sources provide the information about over ten thousand private manufacturing enterprises in ten provinces in the Southern, Central and Northern regions of Vietnam. Through the surveys, many useful indicators such as the firm size, age and export, the figures about capital structure, i.e. the proportion of total debt to total asset, the short-term capital structure, the long- term capital structure and, especially, forms of bribery are recorded. As a result, the availability of data allows this study to consider the impact of corruption on firm capital structure.

Another data set is taken from the surveys of the Vietnam aggregated Provincial Competitiveness Index (PCI), which were implemented by the Vietnam Competitiveness Initiative in collaboration with the Vietnam Chamber of Commerce and Industry in the period 2005-2011 to assess the institutional quality of provinces or local governments. The survey offers nine institutional sub-indices across the years of the period. These indices include: *First*, entry costs including (i) time for a firm registration and land acquisition, (ii) time required for firms to complete all the necessary licenses needed to begin a business as well as the level of difficulty to have such licenses/permits. *Second*, access to the acquired land and the security of business premises after land acquisition.

Third, transparency and access to information, that is whether enterprises have access to appropriate planning and legal documents for doing their business, training and labour, as well as whether new laws are provided to enterprises sufficiently and predictably implemented. *Fourth*, cost of time to handle regulatory compliance measure, e.g. bureaucratic compliance or decisions to implement local regulations. *Fifth*, informal payments measuring an enterprise's perception about the corruption from local officials. *Sixth*, distortion offering privileges to state owned enterprises, e.g. incentives, policy, and allocation of capital and credit sources toward state-owned enterprises. *Seventh*, services for private sector development, provinces private sector business growth promotion programs and the development of industrial zones and parks. *Eighth*, employment and worker training - whether/how provincial authorities promote vocational training and skills development for local firms. *Ninth*, legal institutions measuring the trust from firms on provincial courts and contract enforcement.

Combining two data sets together, I created a unique province - firm level panel dataset with 2684, 2483, 2515, 2449 observations in 2005, 2007, 2009 and 2011, respectively. More specifically for the dataset, Table 2 provides the definitions and statistical description of main variables in the model.

TABLE 2. **Summary Statistics for the main variables**

Variables[1]	2005[2]		2007		2009		2011	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Capital structure (total debt/total asset)	0.12	0.39	0.11	0.23	0.10	0.23	0.07	0.19
Short-term capital structure (short-term debt/ total debt)	0.38	0.47	0.357	0.465	0.438	0.479	0.392	0.478
Long-term capital structure (long-term debt/ total debt)	0.20	0.38	0.187	0.373	0.1509	0.334	0.111	0.298
Firm-level variable								
Bribe (Dummy) (Whether or not firms pay informal costs)	0.405	0.49	0.26	0.44	0.34	0.47	0.38	0.48
Firm size(log) (Total number of labourers of firms)	2.04	1.12	2.05	1.12	2.05	1.14	1.93	1.13
Firm age (The number of years since the firm's establishment)	5.13	1.82	5.40	1.85	5.45	1.86	5.81	1.79
Export (Whether or not firms have exporting activities)	0.058	0.23	0.052	0.22	0.057	0.23	0.059	0.23
Institutional quality at province level								
Entry cost	*7.19*	*1.13*	*7.62*	*0.71*	*8.22*	*0.35*	*8.62*	0.29
Land access	5.33	1.13	5.75	0.80	5.55	0.68	5.7	0.87

Variables	2005		2007		2009		2011	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Transparency	5.83	1.17	6.07	0.79	5.9	0.33	5.96	0.43
Time cost	4.81	0.93	6.57	0.83	6.11	0.52	6.11	0.68
Informal charge	5.84	0.97	6.15	0.60	5.33	0.54	6.31	0.90
Proactive	4.79	1.51	4.96	1.24	3.76	0.83	4.19	0.98
Private act	5.69	1.62	5.87	1.93	6.29	1.21	5.68	1.37
Worker training	5.68	1.65	5.27	1.01	4.87	0.84	5.20	0.47
Legal framework	3.82	1.16	3.99	0.71	5.21	0.53	5.78	0.34
PCI	53.84	7.18	56.76	5.61	56.59	3.66	59.45	3.24
Observations	2684		2483		2515		2449	

3.2 Methodology

Using a dynamic panel modelling approach to solve the dynamic nature of economic processes is becoming increasingly important in recent years (Flannery & Hankins, 2013). This dynamic process means that the current firm performance and other firm-specific characteristics are driven by past performance. To address the "dynamic endogeneity", empirical analyses using firm performance as a dependent variable must be investigated in a dynamic framework in which lagged dependent variable(s) are used as explanatory variable(s) (Wintoki et al., 2012).

Wooldridge (2009) noted that including lagged dependent variable(s) as explanatory variables in empirical models allows empiricists to account for unobserved historical factors which have potential impacts on current firm performance, thus mitigating omitted variable bias. In addition, corruption is also a dynamic process, and hence the lag of corruption is also entered as an independent variable in the model. Furthermore, corruption can be different at sizes, age and industries. Consequently, a series of interactions between corruption with size, age and industries are controlled for and the model is specified as below:

$$Y_{it} = \alpha_0 + \sum_{s=1}^{k} a_s Y_{it-s} + \delta_m Corruption_{,it} + \delta_t Corruption_{,it-s} + \delta_x Corruption_{,it} * \text{firm size} +$$

$$+\delta_x Corruption_{,it} * \text{firm age} + +\delta_x Corruption_{,it} * \text{industries} + \beta_k Z_{k,it} + year\ dummies +$$

$$industry\ dummies + \vartheta_{it} \tag{1}$$

Where $\vartheta_{it} = \mu_i + \omega_t + \varepsilon_{it}$

Where: Y_{it} is the outcome variable (as measured by a firm's capital structure) of firm i in year t; a_s is the estimated coefficient on lagged dependent variables; Corruption is commonly understood as the abuse of power by public officials for private gains (Svensson, 2005). According to Rand and Tarp (2012), bribe is measured as a dummy variable based on the question whether firms paid informal or communication fees in this study. The bribe payment or communications fees are mainly used for several purposes. For example, they are used to get connected with public services, to get licenses and permits, to gain government contract, to deal with procedures with banks.

Z is a set of firm-related explanatory variables (firm size, firm age, and export) included in the model as guided by previous studies (e.g., Alves & Ferreira, 2011; Fungáčová et al., 2015). I also account for potential effects arising from differences across industries by including dummy variables for industry classification in the models. μ_i represents time-invariant unobserved firm characteristics; time-specific effects are denoted by ω_t, and ε_{it} represents the classical error term.

Previous studies on firm performance (Vu, Tran, Nguyen, & Lim, 2016; Wintoki et al. (2012) suggest that the past information be captured adequately by two lags of the dependent variable. To examine this issue, I used a model specification in which the current capital structure is a dependent variable being regressed on two lags of past firm performance, and other covariates as in equation (1). Using this formulation, an insignificant impact of Y_{it-2} on current firm financial performance was confirmed. Therefore, this suggests that using one-year lagged dependent variable as an explanatory variable in a first-order autoregressive $[\text{AR}(1)]$ structure is enough to address the potential dynamic endogeneity. The results are similar for other lagged values of other independent variables. This is in accordance with a study by Zhou, Faff, and Alpert (2014), which argues that an $\text{AR}(1)$ structure appears to be unavoidable when almost all panel datasets used in corporate finance research are short. The $\text{AR}(1)$ panel model specification is given in detail as follows:

$$Y_{it} = \alpha_0 + \alpha_1 Y_{i,t-1} + \delta_m Corruption_{,it} + \delta_t Corruption_{,it-1} + \delta_x Corruption_{,it} * \text{firm size}$$
$$+ +\delta_x Corruption_{,it} * \text{firm age} + +\delta_y Corruption_{,it} * \text{industries} + \beta_k Z_{k,it}$$
$$+ year\ dummies + industry\ dummies + \vartheta_{it}$$

Prior studies also indicate that not controlling for institutional quality factors may bias the effect of corruption on firm capital structure. For example, De Jong, Kabir, and Nguyen (2008) noted that it is not only firms' attributes that have a direct impact on their capital structure but also factors such as the institutional quality of a country or a company's business practices and so forth that will produce influences on the choice of capital structure. Corruption can "grease or sand the wheel" if the institutional environment is good or bad (Méon & Weill, 2010). Thus, indexes of institutional quality at provincial level $(P_{m,jt})$ are controlled for in the model. Also, lagged values of indices of institutional quality are entered in the model to account for unobserved historical factors which have potential impacts on current firm capital structure:

$$Y_{it} = \alpha_0 + \alpha_1 Y_{i,t-1} + \delta_m Corruption_{,it} \delta_t Corruption_{,it-1} + \delta_x Corruption_{,it} * \text{firm size} + +\delta_x Corruption_{,it}$$
$$* \text{firm age} + +\delta_y Corruption_{,it} * \text{industries} + \beta_k Z_{k,it} + \gamma_m P_{m,jt} + \gamma_n P_{m,jt-1}$$
$$+ year\ dummies + industry\ dummies + \vartheta_{it}$$

With respect to estimation approach, given the presence of the $\text{AR}(1)$ structure in equation (2), the pooled OLS (OLS) and the OLS with fixed-effects (FE) methods are likely to provide inconsistent estimates (Flannery & Hankins, 2013; Wintoki, et al., 2012). Thus, studies often use traditional IV approach to obtain consistent estimates.

Unfortunately, it tends to be infeasible to find a set of external instrumental variables when almost all independent variables are often considered not exogenous. To rectify this issue, the current study uses the two-step system generalised method of moments estimator (System GMM) developed by Blundell and Bond (1998). This estimator is superior to the OLS or FE as it controls for time-invariant unobserved heterogeneity across firms, simultaneity, and dynamic endogeneity (Blundell & Bond, 1998; Wintoki et al., 2012).

4. Empirical results and discussions

This section provides the results of the empirical analyses for the role of corruption on firm capital structure by using the dynamic two-step GMM approaches.

TABLE 3. **The impact of corruption on capital structure[3]**

VARIABLES	Capital structure			Short-term capital structure			Long-term capital structure		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Lagleverage	0.0774+	0.0364	0.0407						
	(0.040)	(0.029)	(0.031)						
laglev_st				0.0363	0.0373	0.0384			
				(0.026)	(0.023)	(0.024)			
laglev_lt							0.0459	0.0416	0.0311
							(0.029)	(0.030)	(0.025)
Corruption	-0.0014	-0.0497	-0.0847	0.0702*	0.1377*	0.1626+	-0.0459*	-0.1138+	-0.1858**
	(0.008)	(0.040)	(0.067)	(0.034)	(0.069)	(0.098)	(0.022)	(0.060)	(0.064)
Lag of corruption	-0.0120+	-0.0147	-0.0144	-0.0026	-0.0018	-0.0027	-0.0221	-0.0167	0.0158
	(0.007)	(0.011)	(0.011)	(0.029)	(0.022)	(0.023)	(0.021)	(0.020)	(0.016)
Lnsize	0.0290**	0.0154	0.0157	0.0702**	0.0842**	0.0862**	0.0217	0.0107	0.0169
	(0.005)	(0.017)	(0.017)	(0.020)	(0.027)	(0.028)	(0.014)	(0.023)	(0.018)
Corruption* size		0.0014	0.0014		-0.0022	-0.0023		0.0013	0.0006
		(0.001)	(0.001)		(0.002)	(0.002)		(0.002)	(0.002)
Lnage	-0.0218**	-0.0185*	-0.0226*	-0.0139	-0.0106	-0.0098	-0.0217+	-0.0301*	-0.0317**
	(0.004)	(0.009)	(0.009)	(0.016)	(0.015)	(0.015)	(0.011)	(0.013)	(0.010)
Corruption* Age		0.0012	0.0017		-0.0018	-0.0018		0.0034*	0.0026
		(0.001)	(0.001)		(0.002)	(0.002)		(0.002)	(0.002)
Corruption* High-tech industries			-0.0272			-0.0051			0.2147
			(0.156)			(0.260)			(0.194)
Corruption* medium-tech industries			0.0921			-0.0680			0.3094**
			(0.117)			(0.167)			(0.105)
Export	0.0378	0.0363	0.0310	-0.1023	-0.0400	-0.0418	0.0580	0.0440	0.0688+
	(0.024)	(0.036)	(0.037)	(0.070)	(0.054)	(0.055)	(0.048)	(0.049)	(0.040)
Entry cost	-0.0135	-0.0201	-0.0185	-0.0713*	-0.0788**	-0.0774*	-0.0247	-0.0342	-0.0444+
	(0.009)	(0.015)	(0.015)	(0.036)	(0.030)	(0.030)	(0.028)	(0.028)	(0.025)
Land access	-0.0050	0.0020	0.0007	-0.0162	-0.0379+	-0.0382+	0.0280	0.0297	0.0120
	(0.008)	(0.014)	(0.015)	(0.030)	(0.020)	(0.020)	(0.023)	(0.022)	(0.015)
Transparency	-0.0054	0.0114	0.0068	-0.2051**	-0.2042**	-0.2019**	-0.0164	-0.0144	-0.0335
	(0.018)	(0.023)	(0.025)	(0.057)	(0.046)	(0.047)	(0.043)	(0.043)	(0.038)

[3] I also conducted several sensitivity analyses. For example, I replaced provincial level sub-indices of institutional quality with the aggregated index (PCI); or export was excluded. However, qualitatively similar results have been obtained in all cases, and they are available on request.

VARIABLES	Capital structure			Short-term capital structure			Long-term capital structure		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Time cost	-0.0152*	-0.0024	-0.0041	-0.1005**	-0.1032**	-0.1022**	0.0052	0.0064	0.0156
	(0.008)	(0.012)	(0.012)	(0.025)	(0.019)	(0.019)	(0.018)	(0.018)	(0.016)
Informal charge	-0.0034	-0.0107	-0.0075	-0.0160	-0.0045	-0.0056	-0.0050	-0.0021	-0.0059
	(0.007)	(0.015)	(0.015)	(0.028)	(0.021)	(0.021)	(0.020)	(0.020)	(0.017)
Proactive	0.0186**	0.0092	0.0107+	0.1046**	0.1088**	0.1073**	-0.0209+	-0.0213+	-0.0060
	(0.004)	(0.006)	(0.006)	(0.016)	(0.012)	(0.012)	(0.011)	(0.011)	(0.009)
Private act	-0.0124**	-0.0016	-0.0005	-0.0086	-0.0152	-0.0158	0.0014	0.0051	-0.0124
	(0.004)	(0.007)	(0.007)	(0.017)	(0.011)	(0.012)	(0.012)	(0.013)	(0.008)
Labour training	0.0065	-0.0150	-0.0140	-0.0055	0.0093	0.0106	0.0038	-0.0008	0.0200
	(0.010)	(0.013)	(0.014)	(0.033)	(0.025)	(0.026)	(0.023)	(0.022)	(0.019)
Legal frame-work	-0.0199*	0.0026	-0.0006	-0.0461	-0.0596*	-0.0591*	0.0004	0.0067	-0.0040
	(0.010)	(0.016)	(0.017)	(0.038)	(0.029)	(0.029)	(0.028)	(0.028)	(0.025)
Lag of entry cost	0.0134+	0.0042	0.0026	-0.0285	-0.0302	-0.0315	-0.0170	-0.0132	0.0140
	(0.007)	(0.014)	(0.014)	(0.038)	(0.025)	(0.025)	(0.028)	(0.030)	(0.021)
Lag of land access	-0.0029	0.0061	0.0037	-0.0368	-0.0382+	-0.0361+	-0.0403*	-0.0379*	-0.0339*
	(0.006)	(0.012)	(0.012)	(0.025)	(0.020)	(0.021)	(0.018)	(0.019)	(0.015)
Lag of transparency	-0.0147+	-0.0086	-0.0126	-0.1203**	-0.1123**	-0.1107**	-0.0244	-0.0273	-0.0314+
	(0.008)	(0.012)	(0.012)	(0.030)	(0.024)	(0.025)	(0.021)	(0.020)	(0.019)
Lag of time cost	-0.0131	-0.0002	-0.0034	-0.0709+	-0.1052**	-0.1047**	-0.0360	-0.0321	-0.0357
	(0.011)	(0.016)	(0.017)	(0.036)	(0.029)	(0.029)	(0.027)	(0.027)	(0.024)
Lag of informal charge	-0.0003	-0.0217	-0.0153	-0.0250	0.0241	0.0219	0.0767*	0.0689*	0.0589*
	(0.012)	(0.019)	(0.020)	(0.046)	(0.034)	(0.035)	(0.033)	(0.033)	(0.027)
Lag of proactive	-0.0010	0.0024	0.0042	0.0750**	0.0655**	0.0648**	-0.0113	-0.0108	-0.0137
	(0.005)	(0.008)	(0.008)	(0.016)	(0.013)	(0.013)	(0.012)	(0.012)	(0.011)
Lag of private act	-0.0011	-0.0048	-0.0046	-0.0844**	-0.0737**	-0.0729**	0.0083	0.0091	0.0028
	(0.003)	(0.006)	(0.006)	(0.014)	(0.012)	(0.012)	(0.011)	(0.011)	(0.009)
Lag of labour Training	0.0047	0.0043	0.0048	0.1124**	0.1004**	0.1000**	0.0017	0.0036	0.0118
	(0.006)	(0.009)	(0.009)	(0.023)	(0.020)	(0.020)	(0.016)	(0.015)	(0.014)
Lag of legal framework	0.0027	-0.0066	-0.0079	-0.0344	-0.0370	-0.0365	0.0208	0.0196	0.0269
	(0.008)	(0.014)	(0.015)	(0.029)	(0.024)	(0.025)	(0.020)	(0.019)	(0.018)
Constant	0.4693*	0.4097	0.5003	4.4252**	4.4657**	4.4323**	0.5604	0.5734	0.5983
	(0.186)	(0.310)	(0.321)	(0.682)	(0.547)	(0.553)	(0.483)	(0.483)	(0.424)
Observations	6,087	6,087	6,087	6,121	6,121	6,121	6,121	6,121	6,121
Number of instruments	24	26	28	24	26	28	24	26	28
Durbin-Wu-Hausman test for endogeneity of repressors (*p*-value)	0.0005	0.003	0.0005	0.0000	0.0004	0.0002	0.004	0.006	0.0004
Hansen tests of exogeneity of instrument sets	0.434	0.629	0.647	0.431	0.451	0.385	0.751	0.661	0.737

Notes: Models are estimated by two-step GMM and include industry dummies, year dummies and firm fixed-effects; Asterisks indicate significance at 10% (+), 5% (*), and 1% (**). Robust standard errors are presented in parentheses. Following Schultz et al., (2010) and Wintoki et al., (2014), firm age and year dummies are considered to be exogenous.

First, regarding the main variable of interest, columns 1, 2 and 3 of Table 3 show that corruption impacts insignificantly on the firm capital structure. The finding supports the perspectives of institutional theory, and this may be explained by the fact that corruption is very popular in Vietnam and hence it is considered as an entry payment for every firm which must pay to participate in the market or compete with neighbors for

survival. When a firm pays a bribe, neighbor firms also pay bribe, thus, there are no statistically significant differences in the effect of corruption on firms and their neighbors. This finding is partly consistent with Vu et al. (2016), who also indicate that there is an insignificant relation between corruption and firm performance.

Looking more closely, I explore the effects of corruption on different types of firms' capital structure. Interestingly, the effect of corruption is different for various types of capital structure. The results from columns 4, 5 and 6 of Table 3 show that paying bribe helps firms gain more external credit. This stems from the fact that although the rapid development of Vietnam's capital market has offered more options for corporate funding, capital market remains relatively underdeveloped and banks remain the major capital provider for corporations and occupy a monopolistic position in the credit market (see Table 1). Although the state Bank decreases the banks' monopoly profit by controlling interest rates, bank officers have various methods of evading those controls and taking rent from corporations by virtue of their monopolistic position, obtaining illegal profits in the process. To increase the likelihood of receiving credit, corporations and firms are willing to bribe such bank officers. In the meantime, regulators are strict about banks' control of their non-performing loan rate, which means that banks must control the risk of not regaining their capital. Thus, banks would prefer to grant more short-term credit, especially in regions in which corruption is very serious. As a result, corruption impacts positively on short-term debt of firms. The findings support some perspectives from previous studies (e.g., Diamond, 1991; Jiang & Li, 2005). Such studies also reveal that short-term credits are favorable for banks to obtain timely and constant information about debtors, thus placing corporations under the banks' close supervision and control in regions with high corruption level.

While bribery helps to boost short-term bank debts, it hinders long-term bank debts. As shown by columns 7, 8 and 9 of Table 3, firms paying bribe have lower access to long-term bank credit than those without paying bribe. This can be interpreted in the way that banks are more hesitant to offer long-term loans if they are in a very corrupt environment. Long-term bank loans are less prevalent and more strictly controlled inside banks compared with short-term bank loans. The choice to grant such loans may depend more on the legal framework through the protection of creditors and the enforcement of loan contracts. Banks may not receive the capital back or they may have to add extra expenses to ensure their business safety in countries with a poor law-enforcement system. Thus, corruption has a negative influence on firms' ability to obtain long-term bank credit in this context.

In terms of firm-level characteristics, as expected, firm size has a positive impact on firm capital structure performance. For example, column 2 of Table 3 shows 1 percent increase in sizes of firm coupled with 0.03 percent increase in accessing external finance, with other things constant. The results are consistent with most findings in the literature. This finding provides the same perspectives with trade–off theory which reported the positive relationship between company size and level of debt financing. Accord-

ing to Deesomsak, Paudyal, and Pescetto (2004), large companies have small volatility of cash flow and more transparency in financial activities that help them access credit more easily. In addition, export activities have an insignificant impact on firm capital structure, while firm age as measured by the number of years in business witnesses a negative association with firms' capital structure.

The estimated results in the columns of Table 3 reveal that the role of provincial quality of institution on firm capital structure is different depending on the model specification. For example, time cost has a negative and significant impact on firm capital structure. In addition, while actions supporting private sectors (Private act) do not help firms to access external finance because of complicated administrative procedure, transparency in finance and information helps firms access bank's credit. Surprisingly, labour training has no impact on firm capital structure, and this may be explained by the outdated education in Vietnam where theory is heavily focused on, while practical skills are hardly dealt with, quality of instructors is at worrying low levels, and teaching equipment is not updated.

5. Conclusion

The paper aims to estimate the effect of corruption on Vietnamese SMEs' capital structure from 2005 to 2011. Unlike previous studies, this study considers for the first time the impact of corruption at both firm and provincial levels on firms' capital structure in Vietnam. Some main interesting findings are presented below.

Some provincial institutional factors such as time costs for private sector are negatively associated with firms' capital structure; while transparency in finance and information improves the firms' access to bank's credit. This implies that simplification of procedure to save time for enterprises, and increasing actions to make information and procedures clear are necessary to improve access to external financial sources.

The finding of a negative linkage between corruption and the improvement in firms' long-term financial access implies that measures against corruption are necessary for the development of SMEs. Anti-corruption campaign has been implemented for many years, but its results are limited. This suggests that political efforts and willingness from central government, particularly from the Communist Party, is crucial for the success of anti-corruption. A transparent legal framework and effective enforcement should be encouraged and effectively implemented to control corruption in Vietnam.

There is some limitation in the current study. The study used data from manufacturing SMEs, so its findings might not represent whole enterprise. Especially, the findings might not be true for large enterprises which own different resources and business behaviours including markets and negotiating powers. This suggests that further research on larger firms and other sectors beyond manufacturing should be done to make a general conclusion about the relationship between corruption and firms' capital structure in Vietnam. Finally, future research should be conducted in other transitional

economies using the same methodology as in the current study to examine whether a negative association between corruption and firm capital structure is found to be consistent beyond Vietnam.

References

Alves, P. F. P., & Ferreira, M. A. (2011). Capital structure and law around the world. *Journal of Multinational Financial Management, 21*(3), 119–150.

Bond, S. R. (2002). Dynamic panel data models: A guide to micro data methods and practice. *Portuguese Economic Journal, 1*(2), 141.

Bolton, P., & Dewatripont, M. (2005). *Contract theory.* MIT press.

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics, 87*(1), 115–143.

Chen, Y., Liu, M., & Su, J. (2013). Greasing the wheels of bank lending: Evidence from private firms in China. *Journal of Banking & Finance, 37*(7), 2533–2545.

De Carvalho, A. G. (2009). The Effect of Institutions on the External Financing of The Brazilian Firms. *Revista Brasileira de Financas, 7,* 1, 1–27.

De Jong, A., Kabir, R., & Nguyen, T. T. (2008). Capital structure around the world: The roles of firm-and country-specific determinants. *Journal of Banking & Finance, 32*(9), 1954–1969.

Deesomsak, R., Paudyal, K., & Pescetto, G. (2004). The determinants of capital structure: evidence from the Asia Pacific region. *Journal of multinational financial management, 14*(4), 387–405.

Diamond, D. W. (1991). Debt maturity structure and liquidity risk. *The Quarterly Journal of Economics, 106*(3), 709–737.

Fan, J. P., Titman, S., & Twite, G. (2012). An international comparison of capital structure and debt maturity choices. *Journal of Financial and Quantitative Analysis, 47*(01), 23–56.

Flannery, M. J., & Hankins, K. W. (2013). Estimating dynamic panel models in corporate finance. *Journal of Corporate Finance, 19*, 1–19.

Fungáčová, Z., Kochanova, A., & Weill, L. (2015). Does money buy credit? Firm-level evidence on bribery and bank debt. *World Development, 68*, 308–322.

Hoskisson, R. E., Eden, L., Lau, C. M., & Wright, M. (2000). Strategy in emerging economies. *Academy of Management Journal, 43*(3), 249–267.

Jiang, W., & Li, B. (2006). Financial Development and Debt Financing of Firms. *China Accounting Review, 2.*

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Legal determinants of external finance. *The Journal of Finance*, 1131–1150.

Leland, H. E., & Pyle, D. H. (1977). Informational asymmetries, financial structure, and financial intermediation. *The Journal of Finance, 32*(2), 371–387.

Malesky, Edmund J. (2007). *The Vietnam Provincial Competitive Index 2007: Measuring Economic Governance for Private Sector Development.* USAID and VCCI, Hanoi.

Méon, P.-G., & Weill, L. (2010). Is corruption an efficient grease? *World development, 38*(3), 244–259.

North, D. C. (1990). *Institutions, institutional change and economic performance*: Cambridge University Press.

Nguyen, T. T., & Van Dijk, M. A. (2012). Corruption, growth, and governance: Private vs. state-owned firms in Vietnam. *Journal of Banking & Finance, 36*(11), 2935–2948.

Porta, R. L., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of Political Economy, 106*(6), 1113–1155.

Rand, J., & Tarp, F. (2012). Firm-level corruption in Vietnam. *Economic Development and Cultural Change, 60*(3), 571–595.

Shleifer, A., & Vishny, R. W. (1993). Corruption. *The Quarterly Journal of Economics, 108*(3), 599–617.

Stiglitz, J. E., & Weiss, A. (1981). Credit rationing in markets with imperfect information. *The American Economic Review, 71*(3), 393–410.

Svensson, J. (2005). Eight questions about corruption. *The Journal of Economic Perspectives, 19*(3), 19–42.

Vu, H., Tran, T. Q., Nguyen, T., & Lim, S. (2016). Corruption, types of corruption and firm financial performance: New evidence from a transitional economy. *Journal of Business Ethics*, 1–12. doi:10.1007/s10551-016-3016-y.

Welch, I. (2011). Two common problems in capital structure research: The financial-debt-to-asset ratio and issuing activity versus leverage changes. *International Review of Finance, 11*(1), 1–17.

Wintoki, M. B., Linck, J. S., & Netter, J. M. (2012). Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics, 105*(3), 581–606.

Wright, M., Filatotchev, I., Hoskisson, R. E., & Peng, M. W. (2005). Strategy research in emerging economies: Challenging the conventional wisdom*. *Journal of Management Studies, 42*(1), 1–33.

Wooldridge, J. M. (2009). *Introductory econometrics: A modern approach* (4 ed.). Mason, USA: South-Western Cengage Learning.