Working Capital Management and Firm Profitability During a Period of Financial Crisis: Empirical Study in Emerging Country of Vietnam

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ABSTRACT

This paper analyzes the relationship between working capital management and profitability from operations of 121 firms listed on the two stock exchanges, i.e. Hanoi Stock Exchange (HNX) and Ho Chi Minh Stock Exchange (HOSE) in the period 2008-2012. The research result has indicated that Receivables Collection Period (RCP), Ratio of debt to total assets (LEV), Current Ratio (CR) has negative correlation; whereas Growth of Sales (GOS) and Size of Companies (SIZE) have positive with the firm's return on equity (ROE). The research findings of researches provide experimental evidence to confirm the important role of working capital management that has direct effect on profitability of firms. Particularly in financial crisis, the managers should accord a particular attention on solutions concerning Receivables Collection Period; by justifying the Leverage and Current Ratio at reasonable level; by enhancing measures for increasing the growth of sale in order to stabilize the firm.

Key words: Working capital management, firm profitability, financial crisis, stock exchange, Vietnam.

INTRODUCTION

In the literature, the working capital management is been accorded little attention by researchers because it has been seen as secondary in financial literature compared to long term financing decisions [1]. As the financial markets have turned into turbulence during the last years of the 2000s, an increasing number of companies resort to their working capital in search of liquidity. A liquid company has more cash in hand to pay its debtors in time and reduce its net financial costs. Furthermore, a more liquid company has the ability to quickly invest in profitable opportunities.

Financial objectives, such as sales and profit, are still a primary purpose for listed companies. In other words, increasing their stock market value is their main goal. Working capital management is a very important component of corporate finance because it directly affects companies' liquidity and profitability. Therefore, efficient management of working capital is a fundamental part of the overall corporate strategy to create shareholder value. In general, companies try to keep an optimal level of working capital that maximizes their value. There has been some research in the field of working capital management and how it can influence corporate profitability. A more liquid company can invest its capital in something more productive than working capital. Also, capital efficiency adds to shareholder value, as the net present value of cash flows increases [2].

In fact, Vietnamese companies did not pay attention to its working capital before 2008. Because, before the 2008 economic crisis, the cash movement was prospects; also the business ran quickly; and the managers did not have time to monitor the company's working capital. But during the economic crisis, the lack of cash made serious problems for the company in paying short-term debt, monthly expenses such as administrative ones and salary. To deal with these problems, the company has used to some mode of financing such as firstly banking credit, then some informal loans; that result a great financial costs during the difficult period of 2009 – 2012.

Also, according to the managers, during this period, they spent a lot of times and synergies for dealing the problem of working capital. At a certain moment, they could not control the short-term expenses of the company; and they thought that the company lost money not only because of the financial costs but also of the monthly incontrollable expenses. In fact, they know the negative consequence of non-working capital management, but they thought this is ignorable. So, after the past experience, they hope to realize a research in order to clarify how and which extent the working capital management influences the company profitability. Based on the results of this research, they will decide to invest or not, if yes, how to the working capital management of the company.

LITERATURE REVIEW
Overview of Working Capital

Working capital constitutes an important part in a firm's total capital. According to [3], "working capital" involves all short-term assets or working assets, including money, venal securities, inventory, and receivables from customers; "net working capital" means working assets less all short-term debts; "net operating working capital" is the difference between working assets and short-term debt without interest payment (payables to suppliers and other payables). This definition assumes that cash and venal securities on the balance sheet are at the target in the long term and the firm does not hold cash in excess. The cash and venal securities held in excess will not be regarded as net working capital. The term of "working capital" (or "net working capital"), according to The Accounting Principles Board of American Institute of Certified Public Accountants, is defined as: the more dominate part of short-term assets than that of short-term debt; and is relatively slacker than the whole asset structure, payment of due and nearly due financial obligations within the firm's normal business cycle.

Working capital should be assessed according to the source of formation so that the firm can make out the financing structure for the need of working capital in its operation. From the point of view of financial management, every financing source has its cost of operation. The firm therefore should consider the optimal financing structure so as to lower its cost of operation. In principle, working capital can be financed from the following sources [3]:

- Charter capital: is the working capital that comes from the supplementary charter capital in the course of operation. In this source there also is the difference between the forms of business of different economic sectors.
- Self-adding capital: the source of capital supplemented by the firm itself from the firm's profit reinvested.
- Partnership capital: the working capital that comes from the capital contributed to the partnership maybe in cash or in materials, goods...
- Borrowed capital: Loans borrowed from commercial banks, from the bonds issued...

In this paper, the working capital financing source which analysis should be focused on is the source mobilized from securities markets (issuing stocks, bonds) and borrowed from credit institutions (per sum, per limit). There are different ways to classify working capital according to certain specific criteria:

✓ According to its role, working capital can be classified into 3 categories: (1) Working capital in reserve includes value of materials, fuel, spare parts, working tools. (2) Working capital in production includes value of products in progress, semi-finished products, cost pending carryover. (3) Working capital in circulation includes value of finished products, pecuniary capital (including gold, silver, gemstones…); short-term investments and short-term security deposits; receivables. This way of classifying shows the role and the distribution of each kind of capital in every step of the operating process, from that the firm can adjust the structure so as to achieve highest efficiency of capital utilization.

✓ According to preventive forms, working capital can be classified into 2 categories: (1) Material, goods capital: materials, fuel, working tools, including value of products in progress, semi-finished products, finished products…for capital of this type, reserved capital should be determined reasonably in order to determine the need of working capital so as to guarantee continued process of manufacturing and selling. And (2) pecuniary capital (including gold, silver, gemstones…); short-term investments and short-term security deposits; capital in payment…

✓ According to ownership, working capital is classified into owner's capital and borrowed funds. Such classifications indicate that the firm's working capital structure is formed from the firm's capital itself or from the debts, so as to decide to mobilize, manage and utilize capital more reasonably.

✓ According to its sources, working capital may come from: charter capital, self-supplementary capital, partnership capital, borrowed funds. This way of classifying displays the financing source structure for the firm's need of working capital. Every financing source has its cost of operation. The firm therefore should consider the optimal financing structure so as to lower its cost of operation.

✓ According to the possibility to convert to money, working capital involves: (1) pecuniary capital, (2) receivables, (3) inventory, and (4) other working assets, such as advances, prepaid expenses, short-term security deposits.

There are numerous criteria for assessing efficiency of net working capital utilization. One of the most important criteria which is usually used as a tool for financial analysis is cash conversion cycle (CCC). This criterion refers to the period of time from buying materials to converting, selling the products and collecting accounts receivable. Firms with shorter cycles will have to invest less in working capital, hence lower demand of working capital, accordingly, the financing cost of such firms will usually be lower, and due to that cost reduction, firms will achieve higher profits [3].

$$\text{Cash Conversion Cycle} = \text{Receivables conversion period} \\ + \text{Inventory conversion period} \\ - \text{Payables conversion period}$$

By using cash conversion cycle, managers may monitor how to use working capital effectively in their business cycle. Cash conversion cycle begins when the firm purchases materials, manufactures, sells products and till it receives proceeds from the products sold [4].

Figure 01: Cash conversion cycle
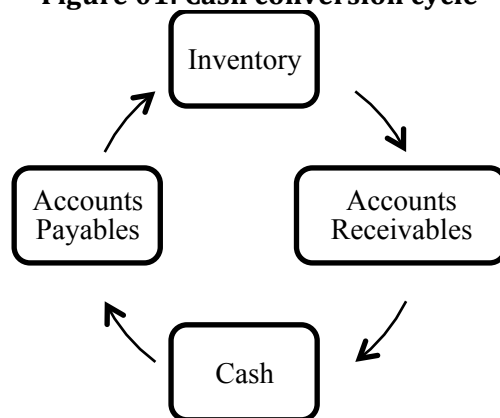
Working Capital Management And Firm Profitability In Financial Crisis

The different results between science researches have posed a question: is there a real correlation between working capital management and profits of firms? Whether that correlation is constant or variable will depend on the operating environment of each sector, level of development and development orientation of the country. According to a study of 2718 companies, in 20 years between 1974 and 1993 of [5], low cash rotation increases profitability ratio [6] also proved that there is a contra-relationship between cash conversion cycle and profitability of firms. They encouraged firms to reduce cash conversion cycle to increase profitability.

Published his research in Belgium with the data of 1009 non-financial companies during 1992-1996 by pointing out that such components of cash rotation as average cash collection cycle, inventory rotation per day, cycle of accounts payable have a negative relationship with the gross profitability ratio. This result indicates that if firms reduce cash rotation, profitability ratio will grow bigger. [7] explained that due to low profitability ratio, profit is low, then it would take longer time waiting so as to have money to pay invoices, from that it will lead to the correlation between cash rotation and the operating performance.

Studied the influence of working capital demand management on profits of companies in the food industry of Poland and some other European countries during 2005-2009 by using the Linear Regression Model to analyze the relationship between inventory rotation, accounts payable rotation with profits of firms, the author proved that in the food industry, firms with the shortest cash conversion cycle would achieve highest profits, from that to conclude that if working capital demand is assessed by cash conversion cycle, access resolvable, accounts payable, than such elements would have distinctive influence on the profitability of the food firms in Poland, some other European countries and firms in other industries. [8] confirmed that firm's profit has a direct and negative relationship with indexes of short-term inventory, accounts receivable and short-term accounts payable, namely if these cycles are prolonged, all this would cause profits decrease.

Pointed out the negative influence of the components of working capital demand on profit of firms, for example, the larger the cash conversion cycle the more profits of firms would reduce. He believed that business administrators could increase values for shareholders by minimizing the cash conversion cycle. Accounts receivable also have negative influence on firm's profits. In order to increase profits, firms should reduce accounts and lengthen payment time to providers so as to appropriate capital and cut down investment cost.

Compared the difference in the financial policies of SMEs during the economic crisis period 1991-1992, small and medium-size enterprises existed and achieved their profit targets by maintaining intact their inventory management policies, without reducing inventory quantity and customer orders, maintaining inventory by shortening the term of the account payable and lengthening the term of payment to suppliers and avoiding mobilizing capital through bank loans.

In Vietnam, [10] studied the 208 companies listed on the stock exchanges in 6 years (2006-2012) and the results showed the contra-relationship between accounts receivable, accounts payable, inventory and operate profits. [11] also suggested a contra-relationship between the components of working capital such as account receivable rotation, inventory rotation and cash conversation cycle against gross profit of firms. On the contrary, there was a reciprocal relationship between accounts payable and profits of firms.

These researches above although showed the important role of working capital in relation to the profitability of the enterprise, but ignored the impact of the environment, especially in the context of the economic crisis. In this perspective, this paper applies chaos theory to re-test the role of working capital during the financial crisis.

According to the chaos theory, the sectorial environment in which firms operate is very complicated, always changing and difficult to predict [12-14]. Firms within a sector will not only interact with each other but also with other subjects like governments, financial institutions and customers.

Figure 02: Interactions between firms and institutional actors in different industries
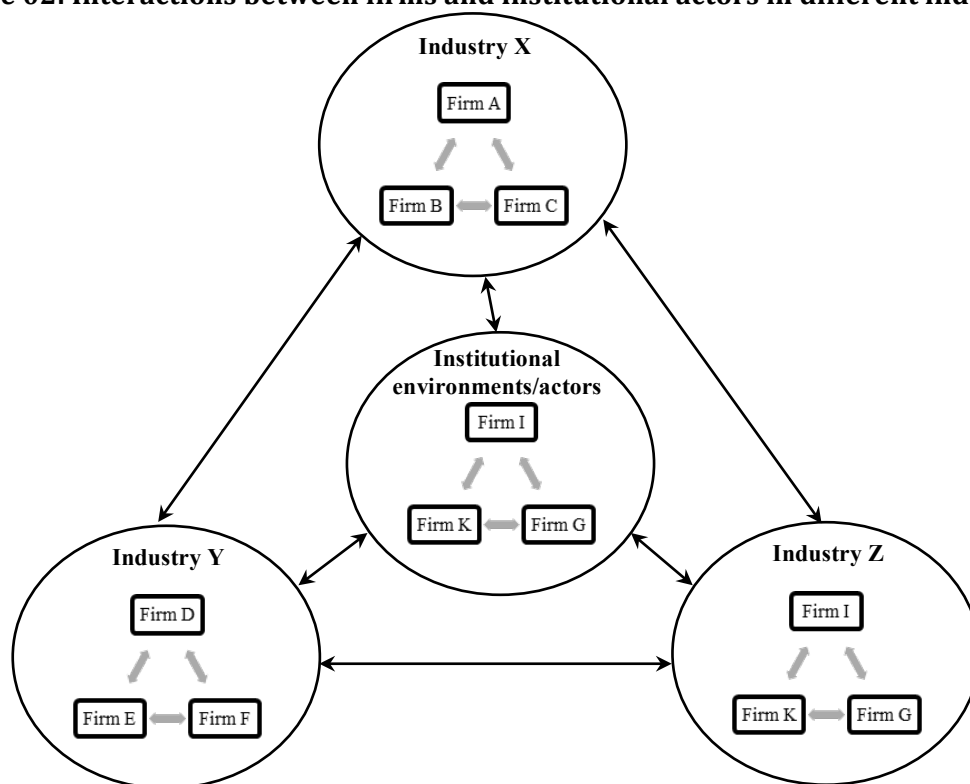
Therefore, "domino effect" will take place if a firm's movement exerts influence on other firms, even on that economy and other subjects (governments, financial institutions and customers).

And if that effect takes place in the key economic sectors, this will have serious influence on the economy.

According to [13], [15] and [14], the key elements that make economy change include economic crisis, technology, globalization, competition, lifestyle, energy sources, investors and government policies. The typical example of this was the collapse of such banks as Lehman Brothers, Goldman Sachs and Morgan Stanley in the United States in 2008 which resulted in the crisis of the entire global economy in general and of the financial sector in particular. The crisis in 2008 exerted profound effects on all economic sectors. The firms that operated during that period of crisis had to face a sudden shock when there was a sharp decrease in the stock price and profit margin, short supply and sudden decreased demand [14, 16]. In this context, working capital management is considered as an efficient tool for the firm profitability face to negative impacts from environment. This is the main hypothesis of this paper.

METHODOLOGY

Research Sample

We used the data from the financial statements of 121 firms listed on the two stock exchanges, i.e. HNX and HOSE during 2008-2012; then used linear regression function to determine the correlation between working capital management and profitability of firms (presented by ROE) in economic crisis. Specifically, the data collection will involve:

- Step 1: On the basis of Vietstock database which includes listed companies, we selected randomly listed 172 companies having data between 2008 and 2012.
- Step 2: By collecting the annual financial statements, we calculate the necessary input variables of the model such as: Receivables Collection Period; Inventory Conversion Period; Payables Conversion Period; Cash Conversion Cycle; Cash flow; Leverage; Current Ratio; Growth of sales; Size of Companies; Ratio of tangible fixed assets/total assets.
- Step 3: By processing data, we removed observations with insufficient information. The final sample includes 315 observations (each observation means 1 year of 1 firm) of 121 firms.

Variable Measurement

The dependent variable is determined as the Return on Equity (ROE) that reflects return on equity (or on tangible asset value). ROE is calculated by dividing the net profit according to accounting year, after paying dividend to preferred stock but before paying dividend to common stock, by the total equity at the beginning of the accounting year. This index is the most accurate measure for assessing one coin of capital invested and accumulated to create how many coins of profit. The higher ROE is the more effectively the firm has used equity, that means the firm has balanced harmoniously between equity and loan stock to avail itself of the competitive capacity in the course of mobilizing capital and expanding the scope. Therefore, the higher ROE is the more appealing the stocks will be to investors. ROE is used to assess from certain angles as follows:

- ROE is smaller or equal to bank loan interest, then the firm can have a bank loan similar to or higher than equity, and the profit created is only for paying the bank loan interest.
- ROE is higher than the bank loan interest, than we have to see if the bank has borrowed from the bank and availed itself of all the competitive capacity in the market or not so as to judge that this firm can increase the rate of ROE in the future or not.
- The independent variables are the same with the ones in the literature review, they include:

- Receivables Conversion Period (RCP): This variable is calculated with the annual average accounts receivable divided by the net revenue of that year. The average money collection indicates the average period necessary for a firm to recover its accounts receivable from customers. Considering the tendency of average money collection throughout the periods of a firm is the most effective way. If accounts receivable rotation increases from year to year, this indicates the weakness in the firm's ability to manage liabilities.
- Inventory Conversion Period (ICP): This variable is calculated with the annual average inventory of that year divided by the cost price of goods sold of that year. The number of days of inventory rotation shows the average period inventory is stored. The increase of inventory rotation from year to year shows the lag in business or the firm's storage of inventory. This can also be understood that inventory is being invested beyond the necessary level.
- Payables Conversion Period (PCP): This can be calculated with the annual average accounts payable divided by the cost of goods sold of that year. The average payment period indicates the average period of a firm in paying liabilities to suppliers. The increase in the average money payment period from year to year is a sign of the shortage of long-term investment capital or the weak ability to manage working assets, this is the result of the increase in accounts payable to suppliers, the increase in the term of overdraft at the bank.
- Cash Conversion Cycle (CCC): Cash cycle = Time of inventory in stock + Time for collecting trade receivables – Time for trade receivables to be collected. The higher this figure is the scarcer the volume of cash of the firm will be for operation and other activities like investment. If this figure is small, the ability to manage working capital will be regarded as good. Otherwise, if this figure is big, it can be interpreted that the firm has to borrow more loan while pending payment of trade receivables from customer.
- Cash flow (CAF): Active money flow, calculated basing on the main operating results of a firm. This is also the currency flow that investors are most interested in.
- Leverage (LEV): Used as a controlled variable, this represents a financial leverage, calculated with the total accounts payable by assets.
- Current Ratio (CR): Is the ratio between working assets and value of short-term accounts payable in the same period, indicating the ability to pay current debts of the firm. If the current ratio is smaller than 1, that means the firm does not have enough working assets to pay the undue accounts payable.
- Growth of sales (GOS): Indicates the relative growth rate of sales (by percentage) through periods. If this ratio is smaller, it is not synonymous with negative growth. Firms with high growth rate of sales are usually in the period of robust development; market shares are on the increase or are expanding to new markets or fields. However, high growth rate of sales must not necessarily be accompanied by high growth rate of profit. Depending on the tendency of growth rate of sales, this shall be regarded as sustainable, instable, soaring or plummeting.
- Sizes of firms (SIZE): Natural Logarithm of Sales is used to measure sizes of firms.
- Ratio of tangible fixed assets/total assets (FA) is calculated with the total assets divided by total fixed assets. This variable is intended to evaluate the structure of assets influencing the capital structure and operating performance of firms.

The table below sums up the independent variables employed in the paper according to the formula and symbols:

Table 01: Variable measurement

Variable	Abbreviation	Formula
Receivables Collection Period	RCP	(Accounts receivable/ Sales)*365
Inventory Conversion Period	ICP	(Inventories / Cost of Goods sold)*365
Payables Conversion Period	PCP	(Accounts payable / Cost of Goods sold)*365
Cash Conversion Cycle	CCC	RCP + ICP – PCP
Cash flow	CAF	Operating cash flow/Sales
Leverage (ratio of debt to total assets)	LEV	Total Debt / Total Assets
Current Ratio	CR	Current assets / Current liabilities
Growth of sales	GOS	$$\dfrac{\dfrac{DT_0 - DT_1}{\left|DT_1\right|} + ... + \dfrac{DT_{n-1} - DT_n}{\left|DT_n\right|}}{n}$$ With DT_0 is sale of present period. DT_i is sale of i previous period.
Size of Companies	SIZE	Natural Logarithm of Sales
Ratio of tangible fixed assets/total assets	FA	Total tangible fixed assets/total assets
Return on assets	ROA	Net income/Total assets

The regression model is formulated as follow: ROE = a0 + a1x1 + … + a8x8 + ε
with: a0, a1, …, a8: coefficients to estimate;
x1, …, x8: factors influencing ROE such as RCP, ICP, PCP, CCC, CAF, LEV, CR, GOS, SIZE, FA;
ε: error.

As the table 2 of correlation, ICP and CCC variables are highly correlated as their Pearson Correlation is 0.966 and significant at confidence level of 95%; so in regression, these two variables exclude each other and only one of the two will be taken to the model.

Table 02: Variable correlations

		RCP	ICP	PCP	CCC	CAF	LEV	CR	GOS	SIZE	FA
RCP	Pearson Correlation	1	.515**	.416**	.672**	-.236**	.172**	.050	-.003	-.238**	-.107*
	Sig. (2-tailed)		.000	.000	.000	.000	.001	.352	.956	.000	.046
	N	349	349	349	349	349	349	349	349	349	349
ICP	Pearson Correlation	.515**	1	.431**	.966**	-.140**	.221**	-.021	.102	-.100	-.110*
	Sig. (2-tailed)	.000		.000	.000	.009	.000	.699	.056	.062	.039
	N	349	349	349	349	349	349	349	349	349	349
PCP	Pearson Correlation	.416**	.431**	1	.324**	.114*	.308**	-.033	.237**	-.307**	.017
	Sig. (2-tailed)	.000	.000		.000	.033	.000	.535	.000	.000	.747
	N	349	349	349	349	349	349	349	349	349	349
CCC	Pearson Correlation	.672**	.966**	.324**	1	-.213**	.191**	.002	.048	-.102	-.133*
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.975	.370	.056	.013
	N	349	349	349	349	349	349	349	349	349	349
CAF	Pearson Correlation	-.236**	-.140**	.114*	-.213**	1	-.004	-.010	-.033	-.155**	.276**
	Sig. (2-tailed)	.000	.009	.033	.000		.945	.857	.536	.004	.000
	N	349	349	349	349	349	349	349	349	349	349
LEV	Pearson Correlation	.172**	.221**	.308**	.191**	-.004	1	-.398**	-.003	.244**	-.171**
	Sig. (2-tailed)	.001	.000	.000	.000	.945		.000	.955	.000	.001
	N	349	349	349	349	349	349	349	349	349	349
CR	Pearson Correlation	.050	-.021	-.033	.002	-.010	-.398**	1	-.006	-.311**	-.052
	Sig. (2-tailed)	.352	.699	.535	.975	.857	.000		.904	.000	.333
	N	349	349	349	349	349	349	349	349	349	349
GOS	Pearson Correlation	-.003	.102	.237**	.048	-.033	-.003	-.006	1	-.080	-.100
	Sig. (2-tailed)	.956	.056	.000	.370	.536	.955	.904		.138	.061
	N	349	349	349	349	349	349	349	349	349	349
SIZE	Pearson Correlation	-.238**	-.100	-.307**	-.102	-.155**	.244**	-.311**	-.080	1	.004
	Sig. (2-tailed)	.000	.062	.000	.056	.004	.000	.000	.138		.946
	N	349	349	349	349	349	349	349	349	349	349
FA	Pearson Correlation	-.107*	-.110*	.017	-.133*	.276**	-.171**	-.052	-.100	.004	1
	Sig. (2-tailed)	.046	.039	.747	.013	.000	.001	.333	.061	.946	
	N	349	349	349	349	349	349	349	349	349	349

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

RESEARCH RESULTS

The result of regressions of the model above is presented in the table 3. Due to the correlative analysis between independent variables which indicates that ICP and CCC are highly correlated as their Pearson Correlation is 0.966 and significant at confidence level of 95%, when applying regression, these two variables exclude each other and only CCC variable is taken for the model when running regression.

Table 03: Regression Results

Independent variable	Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error			B	Std. Error
(constant)	-3.351	5.146	-0.651	0.515		
RCP	-0.013**	0.004	-3.229	0.001	0.455	2.196
PCP	-0.005	0.006	-0.931	0.352	0.600	1.667
CCC	0.001	0.001	0.854	0.394	0.532	1.880
CAF	0.000	0.005	0.052	0.958	0.791	1.264
LEV	-0.156***	0.021	-7.386	0.000	0.640	1.563
CR	-0.404***	0.111	-3.639	0.000	0.777	1.288
GOS	0.004*	0.002	2.374	0.018	0.899	1.112
SIZE	2.407***	0.602	3.998	0.000	0.694	1.441
FA	-0.011	0.019	-0.550	0.583	0.853	1.173

R = 0,544	R^2 = 0,296	*	significant at $p \leq 0.05$;	
Adjusted R^2 = 0,277	Std. Error: 7,267	**	significant at $p \leq 0.01$;	
F = 15,803	p = 0,000	***	significant at $p \leq 0.001$;	

We can see that the Adjusted R Square is low but acceptable. That means the model can interpret 27.7% of changes in ROE of the firms studied. Also, the Sig (P-value) of F value is very small (<5%), then the model is validated.

According to the result of regressions, the model can be rewritten as follows:

ROE = -3.351 - 0.013*RCP - 0.005*PCP + 0.001*CCC+ 0*CAF - 0.156*LEV - 0.404*CR + 0.004*GOS + 2.407*SIZE - 0.011*FA

Sig in the table of Coefficients indicates whether the regression parameters are significant or not (with reliability 95%, then Sig<5% is significant). According to regression, the 5 variables RCP, LEV, CR, GOS and SIZE has considerable effect on ROE of firms, specifically:

According to the result of regressions, the relationship between Receivables Collection Period (RCP) and ROE is negative (B=-0.013; Sig. =0.001). In other words, the number of days for collection is in inverse proportion to the film' profits. This was also proved by [6], [7], [17] in their researches. In practice, credit sale and giving credit to customers constitute a policy to attract customers, to increase sales in the long term. This policy is especially important to small and medium-size enterprises in developing economies; nevertheless, if credit sale policy is over abused, firms will be more likely to be confronted with bad debts. In addition, that customers appropriate capital will drive firms to the situation with insufficient liquidation. When insolvent, firms will be exposed to loss of opportunity expenditures, reduction of reputation with suppliers, shareholders, employees of the firm and partners. Managers may increase the profitability ratio by trying to cut down the number of days collecting customer accounts receivable. By then, the firm's cash flow will be abundant, sufficient for financing other projects or investing in new production lines, helping increase profits. This policy will also assist the firm in reducing credit risks that firms may be exposed to when their customers go bankrupt.

Like RCP, the relationship between Leverage (ratio of debt to total assets) (LEV) and ROE is also negative (B=-0,156; Sig.= 0.000). The ratio of accounts payable represents current liability status of the firm, has effect on the active capital resources and income flows through payment of loan stock and interest when due. The lower the ratio of accounts payable the lower the

financial leverage effect is, and in reverse, the higher the ratio of accounts payable the higher the financial leverage effect is. The relationship between ratio of accounts payable and ROE is as follows:

Through the formula ROE = ROA/(1 – ratio of accounts payable), one can see basically the reciprocal relationship between the ratio of accounts payable and profitably of firms. If income from profit of a coin of asset (capital resource) remains unchanged, then income from net profit of one coin of equity will be higher, hence the financial leverage and the use of it to magnify the income of a coin of equity.

In fact, the relationship between these two variables has the following meanings. If there is no loan stock, or ROA of the firm equals loan stock interfere, then ROE will equal (1 – tax rate) multiplied with ROA. If ROA is higher than interest, ROE will be more than (1 – tax rate) multiplied with ROA; this moreness will even go bigger if the ratio of loan stock on equity is higher. This relationship is reasonable since if ROA is higher than the loan interest, the firm will earn more money than the level of payment to creditors. Surplus income will be for owners of firms, shareholders, to cause the increase in ROE. On the other hand, if ROA is lower than the interest of accounts payable to the loan stock, then ROE will decrease; this decrease is dependent on the ratio of loan stock on equity. Therefore, firms will only do this when their investment capital demand is rather high while owners do not have enough for financing. The loan stock of the firm will become an account payable; the loan interest is calculated basing on this principal debt. A firm will only utilize accounts payable when making sure that the profitability ratio on the assets is higher than the loan stock interest.

The result of regressions for Vietnam firms during 2008-2012 indicated the negative correlation between Leverage (ratio of debt to total assets) (LEV) and ROE. This result can be interpreted as due to ROA of firms during the period above was lower than the loan stock interest. Financial leverage could not help increase ROE but tend to decrease ROE of the firms.

According to the result of regressions, the relationship between Current Ratio (CR) and ROE is negative (B=-0,404; Sig.= 0.000). The current liquidation rate indicates a firm's ability to utilize short-term its accounts payable. The higher this rate is the more evident it is that the firm is more likely to repay all liabilities. If the liquidation rate is less than 1, this indicates that the firm is in a negative financial situation, likely to fail to pay the liabilities when due. This, however, doesn't mean that the firm will go bankrupt, since there still are many ways to mobilize more additional capital. On the other hand, if this rate is too high, this will not be a good sign, as it indicates that the firm is using assets in an ineffective manner.

The result of regressions showed the negative effect of the firm's liquidation rate (represented by ROE rate). The CR arithmetic average rate of sample is 2.03 times. This indicated that Vietnamese firms during 2008-2012 were able to pay well with short-term assets were maintained at the rate double short-term accounts payable. Nevertheless, this "redundant liquidation" tends to reduce profitability of firms as the quantity of short-term assets like cash, inventory with low profitability were maintained at a high level.

Unlike the three independent variables above, Growth of Sales (GOS) and ROE are positively correlated (B=0,004; Sig.= 0.018). This relation consists with the general theory, i.e. firms with high sales will likely to have higher profitability. This, however, is only correct if the increase in sales corresponds with the increase in net profit. Only in this way can the profitability on

equity actually be improved. If sales increase but net profit decreases (due to expenses increase higher than sales), then return on equity will be under negative effect. Research on the model of regressions has shown that in the period 2008-2012 Vietnamese firms kept good control of expenses so that the increase in sales was synonymous with the increase in net profit and had positive effect on the ratio of return to equity.

According to the result of regressions, the relationship between Size of Companies (SIZE) and ROE is positive (B=2,407; Sig.= 0.000). This relationship consists with the general theory, i.e. firms in large size will have higher profitability, based on economies of scale or/and economies of scope. Economies of scale, also known as gradually increased profit according to size, exposed when average long-term expenses decrease according to the momentum increase in productivity. That cost price decreases due to large-scale production (internal economies of scale) or the establishment lies close to organizations with functions complementing activities of that establishment (external economies of scale). This principle nevertheless will not last long forever, and to some certain extent, it will become non-economical due to size, or gradually decreased profit according to size, exposed when average long-term expenses decrease according to the momentum increase in productivity or will not increase. Economies of scope is that cost price decreases due to the basic production foundation is available or product has been standardized from that to create a series of other differential products. Research on the model of regression has shown that in the period 2008-2012, Vietnamese firms could still avail themselves of economies of scale or/and economies of scope to expand the size and increase their own profit.

The variables having effect on profit include PCP (Payables Conversion Period), ICP (Inventory Conversion Period), CCC (Cash Conversion Cycle), CAF (Cash flow), FA (Ratio of tangible fixed assets/total assets). The result of regression has shown that these variables are insignificant in the model. This can be accounted for as due to the effect of these elements on the firm's profitability is inconsistent, unprincipled. Most the targets above bear all the hallmarks of the firm in operation. The input data of the model includes the targets of the firms listed selected at random operating in different fields. Hence, the level of change of a target has different significances in each sector, thereby having different effects on profitability. The running out model has indicated that this independent variable was not significant, so doesn't have relationship with the firm's profitability.

With the data from the financial statements of 121 firms listed on the two stock exchanges, i.e. HNX and HOSE during 2008-2012 (315 observations, (each observation means 1 year of 1 firm), 9 independent variables (Receivables Collection Period; Payables Conversion Period; Cash Conversion Cycle; Cash flow; Leverage; Current Ratio; Growth of Sales; Size of Companies; Ratio of Tangible Fixed Assets/Total Assets) were run regressions with dependent variables being the firm's profitability (ROE) with the 5 variables RCP, LEV, CR, GOS and SIZE will have considerable effect on the firm's ROE; the remaining variables do not have statistic significance. In which, Receivables Collection Period (RCP), Ratio of debt to total assets (LEV), Current Ratio (CR) have negative correlations; whereas Growth of Sales (GOS) and Size of Companies (SIZE) have positive correlations with the firm's return on equity (ROE). Through the analysis, one can see the relationship of the above independent variables with the profitability of Vietnamese firms in the period 2008-2012 consists with the previous theoretical deduction and researches. The effect of working capital management is represented by Inventory Conversion Period; Receivables Collection Period; Payables Conversion Period; Cash Conversion Cycle. The results of regression, however, indicated the negative relation

between Receivables Collection Period and ROE; while the remaining independent variables do not have significant impacts.

CONCLUSION

This paper analyzes the relationship between working capital management and profitability from operations of 121 firms listed on the two stock exchanges, i.e. HOSE and HNX in the period 2008-2012. The research result has indicated that Receivables Collection Period (RCP), Ratio of debt to total assets (LEV), Current Ratio (CR) has negative correlation; whereas Growth of Sales (GOS) and Size of Companies (SIZE) have positive with the firm's return on equity (ROE). Through the analysis, one can see the relationship of the above independent variables with the profitability of Vietnamese firms in the period 2008-2012 consists with the previous theoretical deduction and science researches. The effect of working capital management is represented by the indexes: Inventory Conversion Period; Receivables Collection Period; Payables Conversion Period; Cash Conversion Cycle. The results of regression, however, have indicated the negative correlation between Receivables Collection Period and ROE; while the remaining independent variables do not have significant impacts.

The research findings of researches provide experimental evidence to confirm the important role of working capital management that has direct effect on profitability of firms. Particularly in financial crisis, the managers should accord a particular attention on solutions concerning Receivables Collection Period; by justifying the Leverage and Current Ratio at reasonable level; by enhancing measures for increasing the growth of sale in order to stabilize the firm.

References

Arnold, G., Corporate Financial Management2008: Financial Times/ Prentice Hall; 4 edition (20 Jun. 2008).

Mathur, S.B., Working Capital Management and Control: Principles and Practice2002: New Age International.

Brigham, E.F. and J.F. Houston, Fundamentals of Financial Management. 13 ed2012: South-Western Cengage Learning.

Jani, V.C., Working Capital Management of Fertilizer Industry of Gujarat, 2007, Saurashtra University.

Jose, M., C. Lancaster, and J. Stevens, Corporate returns and cash conversion cycles. Journal of Economics and Finance, 1996. 20(1): p. 33-46.

Shin, H. and L. Soenen, Efficiency of Working Capital and Corporate Profitability. Financial Practice and Education, 1998. 8(2): p. 37–45.

Deloof, M., Does Working Capital Management Affect Profitability of Belgian Firms?, 2003: Oxford, UK. p. 573-588.

Bieniasz, A. and Z. Golas, The Influence of Working Capital Management on the Food Industry Enterprises Profitability. Contemporary Economics, 2011. 5(4): p. 68.

Chatterjee, S., The Impact of Working Capital on the Profitability: Evidence from the Indian Firms. London School of Business & Financial, 2012.

Tu, T.K.T. and T.U.U. Nguyen, Relationship between working capital management and profitability: empirical study in Vietnam. Development and Integration, 2014. 14(24).

Huynh, P.D., Relationship between working capital management and profit of listed firms in Vietnam stock exchange. Banking review 2010. 13.

Porter, M.E., The competitive advantage of nations1990, New York: New York : Free Press. xx, 855 p.

Leavy, B., Organization and Competitiveness: Towards a New Perspective. Journal of General Management, 1999. 24(33-52).

Perrott, B., Managing strategy in turbulent environments, 2008, Braybrooke Press: Henley-on-Thames. p. 21.

Samli, A.C., Surviving in Chaotic Modern Markets: Strategic Considerations in Turbulent Times. The Journal of Marketing Theory and Practice, 2006. 14(4): p. 315-322.

Ellis, R.J., Improving Management Response in Turbulent Times. Sloan Management Review (pre-1986), 1982. 23(2): p. 3.

Dong H. P., S.J., The relationship between working capital management and profitability: a Vietnam case. International Research Journal of Finance and Economics, 2010. 49: p. 59-67.