

Determinants of Firm Performance of Vietnam Listed Companies

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Abstract

The aim of this research is to examine the effects of employee compensation, firm age, firm size, capital intensity and export factor on financial performance of listed companies on Vietnam stock markets. It shows that employee compensation is an endogenous regressor. Hence, the linear instrumental variable regression method is used. This research finds that, by directly affecting employee compensation, the variables total assets, net sales, owners' equity and number of employees may have indirect effects on firm performance. Especially, this research provides significant evidences that ROA is positively related to employee compensation, firm age and export factor but negatively related to total assets; ROE is positively related to net sales while it is negatively related to employee compensation, export factor and capital intensity; ROS is positively related to employee compensation but negatively related to net sales.

Keywords: Firm performance, Vietnam stock markets, Linear instrumental variable regression

Introduction

As stated by Gunnigle *et al.* (1997), people are lifeblood of organization. Managing people in organizations is a function of human resource management, which is one of the most difficult aspects of human resource management. This is because people differ in their physical and psychology. A notable point in managing people mentioned by Brooks (1987) is that individual competence is an important factor that decides operational effectiveness in terms of providing quality products and services. Thus, a compensation strategy, which allows companies to attract good employees, retain them, and even further, encourage them to put more efforts on working, is very important. This study provides an empirical analysis of the relationship between paid compensation and the financial ratios of listed companies on Vietnam stock markets.

The objective of this study is to examine the effects of employee compensation, firm age, firm size and industry-specific factors on financial performance of listed companies on Vietnam stock markets. In which, firm size can be measured by either of total assets, net sales and number of employees; industry-specific factors include capital

intensity and export factor; and financial performance are measured by return on assets (ROA), return on sales (ROS) and return on equity (ROE).

Literature Review

The relationship between employee compensation and firm performance has been studied in many countries such as China, Taiwan, Hong Kong, Greece, the United States, France, Pakistan, this analysis has never been done for Vietnam. In this paper, we show that employee compensation is an endogenous regressor instead of an exogenous regressor. That is, employee compensation can be explained by some factors such as total assets, net sales, owners' equity and number of employees.

Discussing the effects of firm size on its performance, Majumdar (1997) and Asimakopoulou *et al.* (2009) argued that large firms, in term of total sales, are more profitable than small firms. This is because the large firms enjoy higher profit and take advantage in negotiating the price of inputs. Another article, Lee (2009), showed that the greater total assets, the higher profitability. The reason is that large firms are likely to be more efficient in operating and producing by exploiting the advantage of economies of scale than small firms. Our paper examines the effects of firm size on its performance, whereby the firm size is measured not only by total assets and net sales but also by number of employees.

There are considerable evidences that the firm age also has a significant impact on firm performance. With respect of the impact of firm age measured by number of years since the establishment of the firm to the year the data are collected, Majumdar (1997) showed that older firms are more productive and less profitable compared with younger firms. This result is similar to what Liargovas and Skandalis (2010) obtained. They found that the profitable firms are young by analyzing a sample of 102 listed Greek industrial firms in the Athens Stock Exchange over the period 1997-2004. In this paper, we show that effect of firm age on firm performance is obvious if firm performance is measured by ROA. The effect is ambiguous if firm performance is measured by either ROS or ROE.

Several literatures have examined the effects of industry-specific factors such as capital intensity and export factor on firm performance. For example, Liargovas and Skandalis (2010) found that capital intensity negatively affects ROA and ROE; Majumdar (1997) found that capital intensity is negatively related to firm profitability; Lee (2010) studied the effect of capital intensity on firm performance in food service industry and found that capital intensity negatively affects firms' value performance. Differently, we show that the coefficient of the relationship between capital intensity and firm performance is significant if firm performance is measured by ROE, otherwise it is insignificant.

Turning to the relationship between firm performance and its exporter status, most of the existing literatures found that this is a positive relationship. For example, Liargovas and Skandalis (2010) found that export activity is positively related to ROA. Similarly, using a panel data collected from 1986 to 1996 for Taiwan electronics firms, Yang (2003) stated that exporters seem to be more productivity than non-exporter. Agiomirgianakis *et al.* (2006), however, found a negative influence of export activity on profitability of Greek manufacturing firms. The result was obtained from a panel data of 3,904 Greek manufacturing firms for the years 1995 and 1999. In this paper, we show that export activity is positively related to ROA and is negatively related to ROS. If firm performance is measured by ROE, the relationship between export activity and firm performance is ambiguous.

Data and Methodology

This study considers listed companies on Vietnam stock markets, Ha Noi and Ho Chi Minh, during the period 2004-2010. Although all of the stock companies in Viet Nam are considered, we have enough information of 233 companies in some certain years. In which, 119 companies are listed on HNX, and 114 companies are listed on HOSE. The total observations in a pool data is 612.

The examination covers only the paid compensation per employee but it does not take into account some employees' characteristics such as their job properties, education level, gender, working experiences and their location. In fact, the living standard differs across regions. Hence, companies located in big and more developed cities might to pay

higher salary compare to less developed cities. For instance, salary in Hanoi and Ho Chi Minh City is more likely to be higher than in other cities. These overlooked properties could be on the agenda for the future research.

The dependent variable is firm performance. It can be measured by either of return on assets (ROA), return on sales (ROS) and return on equity (ROE). In which, ROA reveals how successful a listed company generates profit from its assets; ROE measures profitability of listed company by revealing how much profit company can generate from the money that stockholders have invested; and ROS, or profit margin, provides insight into how much profit is earned per unit of money.

The regressors include employee compensation, firm age, firm size (total assets, net sales and number of employees), capital intensity, export factor and owners' equity. Employee compensation is paid compensation per employee per year; capital intensity is the ratio of fixed assets to total assets; export is a dummy variable, equals to 1 if a company is an exporter and equals to 0 otherwise.

Hypotheses of this study are as follows.

Hypothesis 1: Paid compensation per employee affects firm performance.

Hypothesis 2: Firm age affects firm performance.

Hypothesis 3: Firm size affects firm performance.

Hypothesis 4: Capital intensity affects firm performance.

Hypothesis 5: Export factor affects firm performance.

This paper takes into account some econometric approaches in analyzing the data. First, visual inspection of the original data suggests that heteroskedasticity seems to be present. Thus, we take natural logarithm transformations of the data. Data analysis shows that log employee compensation is more likely to be an endogenous regressor. Hence, the OLS estimator is inconsistent and the OLS estimator can no longer be given a causal interpretation. This is because the fundamental assumption for consistency of least-squares estimators is that the model error term is unrelated to the regressors. In case of endogeneity problem, this assumption fails.

The obvious solution to the endogeneity problem is to use the linear instrumental-variables (IV) regression. It provides a consistent estimator under the very strong assumption that valid instruments exist. The instruments are the variables that are uncorrelated with the dependent variables but strongly correlated with the endogenous regressors.

In this paper, we run the instrumental variables regression by two-stage least square method. In the first stage, we run the regression of endogenous regressor on exogenous regressors and instrumental variables. The instrumental variables must be strongly correlated with endogenous regressor and uncorrelated with dependent variable. In the second stage, we run the regression of dependent variable on the exogenous regressors and the endogenous regressors.

Because the same method is applied to run regression of each dependent variable on endogenous regressors and exogenous regressors, a general IV regression model is considered. In the general regression model, there are a the scalar dependent variable y_1 , which depend on endogenous regressors, denoted by y_2 , and exogenous regressors (including an intercept), denoted by x_1 . This model is called a structural equation or the second-stage equation, with

$$y_{1i} = y_{2i}' \beta_1 + x_{1i}' \beta_2 + u_i, \quad i = 1, \dots, N$$

The regression errors u_i are assumed to be uncorrelated with x_{1i} , but are correlated with y_{2i} . This correlation leads to the OLS estimator being inconsistent for β . To obtain a consistent estimator, the analysis need to find strong instruments x_2 for y_2 that satisfy the assumption that $E(u_i | x_{2i})=0$. Each component y_{2j} of y_2 satisfies a reduced-form equation, or the first-stage equation,

$$y_{2j} = x'_{1i} \gamma_{1j} + x'_{2i} \gamma_{2j} + \varepsilon_{ji}, j = 1, \dots, m$$

The first-stage equations have exogenous variables and instrumental variables on the right-hand side. In this research, the dependent variables, endogenous regressors, exogenous regressors and instrumental variables are provided in the following table.

Table 1: Variables of the instrumental variable regression model

Dependent variable	Endogenous regressors	Exogenous regressors	Instrumental variables
LnROA	LnCom	LnAge, Export, LnAsset, LnCap	LnSale, LnEmpl, LnEquity
LnROE	LnCom	LnAge, LnCap, LnSale, Export	LnEmpl, LnEquity
LnROS	LnCom	LnAge, LnSale, LnCap, Export	LnAsset, LnEmpl

Results

This section focuses on analyzing the effects of the key factors on firm performance. In other words, it tests our hypotheses. The main findings of this paper are shown in Table 2.

Table 2: Final result of research

	(I) LnCom	(II) LnROA	(I) LnCom	(II) LnROE	(I) LnCom	(II) LnROS
LnAge	0.0333 (1.11)	0.189*** (3.65)	0.0406 (1.37)	0.0492 (0.99)	0.0441 (1.41)	0.0659 (1.08)
Export	-0.119** (-2.84)	0.296** (2.86)	-0.0962* (-2.35)	-0.225* (-2.17)	-0.0342 (-0.80)	0.0931 (0.82)
LnSale	0.122*** (4.54)		0.103*** (4.2)	0.155*** (3.98)	0.123*** (4.4)	-0.368*** (-7.69)
LnEmpl	-0.206*** (-8.88)		-0.215*** (-9.54)		-0.228*** (-9.56)	
LnEquity	0.255*** (7.84)		0.208*** (9.96)			
LnCap	-0.0351 (-1.77)	0.0177 (0.44)	-0.0329 (-1.67)	-0.134*** (-4.07)	-0.023 (-1.14)	0.0584 (1.34)
LnAsset	-0.0677 (-1.72)	-0.321*** (-8.46)			0.165*** (6.43)	
LnCom		1.184*** (7.76)		-0.580*** (-4.55)		1.154*** (5.79)
_cons	1.223***	0.834	1.181***	2.690***	1.368***	2.053***

	(6.17)	(1.66)	(6.09)	(6.33)	(6.55)	(3.44)
N	612	612	612	612	612	612
R-sq	0.331	.	0.327	.	0.272	0.08
Tests of endogeneity		p=0.0000		p=0.0000		p=0.0014
Test of overidentifying restrictions		p=0.0000		p=0.0020		p=0.0000
t statistics in parentheses						
* p<0.05, ** p<0.01, *** p<0.001						
Note: (I) – First-stage equation; (II) – Second-stage equation						

Hypothesis 1: Paid compensation per employee affects firm performance.

Table 2 shows that the effects of paid compensation per employee on firm performance (LnCom) differ across the financial ratios. Particularly, LnCom positively impacts on LnROA and LnROS. LnCom, however, negatively impacts on LnROE. The coefficients of these relationships are significant at $p<0.001$. The results suggest that if paid compensation increase by 1% ROA tends to increase by 1.184%; ROE tends to decrease by 0.58%; and ROS tends to increase by 1.154%. This means that employees will push more effort in working if their company increases compensation. As a result, the company performs better in term of ROA and ROS. However, an increase in paid compensation per employee is more likely reduce the ROE. This result is quite reasonable because budget of compensation is a part of owners' equity.

Hypothesis 2: Firm age affects firm performance.

As shown in Table 2, LnAge is positively related to LnROA. The effect is significant at $p<0.001$. This means old firms have higher productivity than young firms. Particularly, one year increase in the firm age tends to increase ROA by 18.9%. The effects of LnAge on LnROE and LnROS are insignificant.

Hypothesis 3: Firm size affects firm performance.

The firm size in term of total sales (LnSale) is positively related to LnROE and negatively related to LnROS. The coefficients are significant at $p<.001$. This means that the ROE is more likely to increase if companies have greater net sales. Besides, the negative relationship between LnSale and LnROS could be explained by the formula of the ROS. The results suggest that if net sales increases 1%, ROE tends to increase by 0.155%; and ROS tends to decrease by 0.368%.

The firm size in term of total assets (LnAsset) is negatively related to LnROA. The coefficient is very significant, at $p<0.001$. The coefficient suggests that 1% increase in total assets tends to decline ROA by 0.321%.

The firm size in term of number of employees (LnEmpl) does not affect directly on firm performance. It affects indirectly through the channel of paid compensation per employee. Table 2 shows that LnEmpl is negatively related to LnCom. If the number of employee increases by 1%, paid compensation per employee will decrease by around 0.2%. The results are significant at $p<0.001$.

Hypothesis 4: Capital intensity affects firm performance.

Capital intensity (LnCap) is negatively related to LnROE. The result is significant at $p<0.001$. ROE tends to decrease by 0.134% if capital intensity increases by 1%. It suggests that the higher ratio of fixed assets to total assets

leads to an inefficient use of working capital, or low cash reserve. The effects of LnCap on LnROA and on LnROS, however, are insignificant.

Hypothesis 5: Export factor affects firm performance.

Table 2 shows that Export is positively related to LnROA. The coefficient is significant at $p < 0.01$. ROA of an export company tends to be 0.296% higher than a non-export company. Export, however, is negatively related with LnROE and the coefficient is significant at $p < 0.05$. ROE of an export company tends to be 0.225% lower than a non-export company. The effect of Export factor on LnROS is insignificant. These results can be explained by the fact that Vietnam export companies usually belong to aquiculture, agriculture and clothing industry. Having plenty of comparative advantages, these companies have more opportunities to gain profit than the non-export companies. However, these industries are also labor intensive. That is, the Vietnam export companies usually have many employees. Consequently, an export company tends to have low ROE.

Conclusion

Motivating employees by an addition in compensation is not always good. Employee compensation needs to be linked to business results and employee performance. Moreover, the compensation strategy of companies will be effective in motivating the employees if the inflation rate is well controlled by Vietnam government.

Generally, old and big firms have more experience and power to compete with young and small firms. However, young and small firms also have their own advantage. For example, while large firms can enjoy its advantage in finance and cope to compete in big market, small firms are more flexible in niche market. Hence, the firm owners should not be afraid of young age and small size. They should be aware of the advantages of their firms. At the same time, they need to balance the capital intensity and keep expanding their markets. Particularly, exporting can be a good way to raise firm performance.

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