

Effect Of Working Capital Management On The Performance Of Listed Firms In Emerging Markets: Evidence In Vietnam

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Abstract:

This study examined and measured the impact of working capital management (WCP) on the performance of companies listed on the Stock Exchange of Vietnam in the emerging market context. A panel data is collected from audited financial statements of 70 companies in the Utilities, Industry, Consumer Goods, Consumer Appliances and Materials industries over 4 years from 2016 to 2019. With the help of dedicated statistical software Stata and multiple regression analysis, the results showed factors that reflect working capital management such as Days Sales Outstanding (DSO), Days Inventory Outstanding (DIO), Days Payable Outstanding (DPO), Cash Conversion Cycle (CCC) is negatively related to performance. This research result is completely consistent with most previous studies. However, in contrast to previous studies, we have found that CCC, DSO have a stronger negative impact on business performance than DIO and DPO. Our findings have relevant implications in emerging markets.

Keywords: Cash Conversion Cycle, Corporate Performance, Days Inventory Outstanding, Days Payable Outstanding, Days Sales Outstanding, Return On Assets, Working Capital Management.

1. Introduction

WCM relates to optimum solutions for its main components, including cash, inventory, accounts receivable and short-term liabilities. It is of vital importance to businesses and forms the main workload role of the financial manager. Effective management and use of networking capital not only creates abundant cash flow for the business but also a competitive advantage, contributing to improving and enhancing operational efficiency, reducing the bankruptcy risk, and then increasing firms' value (Schiff

& Lieber, 1974; Kim & Chung, 1990; Kieschnick et al., 2012; Baños-Caballero et al., 2014; Boisjoly et al., 2020).

Recently, many studies have focused on the relationship between WCM and firm's performance, using empirical evidence from both developed and developing countries. These studies measure businesses' performance using profitability ratios, such as the ratio of ROA, Return On Equity (ROE), and Return On Sales (ROS) (Deloof, 2003; Lazaridis & Tryfonidis, 2006; Alipour, 2011; Mansoori & Muhammad, 2012; Napompech, 2012; Vahid et al., 2012; Gul, et al., 2013; Aregbeyen, 2013; Lima et al., 2015; Soukhakian & Khodakarami, 2019). In Vietnam, there have been researchers who studied the impact of WCM on the profitability of listed firms through different periods. Huynh and Su (2010) investigated the relationship between the profitability of corporations and their CCC and its components, by measuring the firm's gross operating profit. Tran, (2015); Le et al., (2017); Pham et al., (2020) study the effect of WCP on the profitability of listed companies in Vietnam. None of these studies has summarized the relationship of WCM and firm's performance of all listed corporations on the Vietnam Stock Market, and no one shows if there is any difference in the relationship mentioned above amongst firms in different industries. Moreover, those studies above result in different conclusions of the relationship between WCM and firms' performance. This study aims to measure the impact of WCM on the financial performance of firms that are from five different industries on the Vietnam Stock Market.

2. Literature Review

2.1. Studies of financial performance

Management of working capital aims to get working capital invested effectively, then optimises their resources, generates profit from using opportunity cost, and gets high firm's liquidity (Moss & Stine, 1993; Shah, 2016; Soukhakian & Khodakarami, 2019). Besides, well managing of working capital has a significant impact on firms' performance by improving CCC and keeping each component of accounts receivables, accounts payables and inventory to an optimum level (Deloof, 2003; Lazaridis & Tryfonidis, 2006; Alipour, 2011; Napompech, 2012; Song et al., 2012; Gul, et al., 2013; Vural et al., 2012; Aregbeyen, 2013; Lima et al., 2015; Shah, 2016; Perera & Priyashantha, 2018; Simon et al., 2018; Soukhakian & Khodakarami, 2019; Soukhakian & Khodakarami, 2019). Mansoori and Muhammad (2012); Vahid et al., (2012) contributed to the research of this issue with their findings that a firm can increase its profit by shortening the receivable conversion period and period of inventory conversion.

The financial performance of a firm was measured with four of the most commonly used measures of accounting profitability: ROA, ROE, and ROS (Friedlob & Schleifer, 2003; Zeitun & Tian, 2007; Mostyn, 2008; Bragg, 2012; Gibson, 2013; Dawar, 2014; Subramanyam, 2014; Wahlen et al., 2015; Robinson et al., 2015; Samonas, 2015; Sherman, 2015; Lessambo, 2018). Although ROS indicates the ability to generate profit based on revenue, since the calculation of ROS is based on an income statement, using ROS for performance evaluation is only suitable for comparing operating companies in the same industry, have a similar business model and similar annual sales. For companies operating in different fields, due to their different business nature, ROS will also be different. Therefore, using ROS for

comparison and evaluation can cause some confusion, leading to inaccurate results. Regarding ROE, although ROE is determined based on the income statement and balance sheet, because the ROE only focuses on the profit of the company's shareholders, so if using ROE to review and evaluate performance can lead to several problems, such as, businesses can resort to financial strategies and cover declining performance in market fundamentals to artificially preserve a healthy ROE for a while. Even if the operating profitability of a firm is eroding, increasing debt leverage and stock buybacks financed by accumulated cash will help sustain the ROE of a business. On the ROA side, because the calculation includes resources directly used to maintain the company's operations instead of only showing profitability, ROA overcomes the deviations and limitations of ROS, ROE. The ROA indicates whether the business can generate enough profits from these assets. Therefore, ROA measures business performance more appropriately compared to other ones. There have been many studies using ROA to measure and evaluate companies' performance (García-Teruela & Martínez-Solano, 2007; Karaduman et al., 2010; Yasir et al., 2014; Lima et al., 2015; Muhammad et al., 2016; Nobanee, 2017; Botoc & Anton, 2017; Soukhakian & Khodakarami, 2019; Yusuf, 2019; Oladipupo et al., 2019; Susilo, Wahyudi, & Pangestuti, 2020; Pham et al., 2020; Gołaś, 2020; Sunardi, Husain, & Kadim, 2020). Some studies use a combination of indicators to measure performance such as combining ROE, ROA, ROS (Nguyen & Nguyen, 2020); combine ROE, ROA, ROS, ROCE (Nguyen et al., 2019); ROA and ROE (Kukaj, Morina, & Misiri, 2020; Le et al., 2020); ROI, ROE, and NPM (Majanga, 2015); or combine ROA Tobin's Q (Simon et al., 2018). From this perspective, in this study, we use ROA to measure the financial performance of listed firms.

2.2. Studies on working capital management

The results of many studies show the negative relationship between the number of DIO, DPO, DSO, CCC and firm's performance. That means the lower the DIO, DPO, DSO and CCC the higher the profit of the company and vice versa; The longer the DIO, DPO, DSO and CCC, the lower the profitability of a company and the lower its performance (Deloof, 2003; García-Teruela & Martínez-Solano, 2007; Mansoori & Muhammad, 2012; Lima et al., 2015; Shah, 2016).

Deloof (2003) is based on a 1992-1996 database provided by the National Bank of Belgium with 1009 firms, of which 5,045 observations show a significant inverse relationship between DSO, DIO and DPO on fertility. company profit (measured by gross operating income). Research also shows that managers can create value for their shareholders by reducing the DSO, DIO to a reasonable minimum. At the same time, research clearly explains the negative relationship between DPO and profitability. Obviously, poorly performing businesses will find it very difficult to pay their invoices.

García-Teruela & Martínez-Solano (2007) collected data from 8,872 SMEs in the 1996-2002 period to examine the impact of working capital management on SME profitability using the tabular data method. The results of their study, which are robust to the presence of endogeneity, have admitted that managers can improve profitability (as measured by ROA) by reducing DSO, DIO and CCC.

Mansoori & Muhammad (2012); Lima, Martins, & Brandão (2015) and Shah (2016) when looking at the relationship between working capital management and profitability (via ROA index) found a significant negative relationship between DSO, DIO, CCC and profit found a significant negative relationship between DSO, DIO, CCC and profitability. Their research also confirmed that all components of CCC (DSO, DIO, DPO) have a negative relationship with profitability. That proves that the company's profit increases when DSO, DIO, DPO decrease and vice versa.

However, many researchers result in a different finding that DPO has a positive impact on the firm's performance. Gul, et al (2013); Chen et al., (2015); Pham et al., (2020) show that longer DPO helps firms have more chance for their financial use, and finally get higher profitability. These studies show that the firms in the research try to lengthen DPO to get higher profit. Several other studies have shown that although CCC has the negative effect, it is not statistically significant (Vahid et al., 2012; Pham et al., 2020).

3. Research Method

3.1. Research Data

In this study we used secondary data, which is collected from the financial statements of listed corporations on the Ho Chi Minh Stock Exchange (HOSE), from 2016, the point of time HOSE started to apply Global Industry Classification Standard, to 2019. These firms are classified into 11 sectors, based on Global Industry Classification Standard (GICS), and they must satisfy the following criteria: (1) listed continuously on HOSE through the period of 2016-2019, (2) Not a firm which supplies financial services, banking services, insurance services or security services, (3) Fully disclose financial statements in the period of 2016-2019, (4) For each sector mentioned, at least ten firms whose data must be collected (Deloof, 2003; García-Teruela & Martínez-Solano, 2007).

For those criteria, we collected data from 70 corporations belonging to five sectors, including Utilities, Industrial, Consumer Discretionary, Consumer Staples, and Materials, with 280 observations. The panel data were analysed using Stata 14.

3.2. Research Hypothesis and Models

Based on previous studies on the impact of independent variables (DSO, DIO, DPO, CCC) and control variables (SIZ, LEV) on firm performance, this study suggests the following hypotheses:

Hypothesis 1. There is a significant negative association between inventory conversion time and the firm's performance.

Hypothesis 2. There is a significant negative association between DPO and the firm's performance.

Hypothesis 3. There is a significant negative association between DSO and the firm's performance.

Hypothesis 4. There is a significant negative association between CCC and the firm's performance.

The research models will be developed on the basis of the researches of García-Teruela & Martínez-Solano (2007); Karaduman et al., (2010); Yasir et al., (2014); Lima et al., (2015); Muhammad et al.,

(2016); Nobanee (2017); Botoc & Anton (2017); Soukhakian & Khodakarami (2019); Yusuf (2019); Oladipupo et al., (2019); Pham et al., (2020); Gołaś (2020). The dependent variable (ROA) will be examined using four explanatory variables and two control variables. To avoid the effects of the multicollinearity effect in the regression, in this study, the research models will be tested in turn by each explanatory variable (one by one) with control variables. The first model studies the relationship between DSO and ROA. The second model investigates the relationship between DPO and ROA. The third model relates to measuring the impact of DIO on ROA. And the last one analyses the effect of CCC on ROA. All the models presented as follows.

Model 1: $ROA = \beta_0 + \beta_1 DSO_i + \beta_2 SIZ + \beta_3 LEV + \epsilon$
 Model 2: $ROA = \beta_0 + \beta_1 DPO_i + \beta_2 SIZ + \beta_3 LEV + \epsilon$
 Model 3: $ROA = \beta_0 + \beta_1 DIO_i + \beta_2 SIZ + \beta_3 LEV + \epsilon$
 Model 4: $ROA = \beta_0 + \beta_1 CCC_i + \beta_2 SIZ + \beta_3 LEV + \epsilon$

Where,
 ROA is a dependent variable, reflecting the company's performance.
 DSO, DPO, DIO, and CCC are independent variables:
 + DSO reflects the collection policy.
 + DIO reflects the inventory policy.
 + DPO reflects the payment policy.
 + CCC reflects the cash conversion cycle.
 SIZ and LEV are control variables:
 + SIZ reflects the size of the company.
 + LEV reflects the financial structure of the company.
 $\beta_0, \beta_1, \beta_2,$ and β_3 are correlation coefficients.
 ϵ : is error.

Table 1. Summary of variables in the model

Variable	Formula	Expected Sign	Reference
Dependent variable			
ROA	Net Income		García-Teruela & Martínez-Solano (2007); Karaduman et al., (2010); Yasir et al., (2014); Lima et al., (2015); Muhammad et al., (2016); Nobanee (2017); Botoc & Anton (2017); Simon et al., (2018); Soukhakian & Khodakarami (2019); Yusuf (2019); Oladipupo et al., (2019); Pham et al., (2020); Gołaś (2020)
	Average Total Assets		
Independent variables			

DIO	Average Inventory	x 365	-	Deloof (2003); Lazaridis & Tryfonidis (2006); García-Teruela & Martínez-Solano (2007); Alipour (2011); Mansoori & Muhammad (2012); Napompech (2012); Vahid et al., (2012); Gul, et al.(2013); Aregbeyen (2013); Lima et al., (2015); Shah (2016)
	Cost of Goods Sold			
DPO	Average Account Payables	x 365	-	Deloof (2003); Lazaridis & Tryfonidis (2006); García-Teruela & Martínez-Solano (2007); Alipour (2011); Mansoori & Muhammad (2012); Vahid et al., (2012); Aregbeyen, (2013); Lima et al., (2015); Shah (2016)
	Cost of Goods Sold			
DSO	Average Account Receivables	x 365	-	Deloof (2003); García-Teruela & Martínez-Solano (2007); Mansoori & Muhammad (2012); Lazaridis & Tryfonidis (2006); Napompech (2012); Vahid et al., (2012); Gul, et al.(2013); Aregbeyen (2013); Lima et al., (2015); Shah (2016)
	Net Sales			
CCC	DSO + DIO - DPO		-	Deloof (2003); Lazaridis & Tryfonidis (2006); García-Teruela & Martínez-Solano (2007); Alipour (2011); Napompech (2012); Mansoori & Muhammad (2012); Song et al., (2012); Gul, et al.(2013); Aregbeyen (2013); Lima et al., (2015); Shah (2016); Soukhakian & Khodakarami (2019)
Control variables				
SIZ	Natural logarithm of Net Sales		+	Deloof (2003); Mansoori & Muhammad (2012); Song et al., (2012); Shah (2016); Perera & Priyashantha (2018); Soukhakian & Khodakarami (2019); Pham et al., (2020)
LEV	Total Debts		-	Soukhakian & Khodakarami (2019); Pham, Nguyen, & Nguyen (2020)
	Total Assets			

4. Research Results and Discussions

Table 2 shows the summary statistic of the model’s variables.

Table 2. Descriptive Statistics of Sample

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	280	10.82843	8.800031	0.33	44.17
DSO	280	55.675	157.3444	1	2295

DPO	280	35.92143	50.65465	0	722
DIO	280	78.19286	62.14388	2	548
CCC	280	97.94643	153.6726	-60	2121
LEV	280	41.40609	19.39817	0.38	75.0815
SIZ	280	12.28173	0.612554	11.1323	14.00765

Table 3. Correlation Matrix among Variables

	ROA	DSO	DPO	DIO	CCC	LEV	SIZ
ROA	1						
DSO	-0.0752	1					
DPO	-0.114	0.6972	1				
DO	-0.0582	0.5023	0.4911	1			
CCC	-0.0629	0.6313	0.6876	0.6568	1		
LEV	-0.5037	-0.1338	-0.0326	-0.1033	-0.1681	1	
SIZ	-0.1328	-0.1311	-0.0605	0.0133	-0.1089	0.2659	1

Table 3 shows the test result of correlation among variables in the model. The correlation matrix indicates that the correlation coefficients between variables are lower than 0.7, so the conclusion is that no strong correlation exists among variables in one model and the multicollinearity problem will not occur.

Ordinary Least Squares (OLS) Regression analysis is applied to find the relationship between WCM and firms' performance. Table 4 show the results of the OLS Regression for four models.

Table 4. OLS Regression For Four Models

Variables	Model 1		Model 2		Model 3		Model 4	
	Coef	P-value	Coef	P-value	Coef	P-value	Coef	P-value
DSO	-0.00819	0.005***						
DPO			-0.02274	0.012* *				
DIO					-0.01581	0.032* *		
CCC							-0.00873	0.004* **
LEV	-0.23574	0.0000** *	-0.22972	0.0000 ***	-0.23449	0.000* **	-0.23902	0.000* **
SIZ	-0.19898	0.796	-0.08764	0.909	0.08768	0.909	-0.13401	0.861
Cons	23.48961	0.012**	22.23322	2.41	20.6978	0.026* *	23.22634	0.012* *

R-squared	26,67%	26,29%	25,81%	28,84
Observation	280	280	280	280

Notes: **, *** with significant level of 5% and 1% respectively

The regression results in Table 4 show that the independent variables in the 4 models can explain over 25% of the change in firms' performance. Prob> F = 0.000 means that the models are reliable to prove the impact of the independent variables on the dependent one.

OLS regression results for model one show that the number of days accounts receivable (DSO) affects firms' performance with a correlation coefficient of -0.00819 at the significance level of 1%. This means that shortening the DSO help the firms get higher financial performance. The implication for firms is that commonly sales managers might extend credit accounts to regular buyers to encourage them to repeat the purchasing, however, this could lead to lengthening days of accounts receivable, so they should consider the credit sales policy strictly, in order not to lose sales but still keep the DSO reduced for getting the higher performance. This result is consistent with the published research results of the authors that we have summarized in Table 1.

OLS regression results for model two with the correlation coefficient -0.02274 and P-value of 0.012 show the negative relationship between the DPO and corporate performance at the significance level of 5%. It shows that firms' performance gets higher if the number of days accounts payable is shorter. This could be explained that commonly listed firms in medium or large scale get much lower short-term interest rate then decrease the motivation of extending DPO to gain benefit from sales discount from the suppliers. This behaviour of listed firms could also keep their good reputation and have a positive impact on the trust of investors and consumers. This output of the regression shows that hypothesis H2 is rejected, and it confirms that shorter days of accounts payable could make higher firms' financial performance. This result is consistent with the published research results of the authors that we have summarized in Table 1. This implies that listed firms could manage days payment outstanding to get higher profit.

Research results with a correlation coefficient of -0.01581 and P-value of 0.032 in OLS regression model three show that DIO is inversely correlated with a corporate performance at the significance level of 5%. The fact that a decrease in days inventory help reduces storage costs and inventory damaged could lead to positive influence on firms' profitability. The results mean that hypothesis H3 is accepted, and this result is consistent with the published research results of the authors that we have summarized in Table 1.

OLS regression results for model four with the correlation coefficient -0.02274 and P-value of 0.012 show the negative relationship between the CCC and corporate performance at the significance level of 1%. It means that shortening the number of days from materials purchase payment to the collection of

accounts receivable could lead to higher performance for listed firms. This result supports hypothesis H4, and it is consistent with the results of many previously published studies (in Table 1). For this result, listed firms should manage well the policy of DIO and the number of days accounts receivable.

In addition, control variables of debt ratio (LEV) in the four models have a negative impact on firms' performance with the significance level of 1%. It means that listed firms could maintain a low debt ratio for a higher profit.

5. Conclusions

This study shows empirical evidence from listed firms in Vietnam, that firms' financial performance is affected by DSO, DPO, DIO, and CCC. The findings imply that listed firms could apply policy related to inventory, sales credit and payment to improve their financial performance, such as: (1) Well manage inventory control, like planning for sales and stock-outs and preventing the pile-up of dead stock by taking care of the time of placing an order and suppliers' delivery; (2) Efficiently establish credit sales and collection policy, apply collection outsourcing or factoring, grant sales discount in exchange for early payment, or use trade credit insurance; (3) Keep accounts payable in control using derivative financial instruments, like options, warrants, futures and forwards. Besides, listed firms could keep their debt ratio at the optimum level to keep a good reputation and consequently build investors' trust.

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