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Determinants Affecting Profitability of Firms: A Study of Oil and Gas Industry in Vietnam

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Abstract

The oil and gas industry is widely known as a vital engine of Vietnam development, stimulating researchers to examine the association of various factors with this industry. The aim of this study is to identify the relationship between different variables affecting profitability of the firms in the oil and gas sector in Vietnam. The total of 203 samples were collected from 29 companies listed on Vietnam Stock Market during a 6-year period from 2012 to 2018. Informed by prior research, this investigation employs financial leverage (FL), government ownership (GOV), dividend payout (DIV), fixed assets to total assets (FA) and exchange rate (EXR) as independent variables, while the profit is described by return-on-assets (ROA). The study results show that there are four factors that have an impact on ROA, namely, leverage, government ownership, dividend, and exchange rate. Whereas leverage and exchange rate have negative influence on ROA, government ownership and dividend payment have a positive effect. The findings of this study suggest that high debt ratio in capital structure and the negative effect of exchange rate on their companies' efficiency can adversely affect the profit of enterprises. Also, plausible extent of government ownership and dividend payment could also be considered to optimize corporate performance.

Keywords: Determinants, Profitability, Oil and Gas Industry

JEL Classification Code: A23, B41, C33

1. Introduction

In the developing strategy of Vietnam until 2030, the oil and gas industry has been emphasized to have an indispensable role in the nation's development. Operating for nearly 35 years in Vietnam, this industry has expanded and primarily contributed to energy security, exportation, foreign incomes, and national budget, motivating industrialization and modernization of the society in general. Therefore, this sector has been able to help Vietnamese people to alleviate chaos and underperformance, allowing Vietnam to appear in the list of countries with medium-ranged income. Moreover,

the upstream activities of the industry consolidate national sovereignty.

The efficiency of this industry is based on diverse factors, leading to the question of which are the key contributing factors. A major factor is considered to be the profitability of the firms. However, the challenges firms need to confront are inevitable, including competitiveness, government policies, technology advances, business management, human and financial resources, and other aspects. Thus, it is vital to manage and consider those determinants influencing the profitability, allowing the managers and administrators to design initiatives to implement an efficient framework.

2. Literature Review

2.1. Capital Structure and Profitability

There is international research on the relationship between capital structure and profitability of the firms. Apparently, the studies documenting a negative association dominate. In terms of the petroleum industry, Vijayakumar (2003) investigated the determinants influencing the performance of Indian public sector petroleum companies.

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According to the study, it was proven that leverage and profit had a negative relationship, while fixed assets turnover ratio turned to be the opposite.

Patrick (2017) was also interested in identifying the impact of capital structure on profitability, particularly in oil marketing companies in Ghana. The study employed multiple regressions with short-term debt and long-term debt as independent variables representing capital structure and ROA, ROE and net profit margin (NPM) as dependent variables. In the end, it was concluded that financial leverage would possibly hinder companies' profitability, meaning that the managers should avoid overusing leverage, but rather consider it to be the last resort. However, the study is entangled with some drawbacks, including limitation in the samples to account for the whole industry. Abbasali, Esfandiar, Milad, Vida, and Mohammad (2012) have investigated the relationship between capital structure and firm performance evaluation measures, looking at evidence from the Tehran Stock Exchange. The writers advised that lower debt ratio would positively adjust the profit of the enterprises, simultaneously propping up shareholders' wealth.

Researching emerging Asian countries, Melita et al. (2012) studied the relationship between firms' risk and profitability. The authors covered firms listed on the Indonesian Stock Exchange from 1998 to 2010 in specific sectors, including food and beverage, consumer goods, and apparels, due to the important role of these sectors to the Indonesian economy. It was shown that debt ratio, representing risks of the firms, negatively contributed to return-on-assets (ROA). Aiyoub, Melati, Saudah, and Agha (2013) investigated the capital structure of enterprises listed on the Tehran Stock Market. The total samples numbered 1,230, comprising data from financial statements of 123 companies; debt negatively affected the profitability of enterprises.

Tharmila and Aruvle (2013) examined 30 enterprises listed on Colombo Stock Market (CSE) in the period from 2007 to 2011. They showed that debt ratio contributed to decreasing the profitability, represented as ROE of companies. Lucy, Muathe, and George (2014) analyzed the effect of financial leverage on firms' performance in Nairobi Stock Exchange (NSE), Kenya, using samples from 42 non-financial listed enterprises during a 7-year period from 2006 to 2012. The authors produced evidence that financial leverage had a relatively negative relationship with financial efficiency, represented by ROA and ROE. The managers were highly recommended to reduce long-term loan in their companies' capital structure as a more judicious choice for a profitable operation.

Similarly, Enekwe, Agu, and Eziedo (2014) researched the impact of capital structure on the profitability of pharmaceutical companies in Nigeria. The authors used an equation with debt ratio (DR), debt-to-equity ratio (DER)

and income-contingent repayment (ICR) as independent variables, with ROA as the dependent variable. Results revealed that debt ratio and debt-to-equity ratio negatively affected profitability of the enterprises. However, the authors mentioned the insignificant level of independent variables of only 16.4% in ROA change being explained by the independent factors. Ahghusin (2015) questioned the effect of financial leverage on return-on-assets (ROA). Hence, they utilized samples from 25 companies listed on Aman Stock Market (ASE) in Jordan during a 10-year period (1995-2005). The outcome showed a negative relationship between financial leverage (FL) and ROA; in other words, the profitability would be reduced in case of high debt ratio. Nawaz, Atif, and Aamir (2015) tested the influence of financial leverage over profitability in the cement sector in Pakistan. Some 18 enterprises were involved in the sample over six years (from 2005 to 2010) and totaled in 108 observations. The authors suggested that enterprises with higher leverage would earn lower profit, whereas companies with lower debt ratios would be able to increase their returns.

Despite a large number of results documenting a negative relationship between leverage and profitability, other studies reached the opposite conclusion. Magalam and Govindasamy (2010) showed a significant relationship between financial leverage (FL) and earning per share (EPS), with higher debt meaning EPS would increase. In other words, lower financial leverage could lead to lower profit than shareholders expected. Henceforth, both authors suggested that earnings of shareholders would be optimized, deriving from higher debt ratios. Aburub (2012) researched the capital structure and firm performance of firms from Palestine Stock Exchange, using samples from 28 enterprises during the period from 2006 to 2010. The study concurs with the above conclusions, proving the positive relationship between capital structure and firm's performance.

Similarly, Rehman (2013) studied the influence of financial leverage on corporate performance, employing secondary data from financial statements belonging to a range of companies in the sugar companies listed on the Pakistan Stock Market during 2006-2011. The research confirmed that debt-to-equity (DER) would increase ROA and sales growth. Conversely, debt-to-equity could deteriorate earning-per-share (EPS), net profit margin and ROE. In other studies, the authors showed diverse conclusions about this relationship in different situations. For example, Christos and Fontini (2016) investigated efficiency, leverage and profitability in the Greek manufacturing sector. The writers also computed DEA efficiency scores and Tobit analysis to figure out the importance in explaining profit and financial leverage. Results show that there was no impact of leverage on profitability of the enterprises.

Choosing different variables to represent capital structure, Peter (2017) came up with differentiated outcome.

It was suggested that short-term debt had a strongly positive relation to ROA, while long-term debt showed the opposite. Thus, the study recommended that the more usage of long-term debt in capital structure would reduce profitability, and as short-term debt increased, the performance could surge.

2.2. Fixed Assets and Profitability

A range of researchers considered fixed assets to be an important factor. Hence, many equations in their studies encompassed capital structure and fixed assets variables, leading to mixed conclusions. Theodore (2007) investigated the determinants affecting small and large firm's performance, using data from manufacturing companies in Greece during the period from 1995 to 1999. The firms were divided into different size classes to identify the performance in each group. Hence, the findings were that debt ratios negatively influenced all size classes' profitability, stemming from the increase in interest and company risk. Also, fixed assets investment showed distinctive results in each class. In particular, it was interpreted to have a negative relationship with small firms, while showing the opposite influence on large firms. For medium-size firms, it had no significant effect.

Panagiostic and Konstantinos (2010) study the impact of factors affecting firm's profitability in Greece, utilizing data from Greek firms during the period 1997-2004. They concluded that leverage had positive impact on profitability of the companies, explained by higher debt ratios that forced Greek managers to tighten their controls over firms, leading to greater competitiveness. Besides, fixed assets to assets was considered in the model, illustrating a negative relationship with the firms' performance. Mawih (2013) examined the association of assets structure with the financial performance in Oman. Fixed assets turnover and current assets turnover were independent variable, while ROA and ROE were dependent variables to represent performance of the companies. The results show, firstly, ROA was unchanged in front of the shifts in assets structure in all classes; secondly, ROE would be positively affected by fixed assets in the petrochemical sector.

2.3. Dividend Payment And Profitability

Uwalomwa (2012) investigated the interaction between performance and dividend payout in Nigerian firms listed on the stock market, using 50 samples during the period from 2006 to 2010. It proved that financial performance and dividend payout had a substantial positive association in the companies' studies. Tahir and Mushtaq (2016) researched the oil and gas industry in Pakistan of listed companies on KSE (Karachi Stock Exchange) from 2008 to 2014. The authors have found that dividend payout and profitability of the

companies have a positive relationship. Similarly, Munaza and Shahid (2017) study 20 companies listed on Karachi Stock Exchange during a 5-year period (2008-2012). Results show that returns of the companies would be supported by the increase in dividend payout.

2.4. Government Ownership and Profitability

Clearly, one of the distinctive feature of the oil and gas industry in Vietnam is that Government tends to be the principal shareholder of the companies, controlling a large amount of outstanding stocks. This fact motivated many researchers to identify the potentials of government ownership in contributing to increasing the firms' profit. Questioning whether government ownership would motivate enterprises commercially, Nurul (2011) investigated the effect of this factor on performance of the Malaysian industry. The authors concluded that government involvement would support the performance through little help from government backing to stabilize the operations. Nevertheless, Kun and Greg's (2016) findings show the opposite about the importance of government ownership in the performance of the companies, studying relevant empirical studies cover 17 countries in the Emerging Stock market. Applying meta-analysis, it was revealed that government ownership had a negative association with profitability of the companies, and this relation was fairly significant.

2.5. Macroeconomic Factors and Profitability

Apparently, exchange rate is known to have an important role in optimizing efficiency of the firms, especially in the petroleum sector. Christopher and Tomilade (2012) reached a similar conclusion in their research over the exchange rate role in profit growth of manufacturing companies. Based on the findings, exchange rate had a positive relationship with domestic output, promoting growth in the manufacturing sector, which means indirectly, affected profitability of the firms. Swagatika and Ajaya (2017) examined the factors of profitability in Indian manufacturing firms in two different periods, encompassing pre-crisis and post-crisis, from 2000 to 2015. Besides, profitability was regarded as ROA and NPR. The authors concluded that exchange rate shifts would not affect profit, but would intervene positively in the long run. In other words, the increase in nominal exchange rate possibly triggered higher profitability.

Observing macroeconomics factors, oil price is also widely regarded as a major determinant strongly affecting the petroleum industry. In this domain, Woraphorn and Termkiat (2012) analyzed oil prices and profitability performance to fill the gap between crude oil price and returns of various industries. Petrochemical was considered to be positively affected by oil price at 10% significance level. However, the

research still has limitation by missing the management of risk in different enterprise.

2.6. Research in Vietnam

In terms of Vietnamese research, Hoang Tung (2016) studied factors affecting the efficiency of Vietnam's oil and gas business over profitability. It has resulted in three factors having an impact on returns of the business, including capital structure, growth, and receivables management. Clearly, capital structure had a negative relationship with returns. The other factor having no effect included fixed-assets investment. Similarly, Khanh, Thanh, and Trang (2017) studied the influence of capital structure on the profitability of oil and gas enterprises. They proved that total debt over equity (TDE) negatively contributes to the profitability measured by ROE.

Toan (2016) examined the relationship between working capital management and ROA in real estate industry in Vietnam. It emerged that financial leverage (LEV) had a negative relationship with the profitability, meaning that higher debt ratios hinder returns of enterprises from surging. Similarly, An (2019) looked at the influence of capital structure on financial efficiency of Petroleum enterprises listed on Vietnam Stock Market to identify the level and type of interactions. The author interpreted the STATA results that the capital structure and the profitability had a negative relationship, meaning that increasing debt would trigger the deterioration of returns of oil and gas companies. Meanwhile, Government ownership probably had no clear effect. Utilizing Pooled OLS, Fixed Effect Model and Random Effect Model, Hong, Huyen, Nhung, Nga, and Ngoc (2020) researched the performance of listed enterprises on Vietnam's stock market. The results of the study has shown that the financial leverage has a negative influence on the financial performance of the companies.

Reaching opposite conclusions, Dong (2016) examined the factors influencing profitability. The author identified the positive relationship between oil price and the dependent variable. Besides, the study showed no relation between capital structure and profit using Generalized Method of Moments (GMM), but a positive effect in Pooled Regression Model and Random Effects Model (REM), implying that financial leverage would not be a useful tactic in business management of oil and gas companies.

Analyzing profitability, Khanh (2017) used the Dupont Model to analyze financial performance of petroleum companies listed on the stock market. The paper focused on the financial statements of enterprises during the period from 2013 to 2015 to analyze (ROA and ROE. Different parts were separated in ROA, consisting of total asset turnover and net profit margin, while ROE had financial leverage in addition. Thus, financial leverage positively

impacted on returns. Besides, Nguyen et al. (2020) used another technique to find the factors to evaluate the financial performance of companies listed on Vietnam Stock Market. The research used data from 13 agriculture enterprises from 2016 to 2019 and implemented analytical hierarchy process (AHP) and grey relational analysis (GRA), multi-objective optimization ratio analysis (MOORA), and technique for order performance by similarity to ideal solution (TOPSIS). At the conclusion, the study recommended that the integrated model could be utilized to other industries, including oil and gas in later research to evaluate financial performance.

3. Materials And Methods

3.1. Materials

In this study, 29 corporates involved are listed on Vietnam Stock market, including Ho Chi Minh Stock Exchange (HSX), Hanoi Stock Exchange (HNX) and Unlisted Public Company Market (UPCOM) to reach the demand of this article. The total samples are 203, from 29 companies during the period from 2012 to 2018, collected from audited financial statements and annual reports of the firms. Also, Cafef and Bloomberg were additional resources for the observations. This study applied Stata 14.1 and Excel 2019 to process and analyze the data, aiming to clarify the impact of the factors on the profitability of oil and gas companies listed on Vietnam Securities Market.

3.2. Methods

Based on previous research, variables have been determined to measure the influence on the profitability. Return on assets (ROA) would measure the profit of the firms, characterized as a function of financial leverage, government ownership, dividend payment, exchange rate employed in log form to avoid co-linearity and lastly, oil price.

We formulate in the following equation:

$$ROA_{it} = \alpha_1 + \alpha_2 FL_t + \alpha_3 GOV_t + \alpha_4 DIV_t + \alpha_5 FA_t + \alpha_6 \log EXR_{it} + \alpha_7 OIL_t + \varepsilon_{it}$$

Panel data regression was used to reach the goal of this study, leading to the application of Pooled Ordinal Least Square, Fixed Effect Model (FEM) and Random Effect Model (REM). However, due to the problems in heteroskedasticity and autocorrelation of the data, Generalized Least Square (GLS) has been utilized to solve and display the final results.

Fixed Effects Model:

$$ROA_{it} = \alpha_{ii} + \alpha_2 FL_t + \alpha_3 GOV_t + \alpha_4 DIV_t + \alpha_5 FA_t + \alpha_6 \log EXR_{it} + \alpha_7 OIL_t + \varepsilon_{it}$$

Table 1: Variable Description

| Variable | Symbol | Description |
|-----------------------------|--------|---|
| <i>Dependent Variable</i> | | |
| Return on Assets | ROA | Annual Return on Assets |
| <i>Independent Variable</i> | | |
| Financial leverage | FL | Total debt/(Total debt + Total equity) |
| Fixed Assets | FA | Fixed Assets/Total assets |
| Government ownership | GOV | Annual Government Ownership ratio |
| Dividend payment | DIV | Dividend Payment Rate X 10,000 (VND) |
| Exchange Rate | logEXR | Log of annual Exchange rate (USD/VND) |
| Oil price | OIL | Annual average Brent oil price (Dollars/Barrel) |

Table 2: Descriptive statistics of data

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|----------|-----|-----------|-----------|------------|-----------|
| ROA | 203 | 0.0093046 | 0.1065098 | -0.5568675 | 0.2758909 |
| FL | 203 | 0.7076579 | 0.7647454 | 0.0659977 | 8.104655 |
| GOV | 203 | 0.2751867 | 0.3486372 | 0 | 1 |
| DIV | 203 | 674.6847 | 1012.6 | 0 | 5500 |
| FA | 203 | 0.2078515 | 0.1778223 | 0 | 0.6978574 |
| logEXR | 203 | 9.990688 | 0.0319172 | 9.953651 | 10.04432 |
| OIL | 203 | 77.85576 | 26.23298 | 45.13182 | 111.6755 |

Random Effects Model:

$$ROA_{it} = \alpha_1 + \alpha_2 FL_{it} + \alpha_3 GOV_{it} + \alpha_4 DIV_{it} + \alpha_5 FA_{it} + \alpha_6 \log EXR_{it} + \alpha_7 OIL_{it} + v_i + \varepsilon_{it}$$

Where α_{it} describes fixed effects and v_i describes random effects.

4. Data Analysis

4.1. Descriptive Statistics

Table 2 illustrates descriptive statistics. ROA-dependent variable has average number of 0.0093046, standard deviation of 0.1065098, ranging from -0.5568675 to 0.2758909. Similarly, we can present the descriptive statistics of other determinants. The average FL is 0.7076579, GOV is 0.2751867, DIV is 674.6847 (VND), FA is 0.2078515, logEXR is 9.990688 and OIL is 77.85576 (USD/barrel).

4.2. Correlation Analysis

Table 3 illustrates the correlation among independent variables. Clearly, logEXR and OIL have been found to

entangle with correlation (-0.7762 > 0.5), leading to the decision to remove OIL from the equation. Therefore, the final equation is:

$$ROA_{it} = \alpha_1 + \alpha_2 FL_{it} + \alpha_3 GOV_{it} + \alpha_4 DIV_{it} + \alpha_5 FA_{it} + \alpha_6 \log EXR_{it} + \varepsilon_{it}$$

It would also be applied in FEM, REM and GLS regressions in following results. The final models are:

Fixed Effects Model:

$$ROA_{it} = \alpha_{1i} + \alpha_2 FL_{it} + \alpha_3 GOV_{it} + \alpha_4 DIV_{it} + \alpha_5 FA_{it} + \alpha_6 \log EXR_{it} + \varepsilon_{it}$$

Random Effects Model:

$$ROA_{it} = \alpha_1 + \alpha_2 FL_{it} + \alpha_3 GOV_{it} + \alpha_4 DIV_{it} + \alpha_5 FA_{it} + \alpha_6 \log EXR_{it} + v_i + \varepsilon_{it}$$

Where α_{1i} describes fixed effects and v_i describes random effects.

Table 3: Correlation Coefficient

| | FL | GOV | DIV | FA | logEXR | OIL |
|--------|---------|---------|---------|---------|---------|-----|
| FL | 1 | | | | | |
| GOV | -0.1521 | 1 | | | | |
| DIV | -0.1473 | 0.3418 | 1 | | | |
| FA | -0.1938 | 0.2686 | 0.0655 | 1 | | |
| logEXR | 0.088 | -0.0269 | -0.0152 | -0.1262 | 1 | |
| OIL | -0.0448 | 0.0107 | -0.014 | 0.141 | -0.7762 | 1 |

Table 4: Hypothesis Testing in Pooled Regression (OLS)

| Multicollinearity | | | Heteroskedasticity | Autocorrelation |
|-------------------|------|----------|----------------------|-------------------|
| Variable | VIF | 1/VIF | | |
| GOV | 1.22 | 0.818773 | chi2(20) = 45.16 | F(1,28) = 4.637 |
| DIV | 1.15 | 0.871986 | | |
| FA | 1.12 | 0.89071 | | |
| FL | 1.07 | 0.936329 | | |
| logEXR | 1.02 | 0.979667 | | |
| Mean VIF | 1.12 | | Prob > chi2 = 0.0011 | Prob > F = 0.0400 |

Table 5: Results in Fixed Effects Model (FEM) and Random Effects Model (REM)

| FEM | | | REM | | | Hausman Test |
|--------|------------|--------|--------|------------|--------|-----------------|
| ROA | Coef. | P>t | ROA | Coef. | P>z | Prob>chi2=0.000 |
| FL | -0.0316969 | 0.001 | FL | -0.0741639 | 0 | |
| GOV | 0.2947626 | 0 | GOV | 0.0428897 | 0.009 | |
| DIV | 0.000013 | 0.075 | DIV | 0.0000342 | 0 | |
| FA | -0.0697993 | 0.277 | FA | 0.024291 | 0.43 | |
| logEXR | -0.2583473 | 0.086 | logEXR | -0.1663118 | 0.307 | |
| _cons | 2.537435 | 0.093 | _cons | 1.683426 | 0.301 | |
| R-sq | | 0.2377 | R-sq | | 0.5398 | |

4.3. Empirical Results

Table 4 shows that although the Pooled Model does not have multicollinearity ($vif = 1.12 < 10$), there is heteroskedasticity ($Prob > chi2 = 0.0011 < 5\%$) and autocorrelation ($Prob > F = 0.0400 < 5\%$). This leads us to Fixed Effects Model (FEM) and Random Effects Model (REM) with the outcome below.

FEM had R-squared of 0.2377, meaning that the model can explain 23.77% the change of ROA. Similarly, the model of REM can explain 53.98% ROA adjustment. The models can be written as :

Fixed Effects Model (FEM):

$$ROA = 2.537435 - 0.0316969FL + 0.2947626GOV$$

Random Effects Model (REM):

$$ROA = 1.683426 - 0.0741639FL + 0.0428897GOV + 0.0000342DIV$$

Hausman Test has resulted in $Prob > chi2 = 0.0000$, which is lower than 5%, implying that Fixed Effects Model would be more suitable for this study than Random Effects

Model (REM). Afterwards, other hypothesis tests were taken into account for FEM.

From Table 6, it is apparent that FEM does not have problems in multicollinearity ($vif=1.12<10$); however, the model is affected by heteroskedasticity and autocorrelation, possibly leading to distorted outcome. Therefore, Generalized Least Square (GLS) has been applied to solve these problems. The final results in different models are displayed above:

Table 7 illustrated the results of analysis with ROA presenting profitability, utilizing Generalized Least Squares (GLS) estimation in the period from 2012 to 2018 on oil and gas industry. From the table, it is evident that there have been four factors affecting return-on-assets (ROA) in dissimilar ways, including financial leverage (FL), government ownership (GOV), dividend payout (DIV) and log form of exchange rate (logEXR) with relatively trustworthy

significant level, while fixed assets to total assets (FA) had no influence.

The final regression model can be written as:

$$ROA = 1.583 - 0.0576FL + 0.0411GOV + 0.0000209DIV - 0.156\log EXR$$

Clearly, debt ratio (FL) has a negative impact on ROA, with a reliable significance level of 1%. The coefficient for FL is -0.0576, meaning that when financial leverage increased by 1 unit, profitability would decrease by 0.0576 unit if other factors remain unchanged. This conclusion follows the dominant results in both previous foreign and domestic research, believing that higher debts would bring about more risk for the companies, which possibly impairs firms' health and competitiveness. This would explain the lower profitability of those companies having higher financial leverage.

Table 6: Hypothesis Testing in Fixed Effects Model (FEM)

| Multicollinearity | | Heteroskedasticity | Autocorrelation |
|-------------------|------|---------------------|-------------------|
| Variable | VIF | chi2 (29) =18163.40 | F(1, 28) = 4.637 |
| GOV | 1.07 | | |
| DIV | 1.22 | | |
| FA | 1.15 | | |
| FL | 1.12 | | |
| logEXR | 1.02 | | |
| Mean VIF | 1.12 | Prob>chi2 = 0.0000 | Prob > F = 0.0400 |

Table 7: Empirical result

| | Pooled Regression | Fixed Effect | Random Effect | GLS |
|-----------------------------|------------------------|-----------------------|------------------------|------------------------|
| | ROA | ROA | ROA | ROA |
| FL | -0.0744*** [-10.70] | -0.0317*** [-3.35] | -0.0742*** [-10.63] | -0.0576*** [-5.06] |
| GOV | 0.0426*** [2.61] | 0.295*** [3.87] | 0.0429*** [2.62] | 0.0411*** [3.34] |
| DIV | 0.0000343*** [6.31] | 0.0000130* [1.79] | 0.0000342*** [6.27] | 0.0000209*** [6.70] |
| logEXR | -0.166 [-1.02] | -0.258* [-1.73] | -0.166 [-1.02] | -0.156** [-2.09] |
| FA | 0.0245 [0.80] | -0.0698 [-1.09] | 0.0243 [0.79] | 0.0186 [1.23] |
| _cons | 1.678 [1.03] | 2.537* [1.69] | 1.683 [1.04] | 1.583** [2.13] |
| N | 203 | 203 | 203 | 203 |
| R-sq | 0.540 | 0.173 | | |
| t statistics in brackets | | | | |
| *p<0.1, **p<0.05, ***p<0.01 | | | | |

Also showing negative impact, exchange rate (EXR) calculated in logarithm has arrived at 5% significance level, with the coefficient of -0.156. It is suggested that exchange rate would damage the performance of the firms, contrary to some studies. It is understandably due to the fact that the petroleum industry is substantially influenced by exchange rate in operating activities, including importing inputs, exporting oil and gas products, signing foreign contracts paid in non-Vietnamese currencies, etc., and in financing activities, such as taking debts for fixed assets investment stemming from their great requirement of fixed assets or for covering their lack of liquidated assets to support short-term demands. Moreover, oil price, which could not be involved in this equation because of correlation, is widely known to have strong effect on this industry because it is closely subjected to the core business of the sector. Simultaneously, exchange rate is related to the oil price, explaining the influence of this variable.

Alternatively, government ownership (GOV), theoretically considered as a motivated feature of the petroleum industry, has been proven to have practical effect through the panel data analysis. It is interpreted to positively associate with the financial performance of the firms. It is not surprising since petroleum companies are known to be backed by the government due to their high-risk property, large amount of investment, and their vital role in the Vietnamese economy. The result aligns with Nurul (2011) from an international perspective and Nguyen Khuu, and Huy (2018) in the Vietnamese context, but it contradicts Kun and Greg (2016) (negative relationship) and Le Thi Khanh An (2019) (no effect).

Following the same type of interaction, dividend payment (DIV) would motivate the performance to surge, following the prevalent theory that high-earning and stable-developed companies would pay dividend regularly. This report probably agree with previous research by Uwalomwa (2012) and Munaza (2017).

5. Conclusion

This research documents the impact of various determinants on the performance of oil and gas companies listed on Vietnam Stock Market. The study has identified a negative relationship between debt ratio, exchange rate and profitability of the firms at the 1% significance level. Other two factors influencing positively ROA are government ownership and dividend payment, while fixed assets in assets structure show no effect.

The study fills the gap about the relationship among diverse factors in the petroleum industry, supporting the managers to choose the judicious method in administration.

It is suggested that the managers should avoid using high debt ratios due to their risky property and carefully consider to limit exchange rate effect on the corporate efficiency. Also, they had better take advantage of government ownership in resources, opportunities, etc, to optimize their performance, improving the effectiveness in operation, which probably allows higher and regular dividend payment for the shareholders.

Despite its contribution, the research still has some drawbacks, particularly the limitation of samples, which did not cover the adequate number of companies in the petroleum industry. Thus, this would stimulate other economists and researchers to extend the work.

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