IS IT BETTER TO BE AGGRESSIVE OR CONSERVATIVE IN MANAGING WORKING CAPITAL?

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Abstract

Traditionally, the researchers in corporate finance have focused on the long-term financial decisions making, particularly capital structure, dividends, investments, and company valuation decisions. However, short-term assets and liabilities are important components of total assets and needs to be carefully analyzed. The present study investigates the relationship among the aggressive/conservative working capital policies and profitability as well as risk of firms for 208 public limited companies listed at KSE for the period of 1998-2005. The empirical results found the negative relationship between working capital policies and profitability validating the findings of Carpenter and Johnson (1983) and found no significant relationship between the level of current assets and liabilities and risk of the firms.

INTRODUCTION

Traditionally, the researchers in corporate finance have focused on the long-term financial decisions making, particularly capital structure, dividends, investments, and company valuation decisions. However, short-term assets and liabilities are important components of total assets and needs to be carefully analyzed. Management of these short-term assets and liabilities warrants a careful investigation since the working capital management plays an important role for the firm's profitability & risk as well as value (Smith, 1980). Efficient management of working capital is a fundamental part of the overall corporate strategy to create the shareholders' value. Firms try to keep an optimal level of working capital that maximizes their value (Howorth and Westhead 2003, Deloof 2003, Afza and Nazir 2007).

In general, from the viewpoint of Chief Financial Officer (CFO), management of working capital is simple and a simple concept of ensuring the ability of the organization to finance the difference between the current assets and current liabilities (Harris 2005). However, a "Total" approach should be followed which cover all the company's activities relating to vendor, customer and product (Hall 2002). In reality, management of working capital has become one of the most important issues in the organizations where many financial executives are trying to identify the basic determinants of working capital and the optimal level of working capital (Lamberson 1995). Consequently, companies can minimize risk and improve the overall performance by understanding the role and determinants of working capital.

A firm may adopt an aggressive working capital management policy with a low level of current assets as percentage of total assets or it may also used for the financing decisions of the firm in the form of high level of current liabilities as percentage of total liabilities. Excessive levels of current assets may have a negative effect on the firm's profitability whereas a low level of current assets may lead to lower level of liquidity and stockouts resulting in

difficulties in maintaining smooth operations (Van Horne and Wachowicz 2004).

The main objective of working capital management is to maintain an optimal balance between each of the working capital components. Business success heavily depends on the ability of financial executives to effectively manage receivables, inventory, and payables (Filbeck and Krueger 2005). Firms can reduce their financing costs and increase the amount of funds available for development projects by reducing the amount of investment tied up in short term assets. Most of the financial managers' time and effort are allocated in optimizing the levels of current assets and liabilities back toward optimal levels (Lamberson 1995). An optimal level of working capital would be the one in which a balance is achieved between risk and efficiency. It requires continuous monitoring to maintain proper level in various components of working capital i.e. cash receivables, inventory and payables etc.

In general, current assets are considered as one of the important component of total assets of a firm. A firm may be able to reduce the investment in fixed assets by renting or leasing plant and machinery, whereas, the same policy cannot be followed for the components of working capital. The high level of current assets may reduce the risk of liquidity associated with the opportunity cost of funds that may have been invested in long-term assets. The impact of working capital policies on profitability is highly important, however, a little empirical research has been carried out to examine this relationship. This paper investigates the potential relationship of aggressive/ conservative policies with the accounting and market measures of

profitability as well as the risk factor of Pakistani firms. The present study is expected to contribute to better understand these policies and their impact on profitability especially in the emerging markets like Pakistan.

LITERATURE REVIEW

Many researchers have studied financial ratios as a part of working capital management; however, very few of them have discussed the working capital policies in specific. Some initial work by Gupta (1969) and Gupta and Huefner (1972) investigated the differences in averages of financial ratio among industries. The findings of both the researchers were that differences exist in mean profitability, activity, leverage and liquidity ratios amongst industry groups. Johnson (1970) extended this work and found cross-sectional stability of ratio groups for retailers and primary manufacturing sectors. Pinches et al. (1973), by using factor analysis, developed seven groups of ratios, and found that all those groups were stable over the period of 1951-1969.

Chu et al. (1991) analyzed the hospital sectors to observe the differences of financial ratios groups between hospital sectors and industrial firms sectors. Their study concluded that financial ratios groups were significantly different from those of industrial firms' ratios as well these ratios were relatively stable over the five years period. Sathyamoorthi (2002) focused on good corporate governance and in turn effective management of business assets. He observed that more emphasis is given to investment in fixed assets both in management area and research. However, effective management working capital has been receiving little attention and yielding more significant results. He analyzed selected Co-

operatives in Botswana for a period of 1993-1997 and concluded that an aggressive approach has been followed by these firms during all the four years of study.

Filbeck and Krueger (2005) highlighted the importance of efficient working capital management by analyzing the working capital management policies of 32 non-financial industries in USA. According to their findings, working capital practices were significantly different over time. Moreover, those working capital practices change significantly over time within industries. Similar studies are conducted by Gombola and Ketz (1983), Soenen (1993), Maxwell et al. (1998), and Long et al. (1993).

In a regional study, Pandey and Parera (1997) provided an empirical evidence of working capital management policies and practices of the private sector manufacturing companies in Sri Lanka. The information and data for the study were gathered through questionnaires and interviews with chief financial officers of a sample of manufacturing companies listed on the Colombo financial market. They found that most companies in Sri Lanka have informal working capital policy and company size has an influence on the overall working capital policy (formal or informal) and approach (conservative, moderate or aggressive). Moreover, company profitability has a strong influence on the methods of working capital planning and control.

However, Weinraub and Visscher (1998) have discussed aggressive and conservative working capital management policies by using quarterly data for a period of 1984 to 1993 of US firms. The relationship between aggressive and conservative working capital management policies has been investigated by using ten different industries. The authors have concluded that the sample industries had distinguishing working capital management policies. Moreover, the nature of the working capital management policies showed remarkable stability over the study period. The authors also found that when an aggressive working capital policy is followed on one side, that is balanced by having conservative policy on the other hand.

In literature, there is a long debate on the risk/return tradeoff between different working capital policies (Pinches 1991, Brigham and Ehrhardt 2004, Moyer et. al. 2005, Gitman 2005). More aggressive working capital policies are associated with higher return and higher risk while conservative working capital policies are concerned with the lower risk and return (Gardner et al. 1986, Weinraub and Visscher 1998). Working capital management is of crucial nature because it effects the firm's profitability and as well as its risk, and consequently its value (Smith, 1980). Greater the investment in current assets, the lower the risk, but also the lower the profitability obtained. In contradiction, Carpenter & Johnson (1983) provided empirical evidence that no linear relationship is there between the level of current assets and revenue systematic risk of US firms; however, some indications of a possible non-linear relationship were found which were not highly statistically significant.

For the first time, Soenen (1993) investigated the relationship between the net trade cycle as a measure of working capital and return on investment in U.S firms. The results of chi-square test indicated a negative correlation between the length of net trade cycle and return on assets.

Furthermore, this inverse relationship between net trade cycle and return on assets was found different across industries depending on the type of industry. A significance relationship for about half of industries studied indicated that results might vary from industry to industry. Another aspect of working capital management has been analyzed by Lamberson (1995) who studied how small firms respond to changes in economic activities by changing their working capital positions and level of current assets and liabilities. Current ratio, current assets to total assets ratio and inventory to total assets ratio were used as measure of working capital while index of annual average coincident economic indicator was used as a measure of economic activity. Contrary to the expectations, the study found that there is very small relationship between charges in economic conditions and changes in working capital.

In order to validate the results found by Soenen (1993) on large sample and with longer time period, Jose et al. (1996) examined the relationship between aggressive working capital management and profitability of US firms using Cash Conversion Cycle (CCC) as a measure of management of working capital where a shorter CCC represents the aggressiveness of working capital management. The results indicated a strong negative relationship between cash conversion cycle and profitability indicating that more aggressive working capital management is associated with higher profitability. Shin and Soenen (1998) concluded that reducing the level of current assets to a reasonable extent increases firms' profitability. Later on, Deloof (2003) analyzed large Belgian firms for the period of 1992-1996 and the results confirmed that by reducing the inventories and average collection period, the Belgian firms can

improve profitability. Teruel and Solano (2005) suggested that managers can create value by reducing their firm's number of days accounts receivable and inventories. Similarly, reducing the cash conversion cycle also enhances the firm's profitability.

In the Pakistani context, Rehman (2006) investigated the impact of working capital management on the accounting returns of 94 Pakistani firms listed at Islamabad Stock Exchange (ISE) for a period of 1999-2004. He studied the impact of the different variables of working capital management including Average Collection Period, Inventory Turnover in Days, Average Payment Period and Cash Conversion Cycle on the Net Operating Profitability of firms. He concluded that there is a significant negative relationship among above working capital ratios and returns of firms. Furthermore, managers can create a positive value for the shareholders by reducing the cash conversion cycle up to an optimal level. Similar studies on working capital and profitability includes Smith and Begemann (1997), Howorth & Westhead (2003), Ghosh & Maji (2004), Eljelly (2004), and Lazaridis and Tryfonidis (2006).

Finally, Afza and Nazir (2007) investigated the relationship between the aggressive/conservative working capital policies for seventeen industrial groups and a large sample of 263 public limited companies listed at Karachi Stock Exchange for a period of 1998-2003. Using ANOVA and LSD test, the study found significant differences among their working capital investment and financing policies across different industries. Moreover, rank order correlation confirmed that these significant differences were remarkably stable over the period of six years of study. Finally, ordinary least regression

analysis found a negative relationship among the profitability measures of firms and degree of aggressiveness of working capital investment and financing policies. The current study further investigates the impact of the degree of aggressiveness of working capital policies on market measures of profitability i.e. market rate of return and Tobin's q as well as the risk of firms.

RESEARCH DESIGN

The study used aggressive investment policy and aggressive investment policy as measuring variables of working capital management. **Aggressive Investment Policy (AIP)** results in minimal level of investment in current assets versus fixed assets. In contrast, a conservative investment policy put a larger proportion of capital in current assets with the opportunity cost of lesser profitability. In order to measure the degree of aggressiveness, following ratio will be used:

$$AIP = \frac{Total\ Current\ Assets\ (TCA)}{Total\ Assets\ (TA)}$$

: *Where a lower ratio means a relatively aggressive policy.*

Aggressive Financing Policy (AFP) utilizes higher levels of current liabilities and less long-term debt. In contrast, a conservative financing policy uses more long-term debt and capital. The degree of aggressiveness of a financing policy adopted by a firm will be measured by:

$$AFP = \frac{Total\ Current\ Liabilities\ (TCL)}{Total\ Assets\ (TA)}$$

: *Where a higher ratio means a relatively aggressive policy.*

The impact of working capital policies on the profitability will be analyzed through frequently used profitability measures i.e. Return on Assets (ROA) and Return on Equity (ROE) as well as market measure and Tobin's q by running cross-sectional regressions. The regression models to be estimated are:

$$ROA_{it} = \alpha + \beta_1\,(TCA/TA_{it}) + \beta_2\,(TCL/TA_{it}) + \varepsilon \quad \ldots\ldots\ldots\ldots\ (1)$$

$$ROE_{it} = \alpha + \beta_1\,(TCA/TA_{it}) + \beta_2\,(TCL/TA_{it}) + \varepsilon \quad \ldots\ldots\ldots\ldots\ (2)$$

$$Tobin's\ q_{it} = \alpha + \beta_1\,(TCA/TA_{it}) + \beta_2\,(TCL/TA_{it}) + \varepsilon \quad \ldots\ldots\ldots\ldots\ (3)$$

Where:

ROA_{it}	=	*Return on Assets of Firm i for time period t*
ROE_{it}	=	*Return on Equity of Firm i for time period t*
$Tobin's\ q_i$ =		*Value of q of Firm i for time period t*
TCA/TA_{it}	=	*Total Current Assets to Total Assets Ratio of Firm i for time period t*
TCL/TA_{it}	=	*Total Current Liabilities to Total Assets Ratio of Firm i for time period t*
α	=	*intercept*
ε	=	*error term of the model*

The impact of the working capital assets management and financing polices on the relative risk will be measured by applying regression models for the risk of the company and its working capital management policies over the period of 1998-2005. The regression equations are:

$$\text{SD}_{\text{Sales}i} \quad = \alpha + \beta_1 (\text{TCA/TA}_i) + \beta_2 (\text{TCL/TA}_i) + \varepsilon \quad \ldots\ldots\ldots (4)$$

$$\text{SD}_{\text{ROA}i} \quad = \alpha + \beta_1 (\text{TCA/TA}_i) + \beta_2 (\text{TCL/TA}_i) + \varepsilon \quad \ldots\ldots\ldots (5)$$

$$\text{SD}_{\text{ROE}i} \quad = \alpha + \beta_1 (\text{TCA/TA}_i) + \beta_2 (\text{TCL/TA}_i) + \varepsilon \quad \ldots\ldots\ldots (6)$$

$$\text{SD}_{qi} \quad = \alpha + \beta_1 (\text{TCA/TA}_i) + \beta_2 (\text{TCL/TA}_i) + \varepsilon \quad \ldots\ldots\ldots (7)$$

Where:

        SD_i   *=   Standard Deviation representing risk of Firm i*

The study analyzes the working capital management practices and impact on profitability and risk of Pakistani Firms for the period of 1998 to 2005. The total population of the study is the all non-financial firms listed in Karachi Stock Exchange. As a first step, 438 non-financial firms were selected whose financial data was available for the study period i.e. 1998-2005. Furthermore, firms with missing data, negative equity and negative profitability for study period were deleted from the sample leaving us with the final population of 208 non-financial firms from 17 various industrial sectors. The required financial data of these firms was obtained from the companies' annual reports and publications of State Bank of Pakistan whereas the market prices data has been collected from the daily quotations of Karachi Stock Exchange (KSE).

STATISTICAL ANALYSIS

Equation (1) has been estimated for 208 non-financial firms for the period 1998-2005 and results are reported in Table 1. For each year, TCA/TA and TCL/TA ratios have been regressed against ROA values, and, we have eight regression models indicating the impact of working capital policies on the profitability of firms in Pakistan. The model F-values and the Durbin-Watson statistics indicate overall best fit of the model. The t-statistics of both TCA/TA and TCL/TA are statistically significant at 1% level for ROA for all the years except for the year 1998 and 2004. The positive coefficient of TCA/TA shows a negative relationship between the degree of aggressiveness of investment policy and return on assets. As the TCA/TA increases, degree of aggressiveness decreases, and return on assets goes up. Therefore, there is negative relationship between the relative degree of aggressiveness of working capital investment policies and return on assets. The negative value of β coefficient for TCL/TA also points out the same negative relationship between the aggressiveness of working capital financing policy and return on assets. Higher the TCL/TA ratio, more aggressive the financing policy, that yields negative return on assets.

The results of regression model (2) have been reported in Table 2, where the dependant variable is return on equity having the same independent variable of working capital investment policy and working capital financing policy. As the degree of aggressiveness of working capital policies tends to increase, the returns are likely to decrease. Though, the results are statistically less impressive which is apparent from the low level of significance of β coefficients and t-values, however, we can predict a negative relationship between the degree of aggressiveness of working capital policies and accounting measures of returns.

Table 1: Regression Analysis of Working Capital Policies and Return on Assets (ROA)

Year	Investment Policy		Financing Policy		F-Value	Durbin-Watson
	β coefficient	t-value	β coefficient	t-value		
1998	0.14	1.766*	-0.208	-2.633***	3.608**	1.893
1999	0.427	5.859***	-0.451	-6.199***	24.202***	2.018
2000	0.424	5.643***	-0.38	-5.057***	18.989***	1.716
2001	0.398	5.579***	-0.303	-4.254***	17.719***	2.040
2002	0.324	4.623***	-0.412	-5.876***	20.156***	2.178
2003	0.441	6.885***	-0.405	-6.323***	33.2***	2.104
2004	0.189	2.351**	-0.294	-3.665***	6.819***	1.966
2005	0.585	8.694***	-0.582	-8.653***	49.409***	2.039

***Significant at 1%
**Significant at 5%
*Significant at 10%

To further validate the above-mentioned results, the impact of working capital investment and working capital financing policy has also been examined on the market returns. Tobin's q has been used as a measure of market returns and, for each year from 1998 to 2005. A q value of greater than 1 indicated the greater perceived value given by investor to the firm. The results of equation (3) have been presented in Table 3. The results reported in first panel of Table 3 are in accordance with results of Table 1 and Table 2 highlighting that the market returns on Tobin's q are decreasing as the firms are following the aggressive investment policy by keeping low level of current assets in the firm. This similarity in market and accounting returns confirms the notion that investors do not believe in the aggressive approach of working capital management, hence, they don't give any additional value to the firms in Karachi Stock Exchange.

Table 2: Regression Analysis of Working Capital Policies and Return on Equity (ROE)

Year	Investment Policy		Financing Policy		F-Value	Durbin-Watson
	β coefficient	t-value	β coefficient	t-value		
1998	-0.069	-0.857	0.018	0.221	0.395	2.028
1999	0.345	4.55***	-0.352	-4.638***	14.023***	1.983
2000	0.279	3.506***	-0.161	-2.028**	6.173***	1.535
2001	0.072	0.946	-0.152	2.009**	4.000**	2.044
2002	0.183	2.424**	-0.051	-0.68	3.002*	1.977
2003	0.321	4.619***	-0.224	-3.216***	12.365***	2.021
2004	0.038	0.457	-0.107	-1.292	0.875	1.969
2005	0.135	1.694*	-0.259	-3.248***	5.273***	1.995

***Significant at 1%
**Significant at 5%
*Significant at 10%

However, there are some dissimilarities are found in the relationship of financing policy and Tobin's q. In the year 1998 to 2002, the relationship between working capital financing policy and Tobin's q is positive, indicating that higher the degree of aggressiveness of working capital financing policy, the greater the investor's value given to the firm.

Finally, to empirically test the theory of Van-Horne and Wachowicz (2004), impact of working capital policies on risk of the firm shave been investigated by regressing the ordinary least square regressions for equations 4-7. The risk is measured by the standard deviation of sales and different return measures as operating and financial risk respectively. The standard deviation has been estimated over the eight years from 1998 to 2005 and then four

regressions have been run for working capital investment and working capital financing policy and result are reported in Table 4. The positive β coefficients of SD_{Sales}, SD_{ROA} and $SD_{Tobin's\,q}$ indicate negative relationship between the risk measurements and the working capital investment policy. On the other hand, similar relationship has been found for the working capital financing policy. The increased variation in sales and profitability is attributed to increasing the level of current assets and decreasing the level of current liabilities in the firm. However, these results are not statistically significant except the Tobin's q. In general, there is no statistically significant relationship between the level of current assets and current liabilities and operating and financial risk of Pakistani firms.

Table 3: Regression Analysis of Working Capital Policies and Tobin's Q

Year	Investment Policy		Financing Policy		F-Value	Durbin-Watson
	β coefficient	t-value	β coefficient	t-value		
1998	0.129	1.664*	0.19	2.456**	8.515***	1.913
1999	0.072	0.913	0.151	1.909**	4.190**	1.848
2000	0.075	0.935	0.123	1.526	3.223**	1.953
2001	0.097	1.298	0.205	2.754***	7.517***	1.862
2002	0.106	1.421	0.152	2.031**	5.153***	1.989
2003	0.191	2.646***	-0.008	-0.111	3.799**	2.016
2004	0.19	2.325**	-0.127	-1.558	2.769*	2.022
2005	0.22	2.732***	-0.148	-1.836*	3.846**	2.053

***Significant at 1%
**Significant at 5%
*Significant at 10%

The above results are contradictory with Gardner et al. (1986), and Weinraub & Visscher (1998), as well as in accordance with Afza and Nazir (2007) and produced negative relationship between the aggressiveness of working capital policies and accounting measures of profitability. Although,

results of all return variables are significant, however, model (1) produced more broader and consistent results as compared to model (2) and (3) where F-value and β coefficients are highly significant. Market returns (Tobin's q) are slightly less significant in our study which is attributed to the

more volatile stock market of Pakistan. The Karachi Stock Market is said to be heavily overvalued stock market, and hence, the results based on market share price data are more inconsistent. Moreover, results of Table 4 confirmed the results of Carpenter and Johnson (1983) that there is no statistically significant relationship between the working capital levels and the operating as well as financial risk of the firms.

Table 4: Regression Analysis of Working Capital Policies and Risk

Year	Investment Policy		Financing Policy		F-Value	Durbin-Watson
	β coefficient	t-value	β coefficient	t-value		
σ_{Sales}	0.076	0.951	0.108	1.358	2.716*	1.624
σ_{ROA}	0.129	1.608	-0.122	-1.522	1.633	2.094
σ_{ROE}	-0.041	-0.505	0.066	0.818	0.34	2.031
$\sigma_{Tobin's\ Q}$	0.159	1.99**	-0.067	-0.839	1.998	2.012

***Significant at 1%
**Significant at 5%
*Significant at 10%

CONCLUSION

The study investigated the relationship between the aggressive/conservative working capital policies for 208 public limited companies listed at Karachi Stock Exchange for a period of 1998-2005. The impact of aggressive/ conservative working capital investment and financing policies has been examined through cross-sectional regression models between working capital policies and profitability as well as risk of the firms. We found a negative relationship between the profitability measures of firms and degree of aggressiveness of working capital investment and financing policies. The firms yield negative returns if they follow an aggressive working capital policy. These results are further validated by examining the impact of aggressive working capital policies on market measures of profitability which was not tested before. The results of Tobin's q were in line of the accounting measures of profitability and produced almost the same results. Moreover, we also confirmed the findings of Carpenter and Johnson (1983) that there is no significant relationship between the aggressiveness\conservativeness of working capital policies of firms and their operating and financial risk.

As we used a new measure of profitability i.e. Tobin's q to estimate the relationship of working capital management and firm returns in Pakistan, the present study is expected to be a significant contribution in finance literature. Moreover, theoretical discussion on risk and working capital management has also been tested on empirical basis in an emerging market of Pakistan. Although the results of present study are in contradiction to some earlier studies on the issue, yet, this phenomenon may be attributed to the inconsistent and volatile economic conditions of Pakistan. The reasons for this contradiction may further be explored in upcoming researches and this topic is left for future.

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