

The Impact of an Aggressive Working Capital Management Policy on Profitability of firms listed in Tehran stock exchange

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Abstract: The present study is aimed to investigate the impact of aggressive working capital management policy on profitability of firms. In this study, the effect of change of structure of working capital assets on profitability of firms and the relation between working capital policies and profitability strategies have been investigated. In direction of this objective, among firms accepted in Tehran stock exchange market, data of 71 nonfinancial firms was studied during eight years by Systematic elimination method. Research hypotheses have been tested using multiple regression models in form of panel data. The result indicated when more current assets fund working capital investment, the profitability of the company increases. The relation between working capital financing policy ratio and return on assets ratio is not statistically significant but increasing working capital financing policy ratio will increase Tobin's Q ratio (market value). It seems that investors are found to be more disposed to firms that have an aggressive approach to working capital financing because they feel the stock value of such a firm is more rewarding in the market.

Keywords: working capital management, aggressive policies, investment, financing, profitability.

1. Introduction

Finance studies (Awopetu2012; Nazir&Afza, 2009; Weinraub&Visscher, 1998) suggest that the concept of working capital management policy is based on a firm's (a) financing decisions, and (b) investing decisions. Working capital financing decision can be approached in two ways, such as aggressive or conservative working capital financing policies. Weinraub and Visscher (1998) stated that aggressive and conservative are relative terms, which demonstrate the degree, at which the total current liabilities and current assets are being applied to acquire a portion of total assets of a firm (p. 12). The firms can choose one of the two main strategies of working capital management regarding their relative benefits. They can maintain investment on working capital components as least as possible by taking aggressive policy. They may only increase selling by conservative policy so they have no problem in Proportion of investment in working capital, with profitability (Heidarian, Rezazade, 2010,3)

Working capital investment Policy means current assets to total assets ratio. This ratio is a tool by which a rate can be determined in order to understand how the firm has invested its fund in items of current assets (not fixed assets) (Jahankhani and Parsaeian, 2010, 11). The amounts invested in working capital are often high in proportion to the total assets employed and so it is vital that these amounts are used in an efficient and effective way (Padachi, 2006,47). Working capital finance policy means current reliabilities to total assets ratio. This ratio shows degree of firm reliance in short time financial sources for acquiring firm assets. Amount of this ratio is affected by current reliabilities and permanent sources of funds (such as equity interest) (Jahankhani and Parsaeian, 2010, 11). The process of acquiring current assets with current liabilities is a new businessmarketing strategy that gives motivation to customers (corporate or individual) to purchase goods on credit. However, if the strategy is not properly handled, it could result in business losses (Falope&Ajilore, 2009, p. 75).

The aggressive working capital strategies are beneficial to firm's efficiency in working capital management in many ways. Some benefits of this approach are (a) flexibility of needs for funds, which, instead of borrowing on the long-term basis, a firm can make a decision to borrow for a short period and pay less on loan interest, and (b) the interest cost on short-term debt under normal condition is lower than interest costs on a long-term basis. And (c), the process to acquire short-term loan is much faster than long-term debt (Nazir and Afza (2009).

Two major objectives of a business are profitability and liquidity. The problem of these shared goals is that when a firm lays too much emphasis on profitability, then the liquidity objective may suffer, likewise; the pursuit of liquidity could have an adverse effect on corporate returns (Webley, 2011, p. 6). If the firms continue to slowing down its own payments and lengthening the payable deferral period, this could affect its credit reputation and harming its return in the long run. The results also suggest that managers can also improve the profitability of their firms by lengthening the payable deferral period (Nobani, 2009). Of course economic condition of a society and climate of business condition should be paid attention while analyzing results because issues such as conditions of using credits, loans and financing rates and also economic issues such as inflation, rate on bank deposits can affect working capital policies (Zohdi et al., 2010, 208)

Several studies (Awopetu, 2012; Filbeck & Krueger, 2005; Nazir & Afza, 2009; Weinraub & Visscher, 1998) are critically different from one another in their outcomes. Still, the problems in working capital management are (a) how to identify the optimum mix among the components of a firm's working capital, and (b) the inconsistency in the application of working capital policies by firms. To solve the problems of working capital composition, Nazir and Afza (2009) stated that "the goal of management strategy in working capital is to balance the use of accounting elements that comprised of working capital" (p. 20). Weinraub and Visscher (1998), on the other hand, responded to the inconsistency in the use of working capital policies that no management policy approach is superior to the other, and that working capital policy cannot be prescribed for an industry or firm (p. 17). In recognition of the potential risk that weak working capital management poses to firm's profitability performance (Filbeck et al. 2007, p. 3).

A firm's working capital management is faced with many constraints, such as global market competition, uncertainty of inadequate funding, financial restrictions, new regulations, trends in technology and high financial costs (Filbeck & Krueger, 2005, p. 17). I examined the period (2003-2010) to explore and analyze the relationship between the firm's aggressive working capital management policies, and their profitability. The present study is aimed to evaluate the effect of structural changes in firms' working capital assets and to recommend how to come over its problems.

Literature Review

Nazir and Afza (2009) obtained evidence showing that companies can minimize risk and improve the overall performance by understanding the role and drivers of working capital management. (Nazir and Afza, 2009). In other words, firms require working capital management strategies to provide for day-to-day operational needs, such as payment for wages and salaries, and creditors (Appuhami, 2008, p. 8). Making a balance between current assets and debts is very important so that decision about one will affect the other (Maleki et al., 2011, 142). The level of current assets kept within an entity depends on a variety of factors. However, each company should aim at optimization of the value of current assets through having the amount of these assets and their structure which is necessary for maintaining a continuity and undisturbed regularity of production processes. Considerable deviations, both in plus and in minus, from the level and the structure of current assets may lead to loss of effectiveness of company's operation (Grabowska, 2010).

Previous researchers (Awopetu, 2012; Filbeck & Krueger, 2005; Nazir & Afza, 2009; Weinraub & Visscher, 1998) have examined aggressive working capital management of firms. Weinraub and Visscher (1998) discussed the issue of aggressive/conservative approach to working capital strategies. Using quarterly data of 10 different United States industries from 1984 to 1993, the authors analyzed the relationship that exists among the approaches to working capital strategies in firms. Weinraub and Visscher concluded that (a) the industries had significantly distinct working capital management policies; (b) the research showed a high, significant negative correlation between industry investment, and financing policies; and (c) firms achieve better profitability performance when there is a good combination of both approaches (aggressive and conservative) to working capital management strategy.

Filbeck et al. (2007) analyzed working capital management results based on conventional ratios performed on 1,000 companies that were based on a CFO working capital survey. The study demonstrated that a low cost on debt financing allows for more money to be spent on current assets. However, the result of the findings showed that working capital values differ among industries in a period of time and, that the measure of working capital changes significantly within industries across time.

Nazir and Afza (2009) studied the impact of aggressive working capital management policy on a firm's profitability in Pakistan. Their study applied multiple-regression analysis to investigate the traditional relationship between working capital policies and a firm's profitability in 204 nonfinancial firms from 1998 to 2005. The result of the study revealed that when firms utilize an aggressive approach to acquire working capital assets, the outcome may not necessarily increase the profit level. Managers can create value if they adopt a conservative approach towards working capital investment and working capital financing policies. However, the research also concluded that investors are found to be more disposed to firms that have an aggressive approach to working capital because they feel the stock value of such a firm is more rewarding in the market.

Awopetu(2012)explored the relationship between the aggressive working capital management policies of firms and their profitability .The population and samples for this study were from 100 small nonfinancial firms that operated in the United States during the calendar year 2002-2011. The proposed relationships were tested through statistics, *F*- test, and regression using ANOVA and STATA statistical software The findings of the analysis actually showed that firms will have more profit if more current assets funds working capital investment and Small companies that use a high degree of current liabilities (working capital financing policies) to improve profitability may be disappointed, because a conservative model of low usage of current liabilities proves positive in this study.

In similar studies, Mohammadi (2009), Rezazadeh and Heidarian (2010), Yaghoubnjad.et.al (2010) found that there is a significant and negative relation among average periods of charge collection, inventory turnover, solvency and cash conversion cycle with profitability. Izadinia and Taki (2010) found that the larger the cash conversion cycle, the lower the return on asset. Many more working capital studies use traditional ratios such as the number of

day's accounts receivable, number of day's inventories on hand, and number of days account payable to measure the liquidity level of a firm (Falope & Ajilore, 2009, p. 77). However, According to Shulman and Cox (1985), Awopetu suggests that traditional ratios do not consider the going concern of a firm, and therefore, the net working capital is not the true value of liquidity. Hence, to predict the financial status of a firm, the financial ratio of working capital is better linked to permanent resources such as total assets (Awopetu, 2012, p.40).

In a paper titled as "coordination relation among financial strategies, investment, financing, profit division and working capital with organizational performance" Arabi and Abedi (2011) studied the significant relation among above variables in Eksir pharmacy, one of firms accepted in Tehran stock exchange market. When financial strategy of the firm (strategies of investment, financing, profit division and working capital) has been moderate tending to risk taking, Firm performance (ratio of Q Tobin and return on assets) is higher compared to the time when its financial strategy has been moderate tending to risk escaping. Results show those in years when the coordination is high among elements of financial strategies, firm performance is better.

Zohdi.et.al (2010) studied working capital policies and firm risk. Statistical population of the study is 44 firms accepted in Tehran stock exchange market. Results show that there is a significant and positive relation between working capital policies and firm risk. Evidence suggests that firms with different changes in working capital policy compared to previous year have different risks. This difference is more significant between groups with more conservative and aggressive policies.

Research Methodology

Variables Used in the Study

In this research, The impact of working capital management policies on the profitability of firms was analyzed through percent of return on assets, which is an accounting based measurement, and Tobin's q, which measures the market value of a firm's stock. Profitability was measured with the use of Return on Asset ratio (ROA) and Tobin's q ratio serves as the dependent variable of this study.The Return on Assets (ROA) is measured as net earnings after taxes divide by total assets. The second performance measure is the Tobin's q .Tobin's q ratio is used as a profitability measure because of its ability to compare

the firm's market value with the book value of its assets.

This study first independent variable is the working capital investment policy (WCIP), which stipulates that when a firms' policy supports the use of low investment in current assets, as against long-term assets, that investment policy is aggressive. On the other hand, conservative investment policy is when a firm allows for more capital in liquid assets. A firm's investment strategy was measured through the financial ratio of Total Current Assets (CA) divided by Total Assets (TA).

The second independent variable is the Working Capital Financing Policy (WCFP). Aggressive WCFP is an approach a firm uses when it utilizes more degree of short-term debts, and less long-term debt to pursue working capital financial objectives (Nazir&Afza, 2009; Weinraub&Visscher, 1998). A relatively aggressive WCFP of a firm was measured by total current liabilities (CL) / total assets (TA).

Control Variables

Although aggressive working capital policies may facilitate increased profits, a business profit is not solely dependent on a firm's operational policies. Some other exogenous factors, such as the firm's size, financial leverage, and the national gross domestic product-growth rate are contributors to a firm's profitability performance (Awopetu 2012; Falope&Ajiboye, 2009; Nazir&Afza, 2009; Weinraub&Visscher, 1998). In this study, control variables are firms' size; the growth in sales, and financial leverage, are considered to be the risk factors that impact working capital management policies of firms.

Firm size (SIZE): This is measured by the logarithm of its total assets.

Firm growth (GROWTH): The variation in its annual sales value with referenceto previous year's sales [(Salest – Salest – 1)/Salest – 1].

Financial leverage. It was measured by the total debt/total assets ratio of the companies for this study.

Statistical Analysis

Chaw test has been used to choose between model of integrated data and panel data with constant effect. Results suggest that null hypothesis is rejected by

95% confidence level. Therefore, model of panel data with constant effect should be used. Breusch–Pagan test has been used to choose between integrated data and panel data with random effect. Results show that null hypothesis is rejected in 95% confidence level. Thus panel data with random effect should be used in this research. Hasman test has been used to choose between panel data with random effect and panel data with constant effect. Results show that statistic χ^2 is equal to zero and its corresponding probability is equal to one. In the table related to model evaluation in form of random effects, there is an output so called effect specification containing information $\hat{\delta}_{it}$ and $\hat{\delta}_{\epsilon}$.

$\hat{\delta}_{\epsilon}$ Weight compared to $\hat{\delta}_{it}$ is shown with ρ by a quantity called Rho. The higher $\hat{\delta}_{\epsilon}$ and its ρ , the stronger the evidence based on constant effect and choosing constant effects is justified. $\hat{\delta}_{\epsilon}$ contributes largely in changes of error term ($\epsilon_{it} + U_i$). Therefore, it is necessary to evaluate model of constant effects. Therefore, the following regression equations are run to estimate the impact of working capital policies on the profitability measures.

(1)

$$ROA_{it} = \alpha + \beta_1(WCIP_{it}) + \beta_2(SIZE_{it}) + \beta_3(GROWTH_{it}) + \beta_4(LVRG_{it}) + \epsilon_{it}$$

$$Tobin's\ q_{it} = \alpha + \beta_1(WCIP_{it}) + \beta_2(SIZE_{it}) + \beta_3(GROWTH_{it}) + \beta_4(LVRG_{it}) + \epsilon_{it}$$

(2)

And

(3)

$$ROA_{it} = \alpha + \beta_1(WCFP_{it}) + \beta_2(SIZE_{it}) + \beta_3(GROWTH_{it}) + \beta_4(LVRG_{it}) + \epsilon_{it}$$

(4)

$$Tobin's\ q_{it} = \alpha + \beta_1(WCFP_{it}) + \beta_2(SIZE_{it}) + \beta_3(GROWTH_{it}) + \beta_4(LVRG_{it}) + \epsilon_{it}$$

Where

ROA_{it} = Return on Assets.

$Tobin's\ q_{it}$ = Value of q.

α = the working capital management intercept of the regression surface.

β = the responsiveness of profitability to the risk factor, independent and control variables ratio.

$WCIP_{it}$ = Total current assets to total assets ratio.

$WCFP_{it}$ = Total current liabilities to total assets ratio.

$SIZE_{it}$ = Natural log of firm size.

$GROWTH_{it}$ = Growth of sales.

$LVRG_{it}$ = Financial leverage of firms

ε_{it} = Error term of the regression model

Sample and Data

Statistical population of this research is all firms accepted in Tehran stock exchange market and time period of data gathering is from beginning of March 2003 to end of February 2010. Members of statistical population have been studied during 8 years. In order to choose statistical sample, firms in statistical population have been investigated. Statistical sample of this research has been determined by Systematic elimination method and following conditions: fiscal year of the firm should end in February and fiscal year does not have to be changed between 2003 and 2010. The firm has to be present in Exchange from beginning of 2003 to end of 2010 and information required for data extraction has to be available. Finally, banks, financial investing firms and parent firms (due to different nature of their activities with other commercial units) have been eliminated from the sample. Therefore, considering abovementioned characteristics, totally 71 firms were chosen from 20 different industries in Tehran stock exchange market as the statistical sample.

Result analysis

In the first hypothesis, the relation between working capital investment policy and profitability has been

studied. Results of the first hypothesis have been shown in table (1). Fisher statistic has been used to determine significance of regression model. Considering table (1), error amount of both models of ROA (II) and Tobin's q (II) is 0.05 significant in the first hypothesis so non-linearity of both models will be rejected. Finally, it can be said that two linear regression models are significant. Considering results of evaluating two models of ROA (II) and Tobin's q (II), statistic value of Durbin Watson for research variables is 1.96 and 1.86 respectively. Therefore it can be concluded that the remaining is uncorrelated. Regression results show that in ROA (II) model, if working capital investment policy is increased by 1%, ROA will be increased by 10% with 0.002% error. Also results of Tobin's q model show that if working capital investment policy is increased by 1%, firm market value will be increased by 17% with 1% error. Therefore, there is a negative relation between aggressive degree of firms' working capital investment policy and two methods of performance measurement (ROA and Tobin's q). It is concluded that firms included in this research sample perform conservatively.

In the second hypothesis, the relation between working capital finance policy and profitability has been studied. Results have been shown in table 2. Considering table 2, error amount of ROA (II) and Tobin's q (II) is less than 0.05 significant level in both hypotheses thus non-linearity is rejected in both models. It can be concluded that linear regression models designed in both hypotheses are significant. Durbin Watson statistic value of ROA (II) and Tobin's q (II) is 1.93 and 1.86 respectively. Therefore, the remaining is uncorrelated. Analysis shows that 1% increase of WCFP (increasing aggressive degree) with 5% increase of ROA is not statistically significant by % 95 confidence level. It can be concluded that sample firms perform conservatively. But if WCFP is increased by 1%, firm's market value will be increased by 16% with 5% error. It seems that investors are interested to invest in firms which have aggressive working capital finance because they think that share of such firms is more valuable in the market.

Table 1: Regression Analysis of Performance Measures and Working Capital Investment Policy

Tobin's q(II)		Tobin's q(I)		ROA (II)		ROA (I)		Variables
Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	
0.0142	0.1741	0.0193	0.1884	0.0016	0.0974	0.0001	0.1646	WCIP
0.0001	-0.1855	-----	-----	0.0002	0.0547	-----	-----	SIZE
0.0142	0.0520	-----	-----	0.0000	0.0598	-----	-----	GROWTH
0.0003	0.2853	-----	-----	0.0000	-0.3703	-----	-----	LVRG
1.8579		1.8150		1.9598		1.9262		DW
0.6616		0.6316		0.7243		0.5554		R-squared
0.0000		0.0000		0.0000		0.0000		Prob(F-statistic)

Note significance levels 5% respectively

Table 2: Regression Analysis of Performance Measures and Working Capital Financing Policy

Tobin's q(II)		Tobin's q(I)		ROA (II)		ROA (I)		Variables
Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	
0.0500	0.1616	0.0007	0.2205	0.0729	0.0506	0.0000	-0.2273	WCFP
0.0002	-0.1748	-----	-----	0.0137	0.0313	-----	-----	SIZE
0.0089	0.0554	-----	-----	0.0000	0.0433	-----	-----	GROWTH
0.1235	0.1535	-----	-----	0.0000	-0.4272	-----	-----	LVRG
1.8583		1.8366		1.9340		1.9674		DW
0.6558		0.6295		0.7804		0.6931		R-squared
0.0000		0.0000		0.0000		0.0000		Prob(F-statistic)

Note significance levels 5% respectively

In the third hypothesis, the effect of size, growth and financial leverage on the profitability performance of a firm has been determined. Regression results in tables 1 and 2 have been used to describe relations of this hypothesis. Results suggest significant negative effect of firm size on Tobin's q and significant positive effect on return on assets. In other words, if firm's size is increased by 1%, ROA will be increased by 3-5% and Tobin's q will be decreased by 17-18.5%. Results show that if sale income is increased by 1%, ROA will be increased by 4-6% and it is statistically significant. Also, 5-6% increase of Tobin's q is statistically significant in 95% confidence level. According to tables 2 and 3, 1% decrease of financial leverage is statistically significant in a high level with 37-43% reduction of return on assets but it will be followed by 29% increase of Tobin's q in the first hypothesis with 95% confidence level if in the second hypothesis, it is not statistically significant with 15% increase of Tobin's q in 95% confidence level.

It is evident that by adding control variables to the equation, prediction of dependent variable in ROA model is increased by 6% and Tobin's q model is increased by 3%. According to regressive results of the second hypothesis shown in table 2 by adding control variables to the equation, prediction of dependent variable in ROA model is increased by 9% and Tobin's q is increased by 3%. It means that control variables are main variables in both hypotheses and they belong to the equation.

Conclusion

In present study, the effect of aggressive working capital management policy on profitability of firms has been studied using data of 71 non-financial firms accepted in Tehran stock exchange market during 8 years (2003 - 2010). Research hypotheses were tested using multiple regression models in form of panel data. Results show that reduction of current assets does not increase profitability based on aggressive approach. Therefore, there is a negative relation between aggressive degree of working capital investment policies of firms and two Performance measuring methods (Tobin's q and ROA) meaning managers do not use aggressive approach for their investment policy rather they choose a conservative approach that is replaced by aggressive approach with emphasis on more share of the capital for liquid assets. Also, empirical data analysis shows that there is no significant relation between aggressive working capital financing policy and return on assets. it is possible that Iranian economic conditions have

moved companies towards conservative approach in this period. but this policy leads to increased Tobin's q (company's market value) and it seems that investors are interested to invest on companies with aggressive working capital finance because they think that stocks of such firms is more valuable in the market.

In this study, the working capital policy model proposed as created general awareness of different policies that can help in making a prudent management decisions. This invariably translates that the findings of this study shall, lead to new working capital policy models and better decision management tactics. It is expected that the findings of this study can change how financial experts see the contributions of operation policies, and how it helps in profitability generation in a company. Also, it will enable the management to choose appropriate personnel that can make the right policies with a reduced risk, in order to improve corporate goals. Furthermore, strategic management of working capital is purposely to allocate company's current assets in a way that will lead to significant changes in resource allocation in the firm; therefore, this study content serves as a reminder that periodic monitoring of current assets and liabilities should be done with the attempt to revalidate, or to adjust working capital policies.

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