ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 9, Issue, 05, pp.51551-51554, May, 2017

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

WORKING CAPITAL MANAGEMENT AND FIRMS' PERFORMANCE IN EMERGING MARKET: THE CASE OF VIETNAM

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ARTICLE INFO

Article History:
Received 06th February, 2017
Received in revised form
28th March, 2017
Accepted 30th April, 2017
Published online 31st May, 2017

Key words:
Working capital management,
Firm profit, Vietnam,
Ho chi minh stock exchange.

ABSTRACT

This study is to investigate the impact of working capital management on firm profit for listed firms on Ho chi minh stock exchange, Vietnam. Using the data of 210 listed firms over 2011-2015, the empirical results show that both proxies for working capital management – cash conversion cycle and working capital coverage ratio – are statistically negatively related to firm profits. These findings indicate that working capital management does have an effect on firm profit, where a reduction in cash conversion cycle or in working capital coverage ratio results in an increase in firm profit. Furthermore, components of working capital management comprising of receivables collection period and inventory conversion period show a significantly negative effect on firm profits, while the payables deferral period indicates a negative but not statistically significant impact on firm profit. These findings imply that firm managers should pay more attention to working capital management as a way to increase firm performance.

Citation: Le Long Hau, 2017. "Working capital management and firms' performance in emerging market: The case of Vietnam", *International Journal of Current Research*, 9, (05), 51551-51554.

INTRODUCTION

Working capital management is very important to firms as it directly affects the firm's profit-and- risk profile. If working capital needs are not properly calculated and managed, over allocations of working capital will result in ineffective business processes, reducing returns on firm's short-term investments. On the other hand, if the working capital is insufficient, firmmay lose its investment opportunities, or may even be suffered from a credit downgrade due to short-term liquidity crisis. A proper management of working capital can make firm achieve the best operating performance, leading to increase in profit and reduction of risk. Many studies on the relationship between working capital management and firm profit have been implemented. These studies, conducted in different countries with different data samples, find different results. While some studies point to a negative relationship between working capital management and firm profit (eg, Deloof, 2003, Mathuva, 2010; etc), few other studies find an opposite or no relation (eg, Lyroudi and Lazaridis, 2000). In Viet Nam, up to my knowledge, research on the issue is relatively limited. For example, Dongand Su (2010) find a negative relation between firm profit and cash conversion cycle for 130 listed firms on the Vietnamese stock exchange over 2006 – 2008. Another study by Thoa and Uyen (2014) shows a negative impact of receivables collection period and inventory conversion period – components of cash conversion cycle -on firm performance for 208 listed firms on Ho chi minh and Ha noi stock exchanges over 2006 – 2012. These studies utilize cash conversion cycle (CCC) as a proxy for working capital management. They, however, have not yet fully investigated the impact of working capital since the effect of all components of cash conversion cycle (CCC)on firm performance was not taken into account. Besides, cash conversion cycle only reflects the firm's operating aspect (i.e. account receivables, account payables and inventory), while traditional working capital management should also reflect the financial aspect of firm (short-term cash and debts). This study therefore uses a better proxy for working capital management– i.e., working capital coverage ratio (WCR) – to investigate the issue. Furthermore, in this study the effect of all components of cash conversion cycle on firm performance is also tested.

Literature review

Several studies have investigated the relation between firm profit and components of cash conversion cycle (receivables collection period, inventory conversion period and payables deferral period), which is commonly used to measure the level of working capital management. For example, Deloof (2003) find the negative relationship between total operating income and receivables collection period, inventory conversion period and payables deferral period.

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Table 1. Results for all regression specifications

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
C	0.1110	0.1208	0.1430	0.1137	0.1267
SIZE	0.0020	0.0014	0.0004	0.0017	0.0012
SGROW	0.0150***	0.0184***	0.0185***	0.0180***	0.0178***
DEBT	-0.2348***	-0.2328***	-0.2302***	-0.2351***	-0.2365***
GDPGR	0.5745*	0.6070*	0.6224**	0.6002*	0.5964*
AR	-0.0000639***				
INV		-0.0000089***			
AP			-0.0000141		
CCC				-0.0000107***	
WCR					-0.0033033***
No. of obs	1050	1050	1050	1050	1050
R^2	0.1985	0.1823	0.1765	0.1865	0.1822
Adjusted-R^2	0.1947	0.1784	0.1725	0.1826	0.1782
VIF	1.12	1.06	1.09	1.07	1.06
Method	REM	REM	REM	REM	REM

Notes: *, ** and *** denote the significance levels of 10%, 5% and 1%, respectively.

Eljelly (2004) find a negative correlation between the profit and working capital ratio of joint-stock firms in Saudi Arabia. Mathuva (2010) find, for listed firms on stock exchanges in Kenya periods 1993 – 2008, that receivables collection period has a negative impact on profits, while inventory conversion period shows apositive effect on firm profit. Raheman and Nasr (2007) find a negative relationship between variables related to working capital management and profit for listed firms on the Karachi Stock Exchange over 1999-2004. A negative relation between components of cash conversion cycle and firm profit has also been documented by other studies. E.g, Lazaridis and Tryfonidis (2006) for firms on Athens stock exchange over 2001-2004; Tauringana and Afrifa (2013) for small and medium-sized listed firms on the UK stock market in the period 2005-2009. Regarding thecash conversion cycle, Afeef (2011) indicate that receivables collection period, inventory conversion period have a positive correlation with firm profit, while the effect of payables deferral period and cash conversion cycleon firm profit are inconclusive for small and medium firms in Pakistan during the period (2003-2008). García-Teruel and Martínez-Solano (2007) shows that cash conversion cycle has a negative effect on firm profit for firms in Spain over 2001 - 2004, which is also supported by Karaduman *et al.* (2011) for listed firms on Istanbul stock exchange over 2005-2009.Meanwhile many studies showa negative relationship between working capital management and firm performance, several other studies have found a positive association between working capital management and firm performance. For example, Lyroudi and Lazaridis (2000) find a positive relationship between cash conversion cycle and return of assets of food and listed firm son the Athens stock exchange in 1997. Sharma and Kumar (2011) also find that working capital management and profits are positively related for listed firms on the Bombay Stock Exchange during the period 2000-2008. The same findings are shown by Abuzayed (2012) for listed firms in Jordan over the period of 2000 – 2008 and by Gill, Biger and Mathur (2010) for listed firms on the New York Stock Exchange. The list of empirical research is unexhausted.

MATERIALS AND METHODS

Empirical model

In this study, twoproxies forworking capital management (i.e. cash conversion cycle (*CCC*) and working capital coverage ratio (*WCR*))are utilized to investigate the relation between working capital management and firm performance.

Moreover, the impact of components of working capital (i.e., inventory conversion period (*INV*), receivables collection period (*AR*) and payables deferral period (*AP*)) on firm profit is also checked. Control variables arefirm size (*SIZE*), sales growth (*SGROW*), debt ratio (*DEBT*) and GDP growth (*GDPGR*).Hence, all empirical regression modelsin this study are shown as

$$ROA_{it} = \beta_0 + \beta_1 AR_{it} + \beta_2 SIZE_{it} + \beta_3 SGROW_{it} + \beta_4 DEBT_{it} + \beta_5 GDPGR_{it} + \varepsilon_{it}$$
$$ROA_{it} = \beta_0 + \beta_1 INV_{it} + \beta_2 SIZE_{it} + \beta_3 SGROW_{it} + \beta_4 DEBT_{it} + \beta_5 GDPGR_{it} + \varepsilon_{it}$$
$$ROA_{it} = \beta_0 + \beta_1 AP_{it} + \beta_2 SIZE_{it} + \beta_3 SGROW_{it} + \beta_4 DEBT_{it} + \beta_5 GDPGR_{it} + \varepsilon_{it}$$
$$ROA_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 SIZE_{it} + \beta_3 SGROW_{it} + \beta_4 DEBT_{it} + \beta_5 GDPGR_{it} + \varepsilon_{it}$$

in which, i denotes country; t symbolizes for time period; u_i is country specifics; $\varepsilon_{i,t}$ shows error terms; β_s is estimated coefficient.All variables are defined as follows:

Dependent variable

ROA - Returns on assets (%) =[Profits before tax/total assets]

Independent variables

INV -Inventory conversion period (Days) = [365 × (Inventory/Cost of goods sold)]
AR - Receivables collection period (Days) =[365 × (Accounts receivables/Sales)]
AP - Payables deferral period (Days) =[365 × (Accounts payable/Cost of goods sold)]
CCC- Cash conversion cycle (Days) =[*AR + INV – AP*]
WCR–Working capital coverage ratio (%) =[(Cash and cash equivalents – Short-term debts+ Accounts receivables+ Inventory– Accounts payable)/Sales]
SIZE - Firm size (%) = in (total assets)
DEBT –Debt ratio (%) = Total debt/Total assets
SGROW–Sales growth (%) =[(Sales at year t –Sales at year t-1)/Sales at year t-1]
GDPGR – GDP growth (%) =[(GDP at year t – GDP at year t-1)/GDP at year t-1]

Data

Data are obtained from the audited financial statements of 210 listed firms on the Ho Chi Minh Stock Exchange, and the market price of stocks is derived from websites of VNdirect Securities Company (vndirect.com.vn). The sample covers for the period 2011 - 2015. Firms are selected if satisfying the following three criteria: (1) Financials are not included in the

sample due to their particular characteristics, i.e they are subject to strict regulations and have a different accounting mechanism; (2) Firm must be operating over the whole period of 2011-2015 and (3) Firm must have fully data availability over the whole period of 2011-2015.

Estimation method

Both the fixed-effects model (FEM) and random-effects model (REM) are used to estimate panel regressions, then the Hausman test is used to select between these two models. Multi-collinearity is checked using variance inflation factor (VIF).

Empirical findings

The empirical results are shown in Table 1, where five different specifications are estimated separately. Table 1 presents the results of all regression models. Since Hausman test shows that REM is a more appropriate method for the five specifications, regression results estimated by REM are presented in the table. With respect to values of VIF, ranging from 1.06 to 1.12, the presence of multi-collinearity can be rejected. As can be seen from the table, the coefficient of both cash conversion cycle (*CCC*) and working capital coverage ratio (*WCR*) is negative and statistically significant at the level of 1%. In terms of size, the coefficient of working capital coverage ratio is much greater than that of cash conversion cycle. These results obviously show that working capital management has a negative impact on firm profits irrespective of the proxy for working capital management, meaning that a reduction in cash conversion cycle or in working capital coverage ratio leads to an increase in firm profits. Moreover, as taking into account also the financial aspect of working capital, the relationship between firm profits and working capital management seems to be stronger. Regarding the components of cash conversion cycle, all the coefficients of receivables collection period (*AR*), inventory conversion period (*INV*) and payables deferral period (*AP*) are negative, but statistically significant at the 1% level only for receivables collection period (*AR*) and inventory conversion period (*INV*).These results indicate that as the time period of collecting receivables and converting inventory is reduced, the firm profit increases.

For payables deferral period (*AP*), the estimated coefficient is negative but not statistically significant, therefore its negative effect on firm profit is not statistically supported. For control variables, the regression coefficient of sales growth (*SGROW*), debt ratio (*DEBT*) and GDP growth (*GDPGR*) is statistically significant from 1% to 10% levels for all models. More particularly, sales growth and GDP growth show a positive impact on firm profit, while debt ration indicates a negative effect on firm profit. Of the four control variables, the coefficient of size (*SIZE*)is not statistically significant in any regression model. All these findings are consistent with previous studies. E.g., Lancaster and Stevens (1996); Wang (2002); Deloof (2003); Lazaridis and Tryfonidis (2006); Padachi (2006); García-Teruel and Martínez-Solano (2007); Rahemanand Nasr (2007); FalopeandAjilore (2009); Đong and Su (2010); Mohamad and Saad (2010); Karaduman et al. (2011); Tauringana and Afrifa (2013); Pais and Gama (2015).

Conclusions

The impact of working capital management on firm performance has been a debatable issue in the literature. Although many empirical studies have been conducted for countries around the world, the research on the issue is fairly limited for Vietnam. This study uses data from 210 listed firms on the Ho chi minh stock exchange to investigate the relation between working capital management (proxied by both cash conversion cycle and working capital coverage ratio) and firm profits. Empirical findings show that in general working capital management does have statistically significant impact on firm performance, i.e. a reduction in cash conversion cycle or lowering in working capital coverage ratio leads to an increase in firm profits. Components of cash conversion cycle comprising of receivables collection period and inventory conversion period show a significantly negative effect on firm profits, while the payables deferral period indicate a negative but not statistically significant impact on firm profit. These findings imply that firm managers should pay more attention to working capital management as a way to increase firm profits.

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