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**The impact of working capital management on the performance of securities companies A case study in Vietnam**

**Tran Van Haia, Pham Huy Hung b,  Le Van Vien c, Nguyen Duc Duong** **d**

a PhD student, Academy of Finance; Lecture, Hanoi University of Natural Resources and Environment

b PhD student, National Economics University; Lecture, Hanoi University of Natural Resources and Environment

c PhD student, National Economics University; Lecture, Hanoi University of Natural Resources and Environment

d PhD student, Graduate Academy of Social Sciences; Lecture, Hanoi University of Natural Resources and Environment

**Abstract**

Today, business managers always have to pay attention to working capital management activities, historical fact has proven the role of working capital, especially in the banking and finance industry, securities which have large corporations in the world such as Lehman Brothers, Bear Stearns...have large capital but are still insolvent and withdraw from the market. The problem for businesses (stock companies) is how to optimally manage working capital through the balance between profitability and liquidity. Therefore, research topics on working capital are always interested and special attention by scientists and business managers.

**Keywords:** *ROA, ROE, Securities companies, Vietnam*

# 1. Introduction

Researching the impact of working capital management on the performance of securities companies, through the regression model of least squares (Pooled Ordinary Least Square - Pooled OLS). As a result, working capital has a significant influence on the performance of Vietnamese securities companies (through the variable ROE/ROA return on equity and return on assets), namely net income working capital (NWC) has a positive effect, while Average Collection Period (ACP) has a negative relationship on firm performance. The implication of governance is that securities companies can increase business efficiency by investing more in working capital, and at the same time shortening the receivable collection period, through adjusting trade credit policies.

**2. Literature review**

The term "Working capital" originates from the old American street vendors, who loaded up on horse-drawn carriages and peddled. Merchandises are called “Working capital” or “working capital” because they are what peddlers actually sell, and are turned over to make a profit. Chariots and horses are fixed assets. Street vendors usually own carriages and horses (equity), but the goods are usually purchased on credit or with a bank loan, which they must pay to the bank after each sale to ensure that the borrower has ability to repay debt and prestige with the bank. The more trips a salesperson makes each year, the more working capital is being turned over and the more profitable it is. Therefore, people call working capital (working capital) as working capital because they rotate (usually used and rotated during the year). Understood in this way working capital is the capital needed to turn finished materials and semi-finished products to collect cash, including cash, goods, receivables and other short-term assets that can be converted into cash in the short term.

In fact, in the world, there are many studies on the content of working capital, the role of working capital in affecting business performance, some of these studies can be mentioned as:

Belt and Smith (1991), are said to overcome previous studies on working capital management, including that previous studies only approached cash management aspect; business credit; banking services; liquidity management; liquidity… on the basis of comparative research on working capital management practices in Australia and the US, the author has built a survey consisting of 38 questions, divided into three groups: working capital policy, general overview of management working capital management and managing each working capital component, then summarizing and analyzing.

Deloof (2003), which examines the relationship between working capital (WCM) and corporate profits in Belgium, includes 1009 large non-financial companies for the period 1992-1996. The research results show that the cash conversion cycle is used as a comprehensive measure of VCM, and companies can improve their profitability by reducing the number of days receivable and inventory.

Padachi (2006), The author studies trends in working capital management that have an impact on business performance. The dependent variable, return on total assets is used as a measure, the independent variables used in the analysis are the number of days in inventory, the number of days for accounts receivable, the number of days for accounts payable, and the life cycle. cash conversion. The results show that high investment in inventory and accounts receivable is associated with lower profitability.

Vishnani and partners (2007), study the role of working capital management policy on profitability of profitable firms in the period 1994–95 to 2004–05. The impact of working capital policy on profitability has been tested by correlation coefficient and regression analysis between profitability ratio and some key working capital policy indicators. The results of the correlation analysis of aggregated data across the industry show that there is no uniform correlation (positive or negative) between liquidity and profitability in the industry as a whole; rather it differs between companies in the industry.

Vahid and partners (2012), there is a negative and significant relationship between the average collection period, daily inventory turnover, average payment period, net transaction cycle and operating efficiency. movements of companies listed on the Stock Exchange. There is no evidence to support the existence of a significant relationship between the cash conversion cycle and corporate performance. The author said that the case of increasing the collection period, payment period and net transactions will lead to a decrease in the company's profit, and managers can increase the profit of the company by rationally, reducing the period. collection, inventory turnover and billing period.

Lamptey and partners (2017), studied the effect of working capital management on the performance of 400 small and medium enterprises in Ghana. Research period from 2011 to 2015, through OLS least squares regression method. Return on Employed Capital (ROCE) is used as the dependent variable, the independent variable is the average collection period (ACCP); Average collection period (AACP); Average payable period (AAPP) and inventory turnover days (AITP), the control variables being size, age, and industry-specific. The results show that cash conversion time, average days of receivables and average days of inventory turnover are significantly and negatively related to operating efficiency.

Ren and partners (2019), study a sample of companies between 2010 and 2017, working capital (WCM) as measured by the cash conversion cycle (CCC); profitability is measured by core profit ratio; ownership structure is classified based on state-owned enterprises (SOEs) and non-SOEs; and IEs are measured from the perspective of factor market (FM) and legal system (LS). The results show a negative relationship between CCC and firm performance, and FM and LS have the effect of enhancing the negative association between CCC and profitability. VCM has a significant influence on the profitability of companies in China.

Akgün and Karataş (2020), in the study of the management of the relationship between working capital and business performance of listed companies in the EU-28 between 2003 and 2012. Using the average square method (OLS) are commonly used to analyze sample data. The dependent variable consists of three measures, namely return on assets (ROA), return on equity (ROE) and earnings before interest and tax margin (EBITM). The results show that there is a negative relationship between total working capital and business performance. Current ratio has a statistically significant impact on business performance as indicated by ROA for all EU countries. The 2008 financial crisis had a significant negative impact on ROA.

Osama et al (2020), net working capital (NWC) level has a non-linear effect on profitability when using (ROA) as a measure of return, while the results are insignificant when using (ROE) as a measure of profitability, while there is no interaction effect between (NWC), cash level. Kayani et al (2020), working capital has a significant relationship with operating efficiency, cash conversion cycle (CCC) and inventory conversion period (ICP) exhibit a negative relationship. extreme for efficiency, reducing (CCC) and (ICP) improves operational efficiency.

**3. Methodology**

 (1) *Objectives of quantitative research*. The author examines the impact of working capital on the performance of securities companies in the period 2015-2019, the results serve as a basis for accurately assessing the effects, helping securities companies have solutions to enhance operational efficiency of securities companies

(2) *Research data*. The data used by the PhD student is secondary data, taken from the website (Vietstock.vn), from the annual reports of securities companies and the General Statistics Office (Gso.gov.vn). The data set includes financial statements of 49 securities companies for the period 2015-2019, 240 observations, the author will exclude newly established or consolidated securities companies, which makes financial data not comparable and securities companies are unfair. provide sufficient information for the study. According to Bollen (1989) when analyzing the model with linear structure, the sample size is calculated according to the formula n=5\*2i (i is the observed variable in the model). According to Tabachnick and Fidell (2007) the sample size in multiple linear regression analysis is calculated according to the formula n= 50 + 8q (q is the number of independent variables in the model).

*(3) Research Methods*. The author uses STATA 14 software to test and estimate the least squares regression model (Pooled Ordinary Least Square - Pooled OLS). The model is tested for defects and corrected for defects in the model.

**Yit = β1Xit1 + β2Xi +…+ μi**

*In which:*

β1, β2… the regression coefficient, β1 is the intercept, μi is the residual.

- Select variables ROE (Return on equity) and ROA (Return on total assets) to represent the performance of securities companies:

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Variable names and symbols** | **Calculation formula** | **Sources** |
| The dependent variable is **ROE/ROA** representing the performance of securities companies |
| **Independent variables** |  |
| 1 | Average collection period (ACP) | Average receivables for the period/Average revenue per day | Belt and Smith (1991); Deloof (2003); Padachi (2006); Vahid and partners (2012); Lamptey and partners (2017); Ren and partners (2019); Osama and partners (2020) |
| 2 | Average payment period(APP) | Average liabilities during the period/Cost of goods sold per day | Belt and Smith (1991); Padachi (2006); Vahid and partners (2012); Lamptey and partners (2017); Ren and partners (2019) Osama and partners (2020) |
| 3 | Net working capital(NWC) | Logrit of net working capital | Belt and Smith (1991); Osama and partners (2020), Akgün and Karataş (2020). |
| 4 | Current ability to pay(CR) | Current Assets/Current Liabilities | Vishnani and partners (2007); Vahid and partners (2012) Akgün and Karataş (2020) |
| **Control variables** |
| 5 | Size of securities company (LnTTS) | Logarithm of total assets | Lamptey and partners (2017) |
| 6 |  (Age) | Age of Securities Company | Lamptey and partners (2017) |

**The author considers 2 models:**

ROE **=** β1\*ACP + β2\*APP + β3\*NWC + β4\*CR + β5\*LnTTS + β6\*Age (\*)

ROA **=** β01\*ACP + β02\*APP + β03\*NWC + β04\*CR + β05\*LnTTS + β06\*Age (\*\*)

Hypotheses:

***Hypothesis H1***: Average collection period (ACP) is positively correlated (ROE/ROA)

***Hypothesis H2***: Average payment period (APP) is negatively related to (ROE/ROA)

***Hypothesis H3***: Net working capital (NWC) is positively related to (ROE/ROA)

***Hypothesis H1***: Current ratio (CR) is positively related to (ROE/ROA)

**4. Results**

**Description of variables participating in the model** (\*) và (\*\*)

**Table 1. Statistics of variables in the regression model** (\*) và (\*\*)

. summarize ROE ROA ACP APP NWC CR LnTTS AGE

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Obs | Mean | Std. Dev. | Min | Max |
| ROE | 240 | .0538408 | .1097984 | -.4677417 | .5206343 |
| ROA | 240 | .0348036 | .0814484 | -.3438544 | .5126692 |
| ACP | 240 | 5.717.119 | 2.180.116 | 0 | 29020.02 |
| APP | 240 | 6.599.504 | 66799.23 | -2.273.201 | 1030554 |
| NWC | 240 | 2.695.369 | 1.315.903 | 2.378.277 | 2.980.588 |
| CR | 240 | 3.130.671 | 9.688.796 | 1.162.489 | 1.007.533 |
| LnTTS | 240 | 1.192.213 | .6071276 | 1.052.431 | 1.343.207 |
| AGE | 240 | 156.625 | 2.951.251 | 11 | 22 |

 *(Source: Author of statistics on STATA 14 software)*

Observe the statistical table in (Table 1) a sample of 240 observations, the average value of ROE variables; ROA; ACP; APP; NWC; CR has an average value of 0.538488, respectively; 0.0348036; 5.717.119; 6.599.504; 2.695.369; 3.130.671. Most variables have the value Std.Dev. higher than average, this is reflected in the strong oscillator pattern. In general, the operating efficiency of securities companies is relatively low due to low ROE/ROA.

**Correlation coefficient matrix.**

**Table 2. Correlation matrix between variables in the regression model (\*) and (\*\*)**

. pwcorr ROE ROA ACP APP NWC CR LnTTS AGE

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | ROE | ROA | ACP | APP | NWC | CR  | LnTTS | AGE |
| ROE | 10.000 |   |   |   |   |   |   |   |
| ROA | 0.9391 | 10.000 |   |   |   |   |   |   |
| ACP | -0.2000 | -0.1674 | 10.000 |   |   |   |   |   |
| APP | 0.0449 | 0.0638 | -0.0030 | 10.000 |   |   |   |   |
| NWC | 0.4415 | 0.3279 | -0.2000 | 0.0586 | 10.000 |   |   |   |
| CR | -0.1343 | -0.1012 | -0.0514 | -0.0249 | -0.1170 | 10.000 |   |   |
| LnTTS | 0.4040 | 0.2740 | -0.1719 | 0.0496 | 0.9608 | -0.1958  | 10.000 |   |
| AGE | 0.0188 | -0.0126 | -0.0848 | -0.0414 | 0.3536 | -0.0758  |  0.3776  | 10.000 |

*(Source: Author of statistics on STATA 14 software)*

Observation (Table 2), the Sig coefficient of the variable (AGE) is 0.7717>5% both in correlation with (ROE) and (ROA), that is, between the variable (AGE) there is no correlation with the performance of the variable (AGE) Securities should be excluded from the regression model.

**Check for multicollinearity.** To remove the variable (LnTTS) due to the VIF>10 coefficient and at the same time check the multicollinearity phenomenon, the variables with VIF<10 are used in the model.

**Table 3. Multicollinearity test of the model** (\*) and (\*\*)

. Vif

|  |  |  |
| --- | --- | --- |
| Variable | VIF | 1/VIF |
| NWC | 1.16 | 0.860444 |
| ROA | 1.14 | 0.874588 |
| ACP | 1.06 | 0.941379 |
| CR | 1.03 | 0.974605 |
| APP | 1.01 | 0.993941 |
| Mean VIF | 1.08 |   |

*(Source: Author of statistics on STATA 14 software)*

Regression results of models:

**Table 4. Regression results on the impact of working capital on the performance of the representative securities company is the ROE variable.**

. reg ROE ACP APP NWC CR

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Source | SS | df | MS Number of obs = | 240 |
|   |   |   | F(4, 235) = | 16.26 |
| Model | .62461229 | 4 | .156153072 Prob > F = | 0.0000 |
| Residual | 225.669.911 | 235 | .009602975 R-squared = | 0.2168 |
|   |   |   | Adj R-squared = | 0.2034 |
| Total | 28.813.114 | 239 | .012055696 Root MSE = | .09799 |
| ROE | Coef. | Std. Err. | t P>t [95% Conf. | Interval] |
| ACP | -6.23e-06 | 2.98e-06 | -2.09 0.037 -.0000121 | -3.67e-07 |
| APP | 3.04e-08 | 9.51e-08 | 0.32 0.749 -1.57e-07 | 2.18e-07 |
| NWC | .0337798 | .0049664 | 6.80 0.000 .0239953 | .0435642 |
| CR | -.0001052 | .0000661 | -1.59 0.113 -.0002353 | .000025 |
| \_cons | -.8499954 | .1346264 | -6.31 0.000 -1.115224 | -.5847666 |

*(Source: Author of statistics on STATA 14 software)*

Observation (Table 4) gives us Regression results, variable (ACP) has a positive effect on (ROE) p-value less than 0.05, variable (NWC) has a positive effect on (ROE) with P- value is less than 0.05. The remaining variables (APP) and (CR) had no effect on (ROE).

ROE **=** -(6.23e-06)\*ACP + (0.0337798)\*NWC (1)

**Table 5. Regression results on the impact of working capital on the performance of the representative securities company as the ROA variable**

. reg ROA ACP APP NWC CR

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Source | SS | df | MS Number of obs = | 240 |
|   |   |   | F(4, 235) = | 8.42 |
| Model | .198840114 | 4 | .049710029 Prob > F = | 0.0000 |
| Residual | 138.664.928 | 235 | .005900635 R-squared = | 0.1254 |
|   |   |   | Adj R-squared = | 0.1105 |
| Total | 15.854.894 | 239 | .006633847 Root MSE = | .07682 |
| ROA | Coef. | Std. Err. | t P>t [95% Conf. | Interval] |
| ACP | -4.19e-06 | 2.33e-06 | -1.79 0.074 -8.78e-06 | 4.10e-07 |
| APP | 5.42e-08 | 7.45e-08 | 0.73 0.468 -9.26e-08 | 2.01e-07 |
| NWC | .0182312 | .0038931 | 4.68 0.000 .0105615 | .025901 |
| CR | -.00006 | .0000518 | -1.16 0.248 -.0001621 | .000042 |
| \_cons | -.4526808 | .1055302 | -4.29 0.000 -.6605869 | -.2447748 |

*(Source: Author of statistics on STATA 14 software)*

Observation (Table 5) gives us Regression results, variable (NWC) has the same direction to (ROA) with P-value less than 0.05. The remaining variables (ACP), (APP) and (CR) had no effect on (ROA).

ROA **=** -(4.19e-06)\*ACP + (0.0182312)\*NWC (2)

- **The impact of working capital on the performance of securities companies (models 1 and 2)**

+ Net working capital (NWC) has a positive influence on the performance of securities companies. That is, (NWC) increases, the performance also increases accordingly, this is consistent with the research results of Belt and Smith (1991); Osama and partners (2020) and vice versa the results of Akgün and Karataş (2020).

+ Average collection period (ACP), has a negative effect on the variable (ROE), more or less affects the variable (ROA), this is consistent with the research results of Belt and Smith (1991); Deloof (2003); Padachi (2006); Vahid and partners (2012); Lamptey and partners (2017). When the average collection period decreases, while sales and profits do not increase, capital is recovered faster, increasing operational efficiency. In other words, shortening the cash conversion cycle, shortening the receivables collection period will increase profitability.

**5. Conclusion**

The research results show that securities companies want to increase operational efficiency, the best solution is to increase working capital and at the same time shorten the receivable collection period, so managers need to implement the following measures

### *Firstly,* increase the net working capital and change the trade credit policy of the securities company towards customers, investors and partners*.*

*Second*, Reorder the list of receivables by time. Based on the cash needs of the business, the manager will apply management measures for each debt, arrange and track the length of the receivable period to take measures to settle the receivables debt repayment when due.

*Third,* Determine the balance of accounts receivable. Using this method, enterprises can completely see the outstanding debts of customers who owe the business, thereby taking timely impact measures.

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