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IMPACTS OF BANKING SYSTEM AND STOCK MARKET ON FIRM PERFORMANCE: EVIDENCE FROM VIETNAM'S REAL ESTATE SECTOR

Toan Ngoc Bui [a*]

[a] *Faculty of Finance and Banking, Industrial University of Ho Chi Minh City (IUH), VIETNAM.*

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ABSTRACT

The paper investigates the impact of the banking system and stock market on the performance of real estate firms in Vietnam. Data are obtained from financial reports of 35 real estate firms and the World Bank database in the 2013-2017 period. By using the Generalized Method of Moment (GMM) in estimating the research model, the author finds first empirical evidence on the influence of the banking system and stock market on firm performance. Specifically, consistent with the earlier studies, the paper reveals that domestic credit to private sector (DCP) exerts a positive impact on firm performance (ROA). Also, it concludes an unprecedented finding that is stock market capitalization (SMC) is negatively correlated to firm performance (ROA). More than that, the results also stress that firm performance is significantly more influenced by developments in the banking system than those in the stock market. Based on these findings, the authorities in Vietnam can develop its banking system, stock market and real estate firms sustainably.

Disciplinary: Management Sciences (Finance and Banking), Financial Engineering.

1. INTRODUCTION

The inextricable link between the banking sector and stock market developments can typically indicate for financial development of each country (Greenwood & Jovanovic, 1990; Bencivenga & Smith, 1991; Pradhan et al., 2014; Bui, 2019b). In particular, the improvements in financial development make good conditions to maintain operation as well as enhance the performance (King & Levine, 1993). It is because financial development helps firms promote the ability to access to capital (Rajan & Zingales, 1998; Levine et al., 2000; Love, 2003; Beck et al., 2006; Bui, 2020a), thereby increasing investment and performance (Levine, 2005; Bui, 2020a; 2020c). The influence

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of financial development on firm performance has been concluded in a majority of researchers, namely Guiso et al. (2004), Dehejia et al. (2007), Fafchamps and Schündeln (2013), Lee (2015), O'Toole and Newman (2017), Bui (2020a). Therefore, financial development plays a key role in stimulating firm performance. In other words, corporate performance is likely influenced by the banking sector and the stock market. Accordingly, firms can access capital from the banking system and equity (by issued shares) as well as loans (by issued bonds) from the stock market. However, most of the empirical studies only examine the causality between financial development and firm performance from the perspective of the banking sector, not of the stock market. In fact, access to medium- and long-term capital from the stock market is essential for companies in the context of international integration. Thus, one of their limitations is that they only analyze the link from the perspective of the banking system. Alternatively, the impact of the banking sector and equity market on corporate performance is an interesting and vital research topic with big gaps that need to be filled.

This study aims to give the answer to the question "How do the banking system and stock market influent firms' performances?" To find the answer, this work investigates the simultaneous effect of the banking sector and the stock market on the performance of real estate firms in Vietnam. The real estate sector is selected for the analysis due to its close association with the stock market. Recently, the developments in the banking system and stock market have increased considerably (Figure 1).

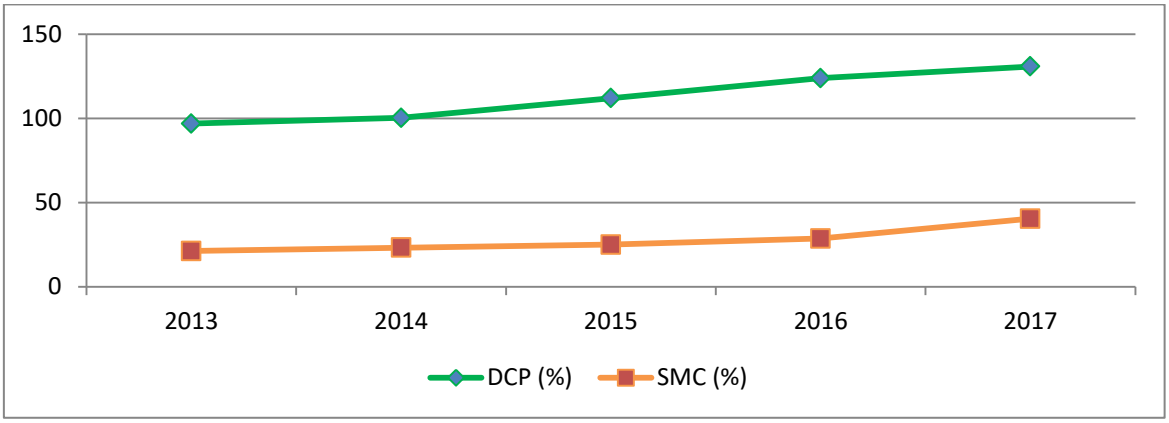

Figure 1: Domestic credit to private sector and stock market capitalization in Vietnam. Source: Computed by Author.

Nevertheless, Vietnam real estate market has experienced many predicaments in accessing capital from the banking sector and stock market because the banking system seems a bit hesitant in loans to the real estate industry. This is understandable with the fact that the real estate industry is one of the major reasons causing the global financial crisis in 2007. On the other hand, it is limited to access to capital from the Vietnam stock market which is still nascent (Bui, 2019a; Bui, 2020b), and deficient in investing funds in the real estate market. Hence, it is necessary to find empirical evidence on the impact of the banking system and stock market on the performance of real estate companies. This will bring Vietnam's authorities a fully comprehensive perspective on this nexus and in turn provide a reliable basis in promoting sustainable growths in the banking sector, stock market and real estate firms.

2. LITERATURE REVIEW

Developing the banking system and stock market can be defined as a process in which their quantity, quality, and effectiveness are improved (Pradhan et al., 2014). The banking sector and stock market play an essential role in supplying the capital to the economy. Therefore, the inextricable link between the banking sector and stock market developments can typically represent for financial development of an economy (Greenwood & Jovanovic, 1990; Bencivenga & Smith, 1991; Pradhan et al., 2014; Bui, 2019b). Financial development plays a key role in helping firms operate well (King & Levine, 1993), increase the ability to access to capital Rajan & Zingales, 1998; Levine et al., 2000; Love, 2003; Beck et al., 2006; Bui, 2020a), and most notably enhance the performance (King & Levine, 1993; Levine, 2005; Bui, 2020a). The linkage between financial development and firm performance has been analyzed in a majority of empirical research. For example, Guiso et al. (2004) stressed that financial development is positively correlated to firm performance in Italy. Dehejia et al. (2007) concluded that financial expansion via the banking system plays a vital part in fostering mechanization in agriculture and growth in manufacturing. Fafchamps and Schündeln (2013) claimed that financial development from the perspective of the banking sector exerts a positive influence on small and medium enterprises in Morocco. By analyzing data in Europe, Lee (2015) confirmed the positive impact of financial development from the perspective of banking on firms' earnings which is clearly observed during the financial crisis. Recently, Chauvet and Jacolin (2017) believed that difficulties in accessing credit are big obstacles to the development process of the private sector. In another research, Fowowe (2017) claimed that firms (in 30 African countries) which are easy to access to credit tend to accelerate more rapidly than those with credit constraints. Moreover, O'Toole and Newman (2017) investigated data in Vietnam and revealed the effects of financial development on access to credit and corporate growth in terms of turnover, investment, employment and productivity.

In general, most of the prior studies have found the positive causality between financial development and firm performance. Nevertheless, most of them measure financial development from the perspective of the banking system. Meanwhile, together with the banking sector, developments in the stock market are indicative of the financial development of an economy.

3. DATA AND METHODOLOGY

3.1 DATA

The panel data has been collected from 35 real estate firms listed on the Ho Chi Minh City Stock Exchange for 2013-2017. This is the period when the Vietnam economy has overcome a recession and its real estate market has gradually recovered, so the access to capital from the banking sector and equity market is really essential. Data on the banking system and stock market are obtained from the database of the World Bank.

3.2 METHODOLOGY

The study examines the impact of the banking system and the stock market on the performance of real estate firms in Vietnam. By this objective, the research model is estimated by employing the Pooled Regression model (Pooled OLS), Fixed effects model (FEM) and Random effects model

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(REM). Then, the Generalized Method of Moment (GMM) estimator is adopted to ensure the reliability of the estimated results. The GMM estimator is better at controlling for potential endogeneity and fixing violated regression assumptions (Doytch & Uctum, 2011).

Following earlier studies, the author measures firm performance by return on assets (ROA). Meanwhile, the growth of the banking system is measured by domestic credit to private sector (% of GDP). Domestic credit to private sector (DCP) has been adopted to indicate for the banking system and financial development in almost all of the prior studies. In addition, stock market capitalization is also utilized to be an indicator of stock market development. Stock market capitalization (SMC) is one of the most important financial development indexes of the World Bank. The adoption of the stock market capitalization in the model is expected to reveal unprecedented findings. Besides, following Lee (2015), firm size (logarithm of total assets) is also included as a control variable.

Thus, the estimated model is written in the following equation:

$$ROA_{it} = \beta_0 + \beta_1 DCP_t + \beta_2 SMC_t + \beta_3 SIZE_{it} + \varepsilon_{it} \quad (1)$$

Where:

Dependent variable: Firm performance (ROA).

Independent variables: Domestic credit to private sector (DCP), stock market capitalization (SMC).

Control variable: Firm size (SIZE).

The term ε_{it} is the model regression error term.

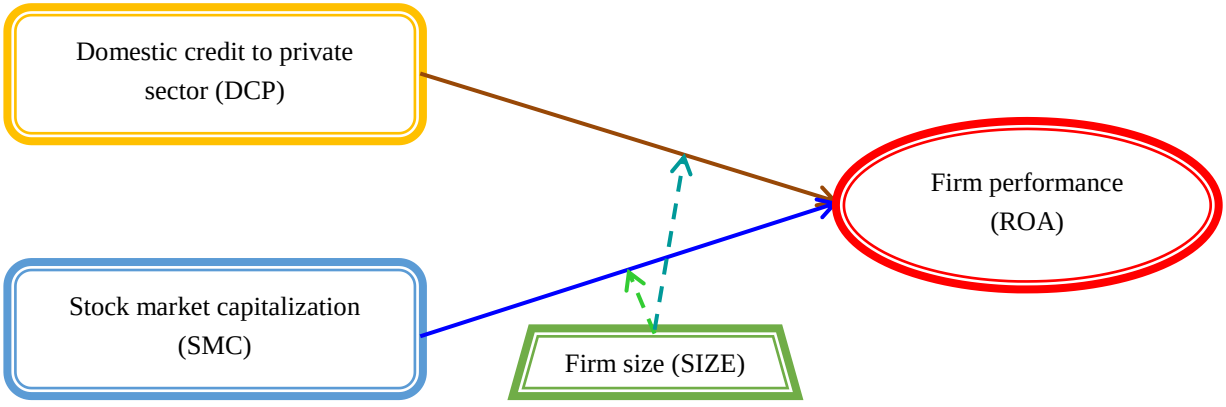

Figure 2: The impact of the banking system and stock market on firm performance. (Source: Compiled by Author based on theory and prior literature.)

Table 1: Summary of variables

Variable name	Code	How to measure
Dependent variable		
Firm performance	ROA	Net profit / Total assets
Independent variables		
Domestic credit to the private sector	DCP	Domestic credit to private sector (% of GDP)
Stock market capitalization	SMC	Stock market capitalization to GDP (%)
Control variable		
Firm size	SIZE	The logarithm of total assets

Source: Compiled by Author based on theory and prior literature.

4. RESULT

The correlation coefficients between variables in the research model are described in Table 3.

Table 2: Correlation coefficients between variables

	ROA	DCP	SMC	SIZE
ROA	1.000			
DCP	0.492	1.000		
SMC	-0.110	-0.032	1.000	
SIZE	0.273	0.111	0.049	1.000

Source: Computed by Author.

Table 2 shows that the stock market capitalization (SMC) variable negatively correlates with firm performance (ROA). Meanwhile, the remaining variables are positively correlated with firm performance (ROA).

The results of estimating the research model by the methods of the Pooled Regression model (Pooled OLS), Fixed effects model (FEM) and Random effects model (REM) are presented in Table 3.

Table 3: Results of estimating the research models using Pooled OLS, FEM, REM methods.

ROA	Pooled OLS	FEM	REM
Constant	-50.658***	-71.262***	-57.830***
DCP	0.332***	0.315***	0.327***
SMC	-0.077*	-0.046	-0.053
SIZE	0.838***	1.659***	1.107***
R2	30.15%	44.50%	43.95%
Significance level	F(3, 171) = 24.60 Prob > F = 0.000***	F(3, 137) = 36.62 Prob > F = 0.000***	Wald chi2(3) = 109.54 Prob > chi2 = 0.000***
F test	F(34, 137) = 4.19 Prob > F = 0.000***		
Hausman test	chi2(3) = 4.34 Prob>chi2 = 0.227		

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

Table 3 shows that the Random Effects Model (REM) is more appropriate when the F test is significant at the 1% level (Prob > F = 0.000) and the Hausman test has no statistical significance (Prob>chi2 = 0.227). Based on this basis, the author will conduct an estimate of the research model based on the estimated results using the Random Effects Model (REM) method.

Table 4: Testing results of multicollinearity

Variable	VIF
DCP	1.01
SMC	1.00
SIZE	1.02
Mean VIF = 1.01	

Source: Computed by Author.

Table 4 shows that the research model has multicollinearity, which is considered as not serious (VIF <10).

Table 5: Results of testing the variance of heteroscedasticity and autocorrelation

Heteroscedasticity test	Autocorrelation test
chibar2(01) = 47.95 Prob > chi2 = 0.000***	F(1, 34) = 0.731 Prob > F = 0.398

Note: *** indicates significance at the 1% level. (Source: Computed by Author).

The model is free of autocorrelation (Prob > F = 0.398). However, heteroscedasticity really exists in the model (Prob > chi2 = 0.000) (Table 5). Hence, the GMM estimation strategy is employed to control for heteroscedasticity and potential endogeneity.

Table 6: Model estimation results by GMM method

ROA	Coef.	P>|z|
Constant	-31.178	0.000***
DCP	0.147	0.064*
SMC	-0.082	0.019**
SIZE	0.789	0.000***
Significance level	Wald chi2(2) = 30.14 Prob > chi2 = 0.000***	
Arellano-Bond test for AR(2) in first differences	z = 0.05 Pr > z = 0.963	
Sargan test	chi2(9) = 10.21 Prob > chi2 = 0.334	

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

The estimated results by using the GMM estimator is significant at the 1% level (Prob > chi2 = 0.000). Sargan test also reveals that the adopted instruments are suitable (Prob > chi2 = 0.334) (Table 6). therefore, it can be concluded that the results by estimating the model using the GMM are valid.

Thus, domestic credit to private sector (DCP) exerts positive (0.147) impact on firm performance (ROA) at the 10% level of significance. Concurrently, stock market capitalization (SMC) is negatively (-0.082) correlated to firm performance (ROA) at the 5% significance level. It can be deduced that firm performance is more influenced by developments in the banking system than by those of the stock market. Further, the results also confirm the impact of firm size (SIZE) on firm performance (ROA) is positive (0.789) and significant at the 1% level.

Hence, the research model is estimated by

$$ROA_{it} = -31.178 + 0.147\ DCP_t - 0.082\ SMC_t + 0.789\ SIZE_{it} + \varepsilon_{it} \quad (2).$$

The findings indicate that growth in the banking sector plays a major role in helping firms promote their access to credit as well as their performance. This is consistent with what has been found in a majority of earlier studies. According to them, developments in the banking system facilitate real estate enterprises in access to credit, and they can, in turn, expand their investment and enhance the performance. Furthermore, households find it easier to access to credit, thereby increasing their consumption, investment, and housing demands concurrently. This brings real estate companies more consumed products, in turn improving the performance.

Moreover, the study also reveals an unprecedented finding which is the negative linkage between stock market capitalization (SMC) and firm performance (ROA). Hence, what is really positively associated with the performance of real estate companies is not only stock market

development. It is because firms with large capitalization in the Vietnam stock market tend to make low trading volume. Meanwhile, the number of listed real estate companies in the Vietnam stock market is still limited. More than that, with big growth in the stock market, investors intend to allocate their investment to the stock market (with the high growth rate) instead of the real estate market. It can thus be concluded that the Vietnam stock market does not perform a good role in supplying medium and long-term capital to the real estate market. The stock market even exerts a negative influence on the real estate market as well as firm performance.

5. CONCLUSION

The paper achieved its target in finding the impact of the banking system and stock market on the performance of real estate firms in Vietnam. Particularly, the paper confirms the positive effect of domestic credit to private sector on firm performance. This finding corroborates what has been previously reported. Further, the author also reveals an unprecedented result when stating that the performance of real estate companies is more influenced by the banking sector than by the stock market. This is suitable for Vietnam, a developing country with a specific-major role of the banking system in supplying the capital to the economy as well as the real estate market. Based on these, Vietnam's authorities can propose suitable policies to promote sustainable growth in the banking sector, stock market, and real estate market. For example, (1) It is necessary for banking system to improve their capital supply to real estate market as well as their control for credit risks to assure an effective capital use in real estate market; (2) Stock market also needs restructuring in the direction of promoting liquidity, establishing and fostering real estate investment funds, thereby contributing substantially to growth in real estate market.

The paper has greatly succeeded in giving first empirical evidence on the effect of the banking sector and the stock market on the performance of real estate firms in Vietnam. However, as its limitations, the linkage between firm performance and some control variables, namely economic growth, interest rate, and firm capital structure has not been analyzed yet. This may be an interesting proposal for future research.

6. AVAILABILITY OF DATA AND MATERIAL

Information used and generated in this work is available by contacting the corresponding author.

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Toan Ngoc Bui is a Lecturer at the Faculty of Finance and Banking, Industrial University of Ho Chi Minh City (IUH), Vietnam. He holds a Master of Finance and Banking from Ho Chi Minh City Open University, Vietnam. Currently, he is pursuing a PhD at the University of Finance – Marketing (UFM), Vietnam. His researches are in the fields of financial development, real estate market and applied econometrics.