

How does financial depth influence corporate performance? Evidence from logistics sector

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ABSTRACT

This paper focuses on analyzing the impact of financial depth on corporate performance. The study data is collected by the author from World Bank statistics and financial statements of companies in the logistics sector, which is a relatively young industry but has great potential for development in Vietnam. Using the Generalized Method of Moment (GMM) to estimate the study model, the author finds out a significant impact of financial depth on corporate performance. In particular, the financial depth from a banking perspective has a positive impact on corporate performance. However, the financial depth from a stock market perspective has not brought positive results to the corporate performance. Not only that, the author also finds out significant impacts of financial leverage and firm size control variables on corporate performance. Therefore, it can be said that the financial depth from the perspective of banks plays an important role in stimulating the corporate performance. Meanwhile, the financial depth from the perspective of the stock market has not shown this role, this is the difference between this study result and the previous studies. The results of this study are important for logistics managers and policymakers in Vietnam.

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1. Introduction

Since the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) was signed in Chile on March 8, 2018, goods from many countries will have the large opportunity to enter the Vietnam market. In addition, Vietnamese goods also have many opportunities to be exported to other countries. This will bring many development opportunities for logistics sector in Vietnam (Bui, 2020a). However, the challenges which this sector shall face are not small, especially in terms of access to capital to enhance competitiveness, and especially to improve the corporate performance in this sector. In order to overcome these challenges, the financial depth is an issue of concern for logistics companies. Because, the financial depth shows the size of the banking system and the stock market compared to the economy (Klein & Olivei, 2008), these are two important components of the financial system that the companies in logistics can be accessed to raise capital (Beck et al., 2006; Levine et al., 2000; Love, 2003; Rajan & Zingales, 1998). Indeed, when the financial depth is improved, the companies will have favorable conditions to improve the operating capacity, as well as to improve the profitability (Bui, 2020b; King & Levine, 1993; Levine, 2005). The impact of financial depth on corporate performance is also found in many empirical studies, such as: Guiso et al. (2004), Dehejia et al. (2007), Fafchamps and Schündeln (2013), Lee (2015), O'Toole and Newman (2017). This shows that the companies can access the loans from the banking system, and can also access equity (through share issuance) and source of loans (through issuance of bonds) from the stock market. However, most empirical studies look at the impact of financial depth

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from a banking perspective on corporate performance, and there is a lack of empirical studies that look at financial depth in a general way through the simultaneous development of the banking system and the stock market. In fact, the companies can flexibly raise capital from the banking system and stock market. Even the access to medium and long-term capital from the stock market is very important for the companies in the context of international economic integration. Therefore, it is essential to consider the impact of the financial depth through the overall development of the banking system and the stock market, and there is plenty of gap to explore.

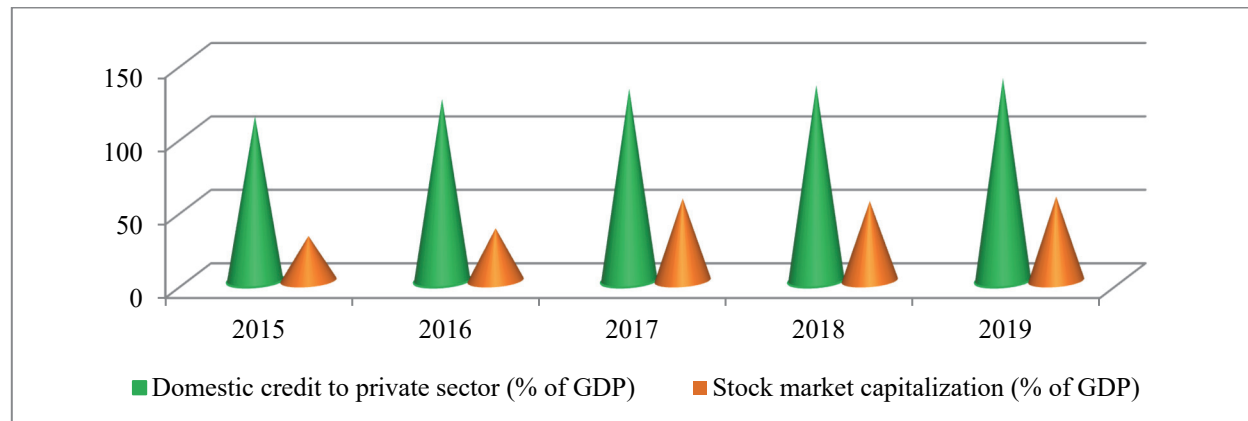


Figure 1. Financial depth in Vietnam

The author chose the logistics sector to analyze since this sector is still young and has great development potential in Vietnam, especially it is possible to have a close relationship with the financial depth. On the other hand, in Vietnam, the financial depth is limited with the size of the stock market is still small compared to the economy (Bui, 2019a, 2020c; Nguyen & Bui, 2019) (Fig. 1). Therefore, with this study article, the author expects to discover many interesting things compared to the previous studies.

2. Literature Review

The financial depth is an important component of the financial development of each country (Bui, 2020d; Nguyen et al., 2020). In terms of measurement, the financial depth is often measured through the size of the banking system and the stock market compared to the economy (Bencivenga & Smith, 1991; Bui, 2019b; Greenwood & Jovanovic, 1990; Pradhan et al., 2014). However, in countries with limited financial depth, this indicator is often focused mainly on the size of the banking system compared to the economy. Because, in these countries, the banking system plays a key role in providing capital for the economy. Therefore, most empirical studies often use the domestic credit to private sector (% of GDP) to represent the financial depth (Ashraf, 2017; Bui, 2020). Meanwhile, the stock market also plays a very important role in improving the capital access of companies, which is clearly shown in countries with high levels of international economic integration. It can be said that financial depth plays an important role in helping the companies maintain operations (King & Levine, 1993), improving capital access (Beck et al., 2006; Levine et al., 2000; Love, 2003; Rajan & Zingales, 1998), and especially improving the profitability (King & Levine, 1993; Levine, 2005). The impact of positive financial depth on corporate performance is also found in many empirical studies, such as: Guiso et al. (2004), Fafchamps and Schündeln (2013), Lee (2015). In addition, Dehejia et al. (2007) also emphasized that financial expansion plays a role in promoting growth in the manufacturing sector. In another study, Chauvet and Jacolin (2017) suggested that difficulties in accessing credit is one of the main obstacles in the development process of the private sector. In addition, Fowowe (2017) stated that companies in Africa often have fast growth if they have easy access to credit. Not only that, O'Toole and Newman (2017) also think that improved financial depth will help the companies improve their access to finance, and especially to increase the company's growth rate.

In general, the previous studies have suggested that financial depth has a positive impact on corporate performance. However, most of the previous studies measured the financial depth from a banking perspective. Meanwhile, in addition to accessing capital through the banking system, the development of the stock market also plays an important role in accessing capital of companies. However, there is a lack of empirical studies examining this issue. It can be said that this is a big gap in the previous studies.

3. Methodology

The author collects tabular data of 30 logistics companies in Vietnam during 2015-2019. For financial depth data, the author gathers from World Bank data sources. In this article, the author will estimate the study model using the Pooled Regression

Model (Pooled OLS), Fixed Effects Model (FEM), and Random Effects Model (REM). The author then uses the Generalized Method of Moment (GMM) to estimate the study model to ensure that the estimation results are the most reliable. This method has great advantages when controlling potential endogenous phenomena and overcoming the regression hypotheses that are violated (Bui, 2020e; Doan, 2020a, 2020b; Doan & Bui, 2020; Doytch & Uctum, 2011).

Based on the results of previous studies, the author measures the corporate performance (CP) through the after-tax profit index divided by total assets. For the independent variables, the author measures through financial depth indicators from a bank perspective (FD1) and financial depth from a stock market perspective (FD2). In particular, the author determines the financial depth variable from a banking perspective (FD1) based on previous studies. For the depth of financial variables from the perspective of the stock market (FD2), the author determines how to measure this variable based on the World Bank's financial development indicators. In addition, the author has included a model of control variables such as financial leverage (FL) and firm size (FS). These control variables are determined by the author based on the study of Lee (2015), Bui (2020b, 2020e). The measurement of variables in the study model is presented in Table 1.

Therefore, the proposed study model is set up with the following equation:

$$CP_{it} = \beta_0 + \beta_1 FD1_{it} + \beta_2 FD2_{it} + \beta_3 FL_{it} + \beta_4 FS_{it} + \varepsilon_{it} \quad (1)$$

In which:

Dependent variable: Corporate performance (CP).

Independent variables: Financial depth (FD1, FD2).

Control variables: Financial leverage (FL), firm size (FS).

Table 1
Summary of variables

Variable name	Code	Measurement
Dependent variable		
Corporate performance	CP	Net income / Total assets
Independent variables		
Financial depth	FD1	Domestic credit to private sector (% of GDP)
	FD2	Stock market capitalization (% of GDP)
Control variables		
Financial leverage	FL	Total debt / Total assets
Firm size	FS	Logarithm of total assets

4. Results

The correlation coefficients between variables in the study model are presented in Table 2 as follows:

Table 2
Results of correlation analysis

	CP	FD1	FD2	FL	FS
CP	1.000				
FD1	0.510	1.000			
FD2	-0.094	-0.002	1.000		
FL	-0.184	0.009	0.123	1.000	
FS	0.175	0.130	0.056	0.057	1.000

Table 2 shows that the CP variable correlates positively with the variables FD1 and FS. Meanwhile, FD2 and FL variables are negatively correlated with CP. The results of estimating the study model according to the basic analysis methods on tabular data (Pooled OLS, FEM, and REM) are presented in the following Table 3:

Table 3
Results of estimating study model using Pooled OLS, FEM, and REM methods

Dependent Variable: Corporate performance (CP)			
CP	Pooled OLS	FEM	REM
Constant	-44.095***	-62.107***	-51.081***
FD1	0.362***	0.346***	0.356***
FD2	-0.059	-0.057	-0.057
FL	-0.055***	-0.054	-0.057**
FS	0.563*	1.309**	0.855**
R-squared	31.65%	45.28%	44.97%
Significance level	F(4, 145) = 16.79	F(4, 116) = 23.99	Wald chi2(4) = 98.50
F test	F(29, 116) = 3.87		
Hausman test	chi2(4) = 1.39		

Note: *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively.

Based on Table 3, we find that the REM analysis method is more suitable. Because, the test F ($F(29, 116) = 3.87$) is statistically significant at the 1% significance level. Meanwhile, the Hausman test ($\chi^2(4) = 1.39$) is not statistically significant. Therefore, the author will test the study model based on the estimated results using the REM method.

Table 4

Study model test results

Multicollinearity test			Breusch and Pagan Lagrangian multiplier test	Wooldridge test
Variable	VIF	1/VIF		
FS	1.02	0.978	chibar2(01) = 37.68 Prob>chibar2 = 0.000***	F(1, 29) = 0.823 Prob>F = 0.372
FL	1.02	0.982		
FD2	1.02	0.982		
FD1	1.02	0.983		
Mean VIF = 1.02				

Note: *** indicates significance at the 1% level.

Table 4 shows that multicollinearity in the study model is considered to be not serious. In addition, Wooldridge test shows that the study model has no autocorrelation. However, the Breusch and Pagan Lagrangian multiplier test suggested that the study model had heteroscedasticity at 1% significance level. Therefore, the author will use the GMM method to estimate the study model in order to obtain the highly reliable results, because this estimation method can overcome the heteroscedasticity and potential endogenous phenomena.

Table 5

Results of estimating study model by GMM method

Dependent variable: Corporate performance (CP)		
CP	Coef.	P> z
Constant	-19.677**	0.050
FD1	0.170*	0.051
FD2	-0.071*	0.077
FL	-0.070***	0.000
FS	0.386*	0.089
Significance level	Wald $\chi^2(3) = 32.44$ Prob> $\chi^2 = 0.000$ ***	
Arellano-Bond test for AR(2) in first differences	z = 0.20 Pr>z = 0.839	
Sargan test	$\chi^2(10) = 7.83$ Prob> $\chi^2 = 0.646$	

Note: *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively.

The results of estimating the study model by GMM method are significant at 1%. And also, tests like the Arellano-Bond test for AR (2) and the Sargan test are satisfactory. Therefore, corporate performance is significantly impacted by the financial depth. Specifically, the corporate performance (CP) is positively affected ($\beta = 0.170$) by financial depth from a banking perspective (FD1) with a 10% significance level. And also, the financial depth from a stock market perspective (FD2) negatively impacts ($\beta = -0.071$) on corporate performance (CP) with a 10% significance level. In addition, corporate performance (CP) is negatively affected ($\beta = -0.070$) by the control variables such as financial leverage (FL) and positively ($\beta = 0.386$) by firm size (FS).

Therefore, the results of estimating the study model have the following equation:

$$CP_{it} = -19.677 + 0.170 FD1_{it} - 0.071 FD2_{it} - 0.070 FL_{it} + 0.386 FS_{it} + \varepsilon_{it} \quad (2)$$

The study results show that financial depth has a significant impact on corporate performance. In particular, the financial depth from a banking perspective (FD1) has a positive impact on corporate performance (CP). This result is very consistent with reality in Vietnam. Indeed, as the banking system grows, the logistics companies will have more access to credit, which will enable them to expand investments and improve the profits. This result is also consistent with the previous judgment of Guiso et al. (2004), Fafchamps and Schündeln (2013), Lee (2015), O'Toole and Newman (2017). However, the financial depth from a stock market perspective (FD2) negatively affects corporate performance (CP). This shows that the development of the stock market has not brought a positive impact on the profits of companies in the logistics sector. This is understandable, because the companies with large market capitalization on Vietnam's stock market often have low transaction volume. And also, the number of logistics companies listed on Vietnam's stock market is also limited in number and size. Therefore, Vietnam's stock market has not shown an important role in providing medium and long-term capital to stimulate the profits of logistics companies. Even the stock market has a negative impact on the profits of logistics companies in Vietnam.

5. Conclusion

This article has achieved its goal when it found the significant impact of financial depth on corporate performance. In particular, financial depth from a banking perspective has a positive impact on corporate performance. However, the financial depth from

a stock market perspective has a negative impact on corporate performance. Not only that, this article also finds out significant impacts of financial leverage and firm size control variables on corporate performance. The study results show that financial depth from a bank perspective plays an important role in stimulating corporate performance. Meanwhile, the financial depth from the perspective of the stock market has not shown this role, this is the difference between this study result and the previous studies. Based on this, the managers in Vietnam will have a basis to propose policies to improve the financial depth to stimulate the profits of companies in the logistics sector. It can be said that this article has achieved great success by finding the first empirical evidence on the impact of financial depth on corporate performance in logistics. However, this article is still unavoidable with some limitations, such as the limited study period, because the logistics sector in Vietnam is still very young, therefore, it is difficult to collect data in the longer period.

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