

Impact of Net Working Capital Management on Profitability: Evidence from Vietnam Energy Sector

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Abstract: *This study examines the impact of net working capital (NWC) management on the profitability of 26 energy companies listed on the Vietnamese stock exchange for the period from 2012 to 2021. The author uses annual panel data, and the Feasible Generalized Least Squares (FGLS) method is subsequently conducted to deal with the phenomena of heteroscedasticity and autocorrelation. Regression results from the FGLS method show that Day sales outstanding (DSO), Day inventory outstanding (DIO), and the Cash conversion cycle (CCC) have statistically significant negative impacts on profitability (ROE). The number of days payable outstanding (DPO) has a statistically significant positive impact on profitability (ROE). In contrast, the current ratio (CR) does not. According to the findings of this study, energy companies should apply an optimal and efficient method for managing the factors that negatively impact profits in net working capital management to generate high business profits.*

Keywords: Energy sector, listed companies, Net working capital management, Profitability, Return on equity

I. Introduction

Management of net working capital, particularly short-term asset management and efficient short-term debt management, is one of the essential responsibilities of every financial manager in every industry. Studies by Deloof (2003), Gill et al. (2010), Makori & Jagongo (2013), Oseifuah & Gyekye (2016), Kasozi (2017), Iqbal và Wang (2018), Mukete Emmanuel Mbella et al. (2018), Mabandla & Makoni (2019) have demonstrated that effective net working capital management has a direct effect on the profitability of businesses.

NWC management has been and continues to be implemented daily in CFO decisions. However, in the context of the economy's numerous challenges, businesses are confronted with uncertainty and potential risks of epidemics and political instability, resulting in commodity prices that fluctuate with an upward trend and unusual fluctuations such as the present. Therefore, increasing the effectiveness of corporate governance, including the management of net working capital, has become a topic of particular interest to business managers. Between 2012 and 2021, when several Vietnamese businesses were forced to cease production, suspend service delivery, close down, or fall into difficult circumstances, questions arose regarding the efficacy of financial strategies in the face of economic challenges. In the current economic climate, net working capital management to increase profitability remains a concern for business executives.

With a short life (within a business cycle, or less than or equal to 1 year), working capital rotates quickly, changing form throughout different stages of the product and business life cycle: From the initial form of cash, converting into supplies, goods, materials for trading (at commercial companies) or for production (at manufacturing companies); then becoming work-in-progress, semi-finished or finished products; and finally back to the original form of cash. After each business cycle, the value of working capital is converted entirely into the value of finished goods, goods, or services. This process occurs regularly and continuously, creating the flow of capital for the firms to develop and generate profitability. Therefore, the relationship between NWC management and the financial performance of the firms has attracted the interest of many scholars, such as (Sharma & Kumar, 2011); (Nyamao et al., 2012); (Makori & Jagongo; Shrotriya, 2013), (Raza et al., 2015), Oseifuah & Gyekye (2012), Kasozi (2017); (Mbella & Ngonngan, 2018).

According to the report of the Vietnam Energy Association (VEA) sent to the Prime Minister of Vietnam about the impact of the Covid-19 pandemic on the production and business of energy enterprises and proposed solutions to support, many energy companies have suffered a problem in liquidity and solvency when inventory level increases because of lack of demand, CCC and DSO increase because business customers cannot pay for their energy bill, etc. In this situation, understanding the role of NWC management and how it affects a firm's performance is important in

helping energy firms overcome such an uncertain economic situation. This study also contributes to research on the relationship between NWC management and firm performance.

II. Literature review

Deloof (2003) used the cash conversion cycle (CCC) to measure net working capital management for a sample of 1,009 large Belgian non-financial firms from 1992 to 1996. The author discovered an inverse relationship between gross operating profit and days of receivables turnover, inventory turnover, and accounts payable turnover. Based on an observed sample of 88 companies listed on the New York Stock Exchange between 2005 and 2007, Gill et al. (2010) also determined that this negative relationship was statistically significant.

From 2000 to 2008, Sharma and Kumar (2011) examined 263 companies listed on the Bombay Stock Exchange (BSE) and discovered a negative correlation between return on assets and both the days of payable and the days of inventory turnover and a positive correlation between return on assets and days of receivable and the cash conversion cycle.

Eya (2012) studied the effect of working capital management on business results for beverage companies in Nigeria during the period 2004-2013, confirming the significance of working capital management for business performance. Therefore, the management of Nestle Food Nig Plc should pay more attention to the management of the quick ratio to cover current liabilities and strive for higher quick ratio values as a good performance indicator.

Oseifuah and Gyekye (2012) investigate the influence of distinct components of working capital management on the profitability of 75 non-financial companies listed on the Johannesburg Stock Exchange (JSE) over a 10-year period from 2003-2012. There is a negative relationship between working capital management, inventory turnover time, receivables turnover time, and the company's profit. Besides that, there exists a positive relationship between the payment deferral period (PDP) and profit. Therefore, the results indicate that managers can create shareholder value by reducing cash flow to some degree, thereby increasing the company's profits.

By balancing profitability and liquidity, businesses can achieve optimal working capital management. This is the analysis of the effect of net working capital management on corporate profitability in Kenya from 2003 to 2012. The balance sheet information of five manufacturing and construction firms listed on the Nairobi Stock Exchange (NSE) is used for this purpose. The relationship between net working capital management and firm profitability was determined using ordinary least squares and correlation regression models based on Pearson. This study discovered a negative correlation between cash conversion cycle profitability, cash equivalents, and average collection period, but a positive correlation between profitability, inventory days, and average payment period. In addition, financial leverage, revenue growth, the current ratio, and the company's size substantially affect a company's profitability. Based on this study's key findings, it was determined that a company's board of directors could create value for its shareholders by reducing the daily number of accounts receivable. Management can also create value for shareholders by maintaining a reasonable inventory level. If they do not strain their relationships with their creditors, businesses may also take a long time to pay their debts. Companies can achieve sustainable competitive advantage by efficiently and effectively using the organization's resources and reducing the cash conversion cycle to a minimum. It is anticipated that firms' profits will increase (Makori & Jagongo, 2013).

Muhammad et al. (2015) found a positive correlation between average collection period (ACP), current ratio (CR), and company size (LOGSIZE) and profitability, and a negative correlation between inventory turnover time (ITP), average payment period (APP). Based on their research, the authors recommend that the proceeds be reinvested in the short term in order to generate a profit and that a cash reserve that is too large is costly and unprofitable.

Raza et al. (2015) used the financial statements of companies in the oil sector in Pakistan for the period 2006 to 2010 to study the effects on gross profit of the cash conversion cycle, average receivables, average inventory, average payables, and current ratio, which are used as a measure of working capital management. The authors apply a statistical method, calculate each year's relevant metrics, and then analyze. According to research, the average payment has a positive relationship with profitability, whereas other variables have a negative relationship with profitability.

Lawal et al. (2015) discovered a significant inverse relationship between working capital components and profitability (ROI). By studying the impact of working capital management on the profitability of six production companies in

Nigeria, the authors suggest that the company should manage cash, accounts receivable, inventory, and accounts payable to decrease the cash conversion cycle and boost the company's profits.

Abuhommous (2017) investigated the impact of working capital management on the growth of Jordanian firms using unbalanced data for the period 1999-2015. This research contributes to the corporatization growth (GRO) literature by providing evidence that investing in working capital has a positive effect on company expansion.

Kasozi (2017) examined the effect of working capital management on profitability using a sample of 69 listed manufacturing companies in South Africa between 2007 and 2012. This study demonstrates that the average collection period negatively impacts the profitability of companies in this industry group. In accordance with the preceding study, the research on food and beverage companies listed on the South African stock exchange from 2007 to 2012 reveals a negative correlation between the collection period and profit of companies in this industry group (Mabandla & Makoni, 2019). The researchers explain that the reason for this relationship is that the shorter the customer collection period, the faster the company can hold more cash, thereby increasing the inventory investment rate, boosting sales, and leading to increased profits for the business.

Prempeh & Peprah-Amankona (2018) examined the relationship between working capital management and corporate profitability in the context of developing economies using data collected from 11 listed companies in Ghana during the time period. Return on assets positively correlates with the cash conversion cycle (CCC) and firm size from 2011 to 2017. This implies that for working capital to maximize the company's profits, managers must ensure that they operate within their optimal level by implementing an effective working capital management policy.

Nzitunga (2019) conducted an empirical study on 23 state-owned enterprises (SOEs) in Namibia to determine the impact of working capital management activities on SOEs' profitability. The results of a study indicate that profitability is positively affected by cash management, receivables management, payables management, and securities management. Without additional organizational strategies to strengthen these factors, achieving organizational goals in the public sector will continue to be problematic. These factors are quantifiable and thus manageable. Therefore, SOE managers and policymakers must ensure proper development in this area.

Due to its impact on profitability, Akomeah and Frimpong (2019) argue that working capital management plays an important role in the success of companies. According to their findings, the receivables period (ARP) and inventory conversion time (ICP) had a statistically significant negative effect on profitability and the accounts payable period had a substantial positive impact on profitability. The study discovered that the cash conversion cycle (CCC), current payment ratio, and company size (LOS) had a significant positive effect on profitability. Based on the findings of the research, the author suggests that production companies implement optimal and efficient methods for managing the components of working capital management to increase profits.

In Vietnam, Phuong Dong & Su (2010) investigated the relationship between the cash conversion cycle and profitability, measured by gross operating profit ratio, for a sample of 130 companies listed on Vietnam's stock market between 2006 and 2008. The authors found a positive relationship between profitability and the cash flow cycle. They suggested that management could increase asset value for shareholders by determining the appropriate cash conversion cycle and maintaining each component of this cycle at optimal levels and profitability. Similarly, Nguyen & Le (2022) study examines the impact of net working capital management on the profitability of 25 energy companies listed on the Vietnamese stock exchange. Day sales outstanding (DSO), Day inventory outstanding (DIO), and the number of days payable outstanding (DPO) have statistically significant negative effects on profitability ratios. In contrast, the Cash convention cycle (CCC) does not. The study also found that current ratios significantly affect profitability.

III. Research Hypotheses and Research Methodology

3.1 Research Hypotheses

H₁: There is no significant relationship between the Day sales outstanding (DSO) and the Profitability of the firm.

H₂: There is no significant relationship between the Day inventory outstanding (DIO) and the Profitability of the firm.

H₃: There is no significant relationship between the Day payable outstanding (DPO) and the Profitability of the firm.

H₄: There is no significant relationship between the Cash Conversion Cycle (CCC) and the Profitability of the firm.

H₅: There is no significant relationship between the current ratio (CR) and the Profitability of the firm.

3.2 Research Methodology

3.2.1. Methodological Research

The article uses a quantitative method based on panel data collected from financial statements of listed energy trading companies. Based on the calculation of financial indicators, the author conducts regression analysis (OLS), Random effects model (REM), Fixed effect model (FEM), and finally, the The Feasible Generalized Least Squares (FGLS) on the impact of NWC Management governance on the profitability of energy trading companies.

3.2.2 Model Specification

Consistent with previous studies Deloof (2003); Gill et al. (2010), Makori & Jagongo (2013), Kasozi (2017), Mabandla & Makoni (2019), the firm’s profitability is modeled as a function of the four core working capital management measures in addition to other firm characteristics. The effects of working capital management on the firm's profitability are modeled using the following OLS regression equations to obtain the estimates:

$$ROE = f(DIO, DSO, DPO, CCC, CR, SIZE, LEV, GRO)$$

$$\text{Model 1: } ROE_{i,t} = \alpha_0 + \alpha_1 * CR_{i,t} + \alpha_2 * DSO_{i,t} + \alpha_3 * SIZ_{i,t} + \alpha_4 * LEV_{i,t} + \alpha_5 * GRO_{i,t} + \varepsilon_{i,t}.$$

$$\text{Model 2: } ROE_{i,t} = \alpha_0 + \alpha_1 * CR_{i,t} + \alpha_2 * DIO_{i,t} + \alpha_3 * SIZ_{i,t} + \alpha_4 * LEV_{i,t} + \alpha_5 * GRO_{i,t} + \varepsilon_{i,t}.$$

$$\text{Model 3: } ROE_{i,t} = \alpha_0 + \alpha_1 * CR_{i,t} + \alpha_2 * DPO_{i,t} + \alpha_3 * SIZ_{i,t} + \alpha_4 * LEV_{i,t} + \alpha_5 * GRO_{i,t} + \varepsilon_{i,t}.$$

$$\text{Model 4: } ROE_{i,t} = \alpha_0 + \alpha_1 * CR_{i,t} + \alpha_2 * CCC_{i,t} + \alpha_3 * SIZ_{i,t} + \alpha_4 * LEV_{i,t} + \alpha_5 * GRO_{i,t} + \varepsilon_{i,t}.$$

Where ROE denotes the return on equity, CR is the Current Ratio, DIO is the day inventory outstanding, DSO is the day sales outstanding, DPO is the day payable outstanding, GROWTH is the sales growth, SIZE is the company size as measured by the natural logarithm of total assets, and CCC is the cash conversion cycle. Subscript “i” represents firms (cross-section dimensions) ranging from 1 to 26, “t” indicates years (time-series dimensions) ranging from 1 to 10, “ε” is the error term of the model, and $\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$ are the regression model coefficients.

The variable for the current ratio (CR) was used in the studies of Akomeah (2019), Prempeh & Peprah-Amankona (2019) in the research model and found to be statistically significant.

The control variable for firm size (SIZ) is measured by the logarithm of revenue, which is a proxy for the size of the business. This control variable was also included in the study by the authors (Prempeh & Peprah-Amankona, 2019; Sharaf & Haddad, 2015; Sharma & Kumar, 2011) and found a statistically significant impact.

The control variable for revenue growth rate (GRO) is calculated based on the relative comparison of sales of the analysis period and the previous year's revenue. Author Abuhommous. A (2017), and Sharaf & Haddad (2015) were included in the study and found a statistically significant effect.

Table 1: Abbreviation and Measurement of Variables

No	Variables	Abbreviation	Measurement
	Dependent variable		
1	Return on equity	ROE	Profit after tax/ Average Equity
	Independent variables		

2	Current Ratio	CR	Currents assets/current liabilities
3	Day sales outstanding	DSO	Average accounts receivable*365/Net sales
4	Day inventory outstanding	DIO	Average inventory*365/Cost of goods sold
5	Day payable outstanding	DPO	Average accounts payable*365/Cost of goods sold
6	Cash conversion cycle	CCC	DSO + DIO -DPO
	Control variable		
7	Financial Leverage	LEV	Total debit/Total Equity
8	Firm size	SIZ	ln (total assets)
9	Sales Growth	GRO	Net Sales (i) -Net Sales (i-1)/Net Sales (i-1)

(Source: Author)

3.2.3 Research data

The research sample is derived from the data of energy companies listed on HOSE and HNX for the total number of years between 2012 and 2021, with financial statements taken by the year. Consequently, after verification, we have a data table containing 26 companies within ten years, from 2012 to 2021, with 260 observations.

IV. Research results

4.1 Descriptive statistics

Descriptive Statistics present the mean, standard deviation (SD), minimum and maximum value of all variables used in research model as following.

Table 2: Descriptive Statistical Analysis

Variable	Obs	Mean	SD	Minimum	Maximum
ROE	260	.1389513	.1179962	-.3590148	.5283863
DSO	260	82.25655	69.43862	.1778311	392.9566
DIO	260	46.46581	61.29085	0	321.4691
DPO	260	123.7303	100.054	2.84631	608.5626
CCC	260	5.838242	125.3342	-489.2837	453.3776
CR	260	2.346102	2.367103	.0012153	14.15725
LEV	260	.7533508	.4832217	.0303854	2.503675
SIZE	260	11.80784	.7253174	8.566009	12.95405
GRO	260	.1600856	.7297797	-.9486923	8.151822

(Source: 2012-2021 Survey Data, STATA 17)

According to Table 2, the return on equity in the energy industry for 2012-2021 is 0.1389513(13,89%). The lowest percentage is -0,3590 (35,90%), and the company has the highest at 0.5284 (52,84%). On average, it takes businesses in this industry 46 days to turn over their inventory, 82 days to collect receivables, and 123days to pay their suppliers for raw materials and finished goods. The average cash conversion cycle of the sampled companies is 6 days. The average current ratio is 2.35.

4.2 Multicollinearity analysis

The author uses the information of Variance Inflation Factor (VIF) to test the phenomenon of multicollinearity. The figures of VIF from regression analysis are shown in the table below.

Table 3: VIF figures from Multicollinearity analysis

Variable	Model 1	Model 2	Model 3	Model 4
DSO	1.19			
DIO		1.17		
DPO			1.32	
CCC				1.12
CR	1.37	1.37	1.38	1.38
SIZ	1.23	1.18	1.24	1.05
LEV	1.37	1.46	1.37	1.40
GRO	1.01	1.02	1.07	1.08
Mean	1.23	1.23	1.28	1.21

(Source: 2012-2021survey data, STATA 17)

According to the results of Table 5, VIF value of all variables are less than 10, showing that there is no multicollinearity phenomenon happening.

4.3. Regression analysis

Table 4: The results of from Pooled OLS regression model

Variable	Model 1	Model 2	Model 3	Model 4
DSO	-0.000230** (-2.20)			
DIO		-0.000260** (-2.47)		
DPO			0.000199** (2.62)	
CCC				-0.000243*** (-4.46)
CR	0.00990** (3.01)	0.00923** (2.79)	0.00862** (2.62)	0.00816** (2.55)
SIZ	0.0395*** (3.89)	0.0432*** (4.32)	0.0590*** (5.79)	0.0442*** (4.83)
LEV	-0.0419**	-0.0398**	-0.0422**	-0.0351**

	(-3.07)	(-2.87)	(-3.11)	(-2.63)
GRO	0.0206** (2.24)	0.0201** (2.18)	0.0158* (1.68)	0.0110 (1.20)
cons	-0.301** (-2.43)	-0.356** (-2.95)	-0.571*** (-4.58)	-0.374*** (-3.43)
R- Square	0.5773	0.5687	0.5837	0.6225
Prob > F	0.0000	0.0001	0.0000	0.0000
Obs.	260	260	260	260

(Source: 2012-2021 data, using STATA17)

Notes: *t* statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The author conducted regression analysis on the total sample. Using Stata 17, the author performed regression using the Pooled OLS method for all four models, and the results are presented in Table 4. The results show that DSO, DIO, and CCC have negative effects on ROE, whereas CCC and CR have positive effects on ROE. CCC has a very strong impact at a significance level of 1%, the effects of DSO, DIO, DPO, and CR on ROE have a significance level of 5%. The relevance of Models 1, 2, 3, and 4 (based on Adj R - Square) are 57,73%, 56,87%, 58,37%, and 62,25%, respectively.

For the control variables SIZ and GRO in the models, these results are positive effects on ROE. But LEV has negative effects on ROE.

4.4 Test for autocorrelation

The author uses the Wooldridge Test by executing the xtserial command in STATA17 to check whether autocorrelation occurs. Wooldridge Test has the following hypotheses:

H0 : The model does not occur autocorrelation

H1 : The model occurs autocorrelation

If P value (Prob>Chi 2) = 0.0000 < 0.05, then the null hypothesis is rejected, and the model has autocorrelation and vice versa. The results of the autocorrelation test are shown in the table below.

Table 5: Autocorrelation test results.

	Model 1	Model 2	Model 3	Model 4
F(1, 28)	164.769	12.345	364.284	24.087
Prob > chi2	0.0000	0.0000	0.0000	0.0000

(Source: STATA 17 output)

According to the results of Table 5, the P value (Prob>Chi 2) of the models 1,2,3,4 are all less than (<) 0,05. Thus, the null hypothesis is rejected, showing that phenomenon of autocorrelation among the variables in the research models has occurred.

4.5 Heteroscedasticity analysis

The author uses the White test, executing the command imtest, white in STATA17 to check whether heteroscedasticity occurs. The White test has the following hypotheses:

H0 : The model does not occur the phenomenon of heteroscedasticity.

H1 : The model occurs the phenomenon of heteroscedasticity.

If P value (Prob>Chi2) is < 0.05, then the null hypothesis is rejected, the model has heteroscedasticity and vice versa. The results of the heteroscedasticity test are shown in the table below.

Table 6: heteroscedasticity test results

	Model 1	Model 2	Model 3	Model 4
Chi2(14)	122.11	88.11	156.69	140.24
Prob > chi2	0.0000	0.0000	0.0000	0.0000

(Source: STATA 17 output)

According to the results of Table 6, the P value (Prob>Chi 2) of models 1,2,3,4 are all = 0.0000 < 0.05. Thus, null hypothesis is rejected, showing that there has been a phenomenon of heteroscedasticity in the research models.

4.6 Hausman test

The author applies the Hausman test to the research sample data for all four models using the STATA17 software; the P values are greater than 0.05. Thus, with a significance level of 5%, reject the null hypothesis H_0 (Prob>chi2 = 0.000 < 5%); the results of the Hausman test indicate that the REM model is superior to the FEM model for conducting regression on all four research models.

Table 7: Rationale of model selecting

Type of inspection	P-value	Model selection	Conclude
F-Test	0.0000	FEM is more suitable than Pooled OLS	Select FEM model
Breusch-Pagan test	Model 1,2,3,4: 0.0000	REM is more suitable than Pooled OLS	
Hausman test	Model 1: 0.0001	FEM is more suitable than REM	
	Model 2: 0.0002		
	Model 3: 0.0001		
	Model 4: 0.0000		

(Source: Author from STATA 17 output)

However, when conducting FEM test for 4 models, there is still autocorrelation and heteroscedasticity. Therefore, the author continues to use FGLS (Feasible Generalized Least Squares) estimator to handle this.

4.7 Feasible Generalized Least Squares

For fair and efficient estimation results, we can use FGLS (Feasible Generalized Least Squares) estimation to overcome the phenomenon of autocorrelation noise error and variance in the selected model through the Hausman test above.

Table 8: FGLS estimation results

Variables	Model 1	Model 2	Model 3	Model 4
DSO	-0.0000769** (-2.88)			
DIO		-0.0000445 ** (-2.32)		
DPO			0.0000777** (2.48)	
CCC				-0.0000788*** (-2.59)

CR	0.000386 (0.23)	0.000442 (0.26)	0.000454 (0.26)	0.000125 (0.07)
SIZ	0.0514*** (5.78)	0.0547*** (6.48)	0.0622*** (7.53)	0.0507*** (5.97)
LEV	-0.0561*** (-5.83)	-0.0566*** (-6.09)	-0.0542*** (-5.80)	-0.0543*** (-5.92)
GRO	0.0322*** (5.38)	0.0361*** (5.50)	0.0311*** (5.10)	0.0363*** (5.06)
_cons	-0.428*** (-4.01)	-0.469*** (-4.73)	-0.574*** (-5.89)	-0.423*** (-4.22)

(Source: 2012-2021 data, using STATA17)

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

V. Discussion and Conclusion

Hypothesis 1:

According to the regression results of FGLS estimation in Table 7, the DSO has a negative impact on ROE with a significance level of 5%. This indicates that the shorter the average collection period, the more impact the company's managers have on their profitability.

The authors reject hypothesis H_1 , and drawing the conclusion that there is a relationship between the average collection period and the profitability of energy trading companies listed on the Vietnam stock exchange during 2012-2021 is also supported by the research findings.

Hypothesis 2:

According to the FGLS regression results, DIO has a negative effect on ROE with a significance level of 5%, indicating that the more days a company shortens the number of days in an inventory turnover, the greater the company's profitability. This study's findings assist managers in formulating inventory management policies that reduce the number of days a company's inventory is in circulation. When the number of days in an inventory turnover decreases, it can purchase and sell more products, thereby increasing its profitability.

The author reject hypothesis H_2 , and conclude that there is a negative relationship between DIO and the profitability (ROE) of energy trading companies listed on the Vietnam stock exchange between 2012 and 2021.

Hypothesis 3:

According to the regression results, DPO has a positive impact on ROE with a significance level of 5%. Theoretically, the longer the day payable outstanding (DPO), the more advantageous it is for a business to capture a supplier's capital and benefit the business. Therefore, in practice, companies frequently delay the payment of potential debts, but businesses must consider avoiding overdue cases that will negatively impact their financial performance when managing payments.

The author reject hypothesis H_3 , and conclude that there is a positive relationship between DPO and the profitability of energy trading companies listed on the Vietnam stock exchange between 2012 and 2021.

Hypothesis 4:

FGLS estimation results suggest that the cash conversion cycle (CCC) has a negative strongly impact on ROE with a significance level of 1%. The research results imply that energy companies need to decrease the cash conversion cycle, it can help increasing the profitability of energy trading companies listed on the Vietnam stock exchange between 2012 and 2021.

The author reject hypothesis H_4 , and conclude that there is a positive relationship between CCC and the profitability of energy trading companies listed on the Vietnam stock exchange between 2012 and 2021.

Hypothesis 5:

FGLS estimation results suggest that the current ratio (CR) has no statistically significant effect on the company's profitability in this area. The research findings also indicate that there is no correlation between the current ratio and the profitability of energy trading companies listed on the Vietnam stock exchange between 2012 and 2021.

The author accept hypothesis H₅, and conclude that there is no relationship between DPO and the profitability of energy trading companies listed on the Vietnam stock exchange between 2012 and 2021.

In addition, control variables, including Firm size (SIZ), the net sales growth rate (GRO), have a positive impact on ROE. the Financial Leverage (LEV) negative impact on ROE.

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