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Impact of Agency Costs on Firm Performance: Evidence from Vietnam

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Abstract. *An assumption in agency costs theory is that agency costs can exert a negative impact on firm performance. In this study, we examine the impact of agency costs on firm performance of Vietnamese listed companies. Our sample includes 736 companies in Vietnam during the period from 2010 to 2015. We find that agency costs exert a negative impact on firm performance. Our results are robust to alternative econometric models, including an instrumental variables technique and a system generalized method of moment model. In addition, we show that a debt instrument can be a useful tool to reduce the negative impact of agency costs on firm performance.*

Keywords*: agency cost, firm performance, leverage*

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1. Introduction

The issues of agency costs that are mentioned by Jensen and Meckling (1976) have attracted major attention of many scholars around the world (e.g., Ang, Cole, & Lin, 2000; Singh & Davidson, 2003; McKnight & Weir, 2009; Belghitar & Clark, 2015; and Rossi, Barth & Cebula, 2018). Most of these studies have a common assumption that the agency costs have a negative impact on firm performance. This paper aims to test this assumption by investigating the impact of agency costs on firm performance using alternative econometric techniques. In addition, different from previous studies that focus on the U.S. market, our sample is restricted to Vietnam listed companies. While the U.S. has a developed financial market that helps the U.S. companies to access the bond market and therefore rely less on banks' loan, Vietnam has a less developed financial market, which causes the Vietnamese companies to rely substantially on banks. Besides, agency problem and its influence on firm performance are still inadequately investigated in Vietnam, despite the fact that Vietnamese listed firms appear to have an underdeveloped corporate governance system, which gives way for more agency costs to incur. According to IFC's study in 2012, none of the investigated Vietnamese firms achieved satisfactory corporate governance balance score-card results, and Vietnamese firms had much lower scores than firms of Thailand, Hong Kong and the Philippines in previous years. In fact, even though it is a common practice for Vietnamese listed companies to have their CEOs as their general director (which means the representative of shareholders takes on the role of the top manager), it does not mean these companies can completely avoid agency costs. This is because these principal shareholders/top managers possess private information that is unavailable to other stockholders and have the potential to use it for their own benefit at the expense of other stockholders, which can elevate the agency problem.

By investigating 736 Vietnamese listed companies during the period from 2010 to 2015, we find that agency costs have a negative impact on firm performance. Specifically, our results show that one standard deviation increase in agency costs can decrease firm performance, measured by return on assets, by an amount from 22% to 59%. This result is robust to alternative econometric models, including an instrumental variables technique and a system generalized method of moment model. We also show that the negative impact of agency costs on firm performance is mitigated by the use of debt financing.

Our paper contributes to the literature in several aspects. Firstly, this paper confirms the validity of the assumption that assumes that the agency costs have a negative impact on firm performance. Secondly, we provide empirical evidence that a firm's debt can be a useful instrument to ameliorate the negative impact of the agency costs on firm performance.

The remainder of this paper is structured as follows. Section 2 discusses the literature review of agency costs and develops the hypotheses. Section 3 presents our data and methodology. Our empirical results are provided in Section 4. Section 5 concludes.

2. Literature review and hypotheses development

Agency costs are first mentioned in Berle and Means (1932). They argue that when there is a separation between management and ownership in a company, the manager who acts as the agent of the company will have the motivation and opportunity to conduct activities that serve their own interest instead of maximizing the value of the owners' wealth. Thereafter, many studies attempt to investigate the agency problem in corporate governance by developing theoretical frameworks for analyzing agency costs (e.g., Ross, 1973; Jensen & Meckling, 1976; Jensen, 1986; Bernanke & Gertler, 1989; Leland, 1998). Jensen and Meckling (1976) argue that the agency costs occur due to the incomplete contractual relationship between the shareholders (the principal) and the managers (the agent). They mention that the agency costs include three types of costs. The first cost is the expenses incurred by the owners to monitor the activities of the agents, including the expenses for examining, firing agents or binding compensation contract for them. The second cost is the bonding expenditure to create a mechanism to ensure that the owners will be compensated sufficiently when the agents conduct activities causing damages to their benefit. The final cost, which is named residual loss, is the relevant expenses incurred due to the conflict of interest between the principal and agents.

Given that it is difficult to measure agency costs, some studies attempt to propose several proxies for agency costs. Ang et al. (2000) measure the agency costs by the ratio of operating expenses to annual sales and by the ratio of annual sales to total assets. They argue that the first ratio indicates how effectively the company's manager controls operating expenses that include the agency costs. A high ratio of operating expenses over annual sales is associated with high agency costs. The second ratio, asset utilization ratio, measures how effectively the company's manager uses its assets. A higher ratio of asset utilization indicates more efficient use of assets, and therefore this ratio is inversely related to the agency costs.

Extending the study of Ang et al. (2000), Singh and Davidson (2003) also propose two measures of agency costs. Their first measure of agency costs is similar to the one of Ang et al. (2000), which is the asset utilization ratio. However, their second measure is slightly different from the ratio of operating expenses to annual sales as in Ang et al. (2000). They use a ratio of selling, general, and administrative (SG&A) expense to total sales as the second proxy for agency costs. They argue that this measure is better to reflect "managerial discretion in spending company resources" (Singh & Davison (2003), p. 799) than the counterpart measure in Ang et al. (2000). A higher ratio of SG&A expense to total sales indicates higher agency costs. Following the studies of Ang et al. (2000) and Singh and Davidson (2003), other studies also use the two proxies mentioned above (e.g., Fleming, Heaney, & McCosker, 2005; Florackis, 2008; McKnight & Weir, 2009; Rashid, 2013; Rossi et al., 2018).

A growing body of literature has investigated the relationship between agency costs and ownership structure or board structure, and between ownership structure or the

board structure and firm performance (e.g., Ang et al., 2000; Singh & Davidson, 2003; Hermalin & Weisbach, 2003; Fleming et al., 2005; McKnight & Weir, 2009; Margaritis & Psillaki, 2010; Arosa, Iturralde, & Maseda, 2010; Black & Kim, 2012; Liu, Miletkov, Wei, & Yang, 2015; Chen, 2015). On the one hand, the ownership structure that is associated with low agency costs can lead to the increase of firm performance. For example, an increase in the size of the board of directors is associated with a decrease in corporate performance because agency problems become more severe in a company with the larger board of directors (Hermalin & Weisbach, 2003). Black and Kim (2012) and Liu et al. (2015) mention that independent boards can mitigate agency problem and therefore increase firm performance.

On the other hand, several studies document an increase in firm performance when the firm has an ownership structure that is associated with high agency costs. For instance, Ang et al. (2000) find that agency costs are higher in a company that is under management of the outsider rather than the insider. Then Chen (2015) shows that an increase in the number of outsiders managing the firm can improve the firm performance; ownership concentration that has a positive relationship with agency costs (Rossi et al., 2018) can also have a positive relationship with firm performance (Margaritis & Psillaki, 2010). Taken together, the empirical studies mentioned above do not reach the same conclusion on the impact of agency costs on firm performance.

In emerging markets of Asia, the influence of agency problem and/or corporate governance on firm performance has been addressed in several recent studies. However, very few of them directly tackled agency cost in the form of an observable accounting-based measure. Research by Yao and Wu (2014) was probably the only notable paper following such approach which empirically proved negative effect of agency cost on firm performance, but its research scope is limited to only one industry (insurance) in China. Other papers investigated firm performance or firm value effect of different corporate governance's aspects such as the board of directors independence, ownership structure or even capital structure in various contexts, e.g., China (Xiao & Zhao, 2011; Chen & Jia, 2015), India (Shrivastav & Hagendorff, 2016; Arora & Sharma, 2016; Mohan & Chandramohan, 2018), Malaysia (Jakpar et al., 2019; Jamaludin et al., 2018; P. Bhatt & R. Bhatt, 2017; Yusoff & Alhaji, 2012; Zabri et al., 2016), Indonesia (Herdjiono & Sari, 2017; Malelak & Basana, 2015), Thailand (Detthamrong et al., 2017; Hsu & Petchsakulwong, 2010) the Philippines (Mohammadpoor & Teehankee, 2014), but almost none of them integrated an accounting-based measure of agency costs in research model to directly test its effect on firm performance and value (though agency costs might somehow be involved in the discussions of these papers as a integral part of explaining corporate governance's affecting mechanism on firm performance and firm value). Therefore, the literature on the influence of agency costs on firm performance suggests a considerable research gap for emerging markets in Asia.

Based on the underlying assumption that agency costs exert a negative impact on firm performance (Jensen & Meckling, 1976), we develop the following hypothesis:

Hypothesis 1: The increase in agency costs can reduce firm performance.

Jensen and Meckling (1976) mention that a debt instrument can be a useful tool to monitor agency costs. The increase of the company's debt ratio will put more stress on its manager because he has to pay more interest expenses and debt principal in the future. As a result, he needs to avoid inefficient investment in order to preserve the ability to meet debt obligation. This may help to reduce the conflict between the company's shareholders and managers and thus reduce the agency costs between them. Based on Jensen and Meckling (1976), we predict that the company's debt instrument can reduce the negative impact of agency costs on firm performance. Our second hypothesis is as follows:

Hypothesis 2: The firm's leverage can reduce the negative impact of agency costs on firm performance.

3. Data and methodology

3.1. Data

Our sample contains 736 Vietnam listed companies during the period from 2010 to 2015. The financial data is sourced from STOCKPLUS database.[1] These companies, which do not include financial companies and utilities companies, are classified into 8 industries based on Industry Classification Benchmark (ICB). The final sample is a balanced data set consisting of 4.416 firm-year observations.

3.2. Research methodology

To examine the impact of agency costs on firm performance, panel data analysis is employed. A notable advantage of this method is that it can remedy the absence of unobservable characteristics of each company. Specifically, the four following models are estimated:

$$ROA_{it} = \beta_1 + \beta_2 SALE\_ASSET_{it} + \beta_3 lnTA_{it} + \beta_4 LEVERAGE_{it} + \beta_5 Age_{it} + \varepsilon_{it} \quad (1)$$

$$ROA_{it} = \beta_1 + \beta_2 SGA\_SALE_{it} + \beta_3 lnTA_{it} + \beta_4 LEVERAGE_{it} + \beta_5 Age_{it} + \phi_{it} \quad (2)$$

$$ROE_{it} = \beta_1 + \beta_2 SALE\_ASSET_{it} + \beta_3 lnTA_{it} + \beta_4 LEVERAGE_{it} + \beta_5 Age_{it} + \gamma_{it} \quad (3)$$

$$ROE_{it} = \beta_1 + \beta_2 SGA\_SALE_{it} + \beta_3 lnTA_{it} + \beta_4 LEVERAGE_{it} + \beta_5 Age_{it} + \eta_{it} \quad (4)$$

where i indexes company and t indexes year.

[1] StockPlus Corporate provides financial information of all listed companies in Vietnam.

Our dependent variables are ROA in Equations 1 and 2, and ROE in Equation 3 and 4, respectively. ROA is calculated as the ratio of income after tax to total assets, while ROE is measured as the ratio of income after tax to total equity. We follow Ang et al. (2000) and Singh and Davidson (2003) and use the ratio of net sales to total assets (SALE_ASSET) and the ratio of SG&A expenses (SGA_SALE) to net sales as the proxy for agency costs. The first proxy for agency costs, SALE_ASSET, is a measure of asset utilization that evaluates the efficiency of assets. The second proxy for agency costs, SGA_SALE, captures the manager's ability to control the SG&A expenses, whereas a high ratio of SALE_ASSET implies low agency costs, a high ratio of SGA_SALE alludes to high agency costs.

We also include a set of control variables in our model based on the literature on the determinants of firm performance in emerging countries (e.g., Chen, 2015; Liu et al., 2015; Arora & Sharma, 2016). Specifically, we control firm size (lnTA), leverage (LEVERAGE), and firm age (AGE). The definition of these control variables is presented in Table 1.

Finally, ε, ϕ, γ, and η are the error terms in Equations 1, 2, 3, and 4, respectively. We include the industry dummy variables and year dummy variables in our model to capture the industry fixed effects and year fixed effects, respectively. The standard errors are adjusted for heteroskedasticity and clustered at the firm level. All variables are winsorized at the 1st and 99th percentile to remove the impact of outliers. Our coefficients of interest are the coefficients estimated on SALE_ASSET and SGA_SALE, which are expected to have positive and negative value, respectively.

TABLE 1. **Definition of variables**

Variable	Description of calculation
Dependent variable	
ROA	Profit after tax / Total assets
ROE	Profit after tax / Total equity
Independent variables	
SALE_ASSET	Net sales / Total asset
SGA_SALE	SG&A expense / Net sales
Control variables	
lnTA	Natural logarithm of total assets
LEVERAGE	Total debt / Total assets
AGE	The number of years since the firm's establishment

This table presents the definition of variables employed in our paper.

Given that our data is the panel data, we can estimate Equations 1, 2, 3, and 4 by a pooled Ordinary Least Squares (OLS) model, a random effects (RE) model, or a fixed effects (FE) model. To choose an appropriate model between the pooled OLS model, the RE model, or the FE model, Wooldridge (2010) proposes employing the Breusch and Pagan Lagrangian multiplier test and the Hausman test. However, since the Haus-

man test cannot be used when standard errors are adjusted for heteroskedasticity and clustered at the firm level, we employ a test of overidentifying restrictions to choose between RE model and FE model (Schaffer & Stillman, 2010). After using the Breusch and Pagan Lagrangian multiplier test and the test of overidentifying restrictions, the FE model should be used to estimate Equations 1 and 2.[2] As a result, we only report the results estimated from the FE model in this paper.[3]

4. Empirical results

4.1. Descriptive statistics

Table 2 provides summary statistics for the variables used in our study. The mean of SALE_ASSET and SGA_SALE is 1.209 and 0.038, respectively. These numbers for Vietnamese companies are lower than those for the US counterparts in Singh and Davidson (2003), who show that SALE_ASSET and SGA_SALE have the mean value of 1.430 and 0.279, respectively. Regarding the profitability, the mean of ROA in our sample is 0.0511, which is similar to 0.0516 in the US study (Anderson & Reeb, 2003). However, compared with the US companies, the companies in our sample have higher leverage. The mean of leverage in our sample is 0.523, whereas the corresponding number in Singh and Davidson (2003) is 0.190. Overall, our setting is substantially different from the US setting, which suggests that it may be necessary to investigate the agency costs in Vietnam.

TABLE 2. **Descriptive statistics**

Variable	N	Mean	Std	Min	Max
ROA	4416	0.051	0.078	-0.214	0.320
ROE	4416	0.101	0.191	-1.001	0.687
SALE_ASSET	4416	1.209	1.068	0.014	6.562
SGA_SALE	4416	0.038	0.052	0.000	0.264
lnTA	4416	26.726	1.440	23.770	30.681
LEVERAGE	4416	0.523	0.233	0.046	1.055
lnAGE	4416	2.909	0.685	1.386	4.043

This table provides summary statistics for the variables used in this paper. The definition of these variables is presented in Table 1.

Table 3 provides a correlation matrix for the variables used in our study. The results show that all the correlation values between explanatory variables are below 0.7, which implies that our model does not have a multicollinearity problem.

[2] The p-values of Breusch and Pagan Lagrangian multiplier test and the test of overidentifying restrictions are 0.000.

[3] A firm fixed effects model also captures the industry fixed effects. As a result, it is unnecessary to include the industry dummy variables in the firm fixed effects model.

TABLE 3. **Correlation matrix**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) ROA	1.000						
(2) ROE	0.669	1.000					
(3) SALE_ASSET	0.216	0.198	1.000				
(4) SGA_SALE	0.084	0.016	0.031	1.000			
(5) lnTA	-0.033	0.042	-0.193	-0.017	1.000		
(6) LEVERAGE	-0.441	-0.114	-0.002	-0.174	0.320	1.000	
(7) AGE	0.044	0.047	0.154	0.067	0.023	0.102	1.000

This table provides the correlation matrix of the variables used in this paper. All variables are winsorized at the 1st and 99th percentile.

4.2. Multivariate results

Table 4 provides the results estimated from Equations 1, 2, 3, and 4 using a firm fix effects model. In columns 1 and 2, the dependent variable is ROA. In column 1, the estimated coefficient on SALE_ASSET is positive and significant at the 1% level, suggesting that the high asset turnover ratio (low agency costs) is associated with the high firm performance. The economic impact of this variable is also large. One standard deviation increase in SALE_ASSET can make ROA increase by around 3.0 percentage point (=1.068 * 0.028). This number is equal to approximate 59% of the mean of ROA in our sample.

TABLE 4. **Impact of agency costs on firm performance**

	Dependent variable			
	ROA		**ROE**	
VARIABLES	(1)	(2)	(3)	(4)
SALE_ASSET	0.028***		0.070***	
	(0.004)		(0.010)	
SGA_SALE		-0.221***		-0.576***
		(0.045)		(0.148)
lnASSET	0.033***	0.027***	0.074***	0.059***
	(0.005)	(0.005)	(0.018)	(0.018)
LEVERAGE	-0.175***	-0.188***	-0.174***	-0.207***
	(0.017)	(0.016)	(0.056)	(0.056)
lnAGE	-0.012	-0.003	0.009	0.032
	(0.013)	(0.013)	(0.033)	(0.035)
Constant	-0.733***	-0.552***	-1.909***	-1.454***
	(0.148)	(0.144)	(0.489)	(0.496)

	Dependent variable			
	ROA		ROE	
Observations	4,416	4,416	4,416	4,416
Industry dummy	NO	NO	NO	NO
Year dummy	YES	YES	YES	YES
R-squared	0.209	0.176	0.082	0.062

*This table presents results from a fixed effects model. The dependent variable is ROA in columns 1 and 2 and ROE in columns 3 and 4, respectively. All variables are defined in Table 1 and are winsorized at the 1st and 99th percentile. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.*

In column 2, the estimated coefficient on SGA_SALE is negative and significant at the 1% level, which may suggest that high managerial discretionary expense (high agency costs) is associated with low firm performance. Regarding the economic impact of SGA_SALE, one standard deviation increase in SGA_SALE can reduce ROA by around 1.1 percentage point (= 0.052 * 0.221), which corresponds to approximately 22% of the mean of ROA in our sample. We find qualitatively similar results when the dependent variable is ROE (columns 3 and 4). Overall, our results are consistent with Hypothesis 1, which states that companies with low agency costs have higher performance than those with high agency costs.

With regard to control variables, the results show that the estimated coefficient on firm size is positive and significant at the 1% level, suggesting that publicly listed companies in Vietnam can take advantage from economies of scale. In contrast, the coefficient on leverage is significantly negative. This can be explained by the fact that Vietnamese companies employ too much debt, resulting in such huge burden on paying interest expenses that they cannot get benefit from the tax shield, which can cause the reduction in the companies' profitability.

4.3. Robustness checks

4.3.1. Lag model and instrumental variables technique

In this section, we attempt to deal with the concern that agency costs are endogenous in our model due to the reverse causality or omitted variables. In the first robustness check that can mitigate the reverse causality, we follow the methodology of Chen and King (2014) and estimate Equation 1 by a fixed effects model with the lag 1 year of the right-hand side variables. The results are reported in Table 5. The dependent variables are ROA in columns 1 and 2 and ROE in columns 5 and 6, respectively. The estimated coefficient on SALE_ASSET is still significantly positive albeit with a smaller magnitude. However, the coefficient on SGA_SALE is insignificant.

TABLE 5. **Robustness tests - Lag model and instrumental variables technique**

	Dependent variable							
	ROA				ROE			
	LAG		IV		LAG		IV	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SALE_ASSET	0.013***		0.072***		0.038***		0.126**	
	(0.004)		(0.021)		(0.011)		(0.062)	
SGA_ASSET		0.034		-0.622*		-0.045		-0.611
		(0.068)		(0.345)		(0.182)		(1.042)
lnASSET	-0.023***	-0.025***	0.040***	0.025***	-0.068***	-0.073***	0.084***	0.059***
	(0.007)	(0.008)	(0.007)	(0.005)	(0.026)	(0.027)	(0.022)	(0.018)
LEVERAGE	0.028	0.018	-0.150***	-0.184***	0.258***	0.230***	-0.142**	-0.206***
	(0.021)	(0.021)	(0.022)	(0.016)	(0.069)	(0.070)	(0.065)	(0.055)
lnAGE	-0.001	0.001	-0.024*	-0.001	0.047	0.053	-0.006	0.032
	(0.016)	(0.016)	(0.013)	(0.015)	(0.044)	(0.044)	(0.037)	(0.035)
Constant	0.647***	0.703***			1.603**	1.778**		
	(0.195)	(0.198)			(0.702)	(0.711)		
Observations	3,680	3,680	4,416	4,416	3,680	3,680	4,416	4,416
Industry dummy	NO	NO	NO	NO	NO	NO	NO	NO
Year dummy	YES	YES	YES	YES	YES	YES	YES	YES
Kleibergen-Paap rk LM statistic – p value			0.000	0.000			0.000	0.000
Kleibergen-Paap rk Wald F statistic			23.625	29.660			23.625	29.660
R-squared	0.041	0.033	0.103	0.148	0.034	0.028	0.065	0.062

*This table presents results from a fixed effects model with the lag 1 year of independent and control variable in columns 1, 2, 5, and 6, and from an instrumental variables model in columns 3, 4, 7, and 8, respectively. In columns 1, 2, 3, and 4, the dependent variable is ROA. In columns 5, 6, 7, and 8, the dependent variable is ROE. All variables are defined in Table 1 and are winsorized at the 1st and 99th percentile. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.*

In the second robustness check, we employ a two-stage least squares instrumental variables technique for panel data to address the omitted variables problem.[4] The endogenous variables will be regressed on the instrumental variables in the first stage regression, and all of the independent variables in the second stage regression. Then, in the second stage regression, the dependent variable will be regressed on the predicted values of the endogenous variables, which are estimated from the first stage regression and all of the independent variables. The instruments need to have a strong relationship with the endogenous variables and not have a direct impact on the dependent variable. The first

[4] This can be implemented by the command xtivreg2 in STATA; xtivreg2 does not report a constant for a fixed effects model.

instrumental variable we use in this paper is the mean of SALE_ASSET in each industry. This variable is the instrument for SALE_ASSET. For example, if company i operates in industry j in year t, the instruments of variable SALE_ASSET of company i in year t will take the value equal to the mean of SALE_ASSET of the industry j, which is calculated as the average value of SALE_ASSET of all companies in industry j in year t. In the same manner, we use the mean of SGA_SALE in each industry as the proxy for SGA_SALE.

We report the results estimated from the two-stage least square instrumental variables technique in columns 3, 4, 7, and 8 of Table 5. The p value of the underidentification test (Kleibergen-Paap rk LM statistic) is 0.000 in all the 4 columns, suggesting that the instruments are relevant. Additionally, the Kleibergen-Paap rk Wald F statistics are higher than 10 in all 4 columns, suggesting that the instruments are not weak. In columns 3 and 4, the dependent variable is ROA. The results confirm the significantly positive impact of SALE_ASSET and the significantly negative impact of SGA_SALE on ROA, respectively. In columns 7 and 8, the dependent variable is ROE. Whereas the coefficient estimated on SALE_ASSET is significantly positive at the 5% level, the coefficient estimated on SGA_ASSET is insignificant. One of the reasons explaining the insignificant coefficient on SGA_SALE in columns 2, 6, and 8 is that SGA_SALE is not a good proxy for agency costs in Vietnam. In our sample, approximately 20% firm-year observation of this variable has the value of zero. Overall, our results from these robustness checks are consistent with the previous finding that companies with lower agency costs have higher firm performance.

4.3.2. Dynamic model

In this section, we further deal with the concern about the endogeneity problem by using the System Generalized Method of Moments (SGMM) technique.[5] One of the advantages of this method is that it allows us to investigate the dynamic effects of firm performance. If a firm had a good performance in the previous year, it can also have a good performance in the current year. To examine this, we add the lag one year of the dependent variable to the right-hand side of Equations 1, 2, 3, and 4. Another advantage of the SGMM model is that it is unnecessary to find any new instrumental variables for the endogenous variables in this model. In this method, the lag value of the endogenous variables is used as the instruments for the endogenous variable. The results using SGMM model are reported in Table 6.

The post-estimation tests confirm the validity of our model. The p value of the AR(2) test is higher than 0.1, suggesting that there is no autocorrelation of the second lags of the endogenous variables. In addition, the insignificance of the Hansen test indicates that our instruments are valid instruments. In columns 1 and 2, the dependent variable is ROA. In column 1, the coefficient on SALE_ASSET is significantly positive at the 1% level, which is consistent with the result above. By contrast, the coefficient on

[5] See Arellano and Bover (1995) and Blundell and Bond (1998) for an explanation of the SGMM model.

TABLE 6. **Robustness tests – Dynamic model**

	Dependent variable			
	ROA		ROE	
VARIABLES	(1)	(2)	(3)	(4)
L.ROA	0.435***	0.604***		
	(0.088)	(0.079)		
L.ROE			0.255**	0.296***
			(0.106)	(0.103)
SALE_ASSET	0.026***		0.069***	
	(0.009)		(0.022)	
SGA_SALE		0.195		0.086
		(0.125)		(0.396)
lnASSET	0.015*	0.004	0.057***	0.057***
	(0.008)	(0.007)	(0.021)	(0.021)
LEVERAGE	-0.068	-0.017	-0.052	-0.060
	(0.044)	(0.043)	(0.122)	(0.117)
lnAGE	-0.000	0.003	-0.007	0.008
	(0.003)	(0.003)	(0.010)	(0.009)
Constant	-0.377*	-0.109	-1.565***	-1.520***
	(0.195)	(0.184)	(0.550)	(0.539)
Observations	3,680	3,680	3,680	3,680
Industry dummy	YES	YES	YES	YES
Year dummy	YES	YES	YES	YES
AR(1) test – p value	0.000	0.000	0.000	0.000
AR(2) test – p value	0.993	0.899	0.138	0.176
Hansen test – p value	0.565	0.400	0.278	0.424

*This table presents results from a SGMM model. The dependent variable is ROA in columns 1 and 2, and ROE in columns 3 and 4, respectively. All variables are defined in Table 1 and are winsorized at the 1st and 99th percentile. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.*

SGA_SALE is insignificant. When the dependent variable is ROE, the results which are reported in columns 3 and 4 are qualitatively similar. As mentioned above, the fact that the coefficient on SGA_SALE is insignificant in this model can be explained because SGA_SALE is not an appropriate proxy for agency costs in Vietnam. Regarding the lag variable of the dependent variable in each model, we find that the coefficient estimated on these lag variables is positive and significant. This suggests that the previous year's profitability can be positively associated with the current year's profitability.

4.4. Effect of leverage on the relationship between agency costs and firm performance

So far our paper has focused on the impact of agency costs on firm performance. We show that agency costs exert a negative impact on firm performance. Jensen (1986) shows that companies' debt can mitigate the negative impact of agency costs. In this section, we investigate the effects of leverage on the relationship between agency costs and firm performance by including the interaction term between the proxy of agency costs and the company's leverage in Equations 1, 2, 3, and 4. Then we use a least squares dummy variables model to estimate these equations. The results are presented in Table 7.

TABLE 7. **The effect of leverage on the relationship between agency costs and firm performance**

	Dependent variable			
	ROA		**ROE**	
VARIABLES	(1)	(2)	(3)	(4)
SALE_ASSET	0.038***		0.045***	
	(0.006)		(0.014)	
SALE_ASSET * LEVERAGE	-0.018**		0.046	
	(0.009)		(0.029)	
SGA_SALE		-0.257**		-0.430
		(0.116)		(0.325)
SGA_SALE * LEVERAGE		0.070		-0.289
		(0.203)		(0.688)
lnASSET	0.033***	0.027***	0.072***	0.059***
	(0.006)	(0.006)	(0.020)	(0.020)
LEVERAGE	-0.154***	-0.190***	-0.226***	-0.197***
	(0.023)	(0.020)	(0.077)	(0.065)
lnAGE	-0.011	-0.003	0.007	0.032
	(0.014)	(0.015)	(0.036)	(0.038)
Constant	-0.768***	-0.550***	-1.823***	-1.463***
	(0.160)	(0.158)	(0.532)	(0.540)
Observations	4,416	4,416	4,416	4,416
Industry dummy	NO	NO	NO	NO
Year dummy	YES	YES	YES	YES
R-squared	0.724	0.712	0.453	0.440

*This table presents results from a least square dummy variables model. The dependent variable is ROA in columns 1 and 2, and ROE in columns 3 and 4, respectively. All variables are defined in Table 1 and are winsorized at the 1st and 99th percentile. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.*

In columns 1 and 2, the dependent variable is ROA. The coefficients of SALE_ASSET and SGA_SALE are still significantly positive and negative, respectively. In addition, the interaction term between SALE_ASSET and LEVERAGE is negative and significant at the 5% level, suggesting that the negative impact of agency costs on firm performance can be ameliorated when the company's leverage is high. For example, if a firm does not use any debt, the reduction by one standard deviation in SALE_ASSET can lead to a decrease in ROA by 4.0 percentage points (=0.038*1.068). However, the magnitude of this decrease in ROA will decline by 1.0 percentage point (=0.018*0.523*1.068) if the company has a leverage of 0.523 (the mean of leverage in our sample). In unreported analysis, we find that the marginal effect of the firm's leverage is significant and negative when SALE_ASSET is equal to the 5th percentile, 50th percentile, or 95th percentile. This suggests that the costs of using debt, such as increasing the firm's default risk, are much higher than the benefits of using debt, such as reducing the firm's agency costs. Although we still find the significantly negative coefficient of SGA_SALE, its interaction term with LEVERAGE is insignificant.

In contrast to the results with ROA as a dependent variable, we do not find any significant effect of leverage on the relationship between agency costs and firm performance. Overall, we find evidence supporting our Hypothesis 2, which predicts that leverage can mitigate the negative impact of agency costs on firm performance. Our result is similar to the result of McKnight and Weir (2009), who find that debt reduces agency costs. In addition, given that most of the debt in Vietnamese companies are funded by banks, our results corroborate the finding of Ang et al. (2000) that agency costs are lower with greater monitoring by banks.

5. Conclusion

When investigating the agency costs in corporate governance, most of the studies assume that agency costs have a negative impact on firm performance (Jensen & Meckling, 1976; Singh & Davidson, 2003; Hermalin& Weisbach, 2003; Fleming et al., 2005; McKnight & Weir, 2009; Margaritis & Psillaki, 2010; Arosa, Iturralde, & Maseda, 2010; Black & Kim, 2012; Liu et al., 2015; Chen, 2015). The aim of this paper is to investigate the relationship between agency costs and firm performance in Vietnam, which provides a different setting from the one in the U.S. in many aspects.

Our sample consists of 736 Vietnamese listed public companies over the period from 2010 to 2015. Our results show that agency costs, measured by asset utilization ratio and SG&A expenses scaled by net sales, exert a negative impact on firm performance, measured by return on assets and return on equity, suggesting that the assumption mentioned above is valid. Additionally, we also find that the negative impact of agency costs on firm performance is ameliorated by increasing the firm's debt. This result corroborates the argument of Jensen (1986) that firm's debt is a useful instrument to monitor agency costs.

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