

Original Research Article

Working Capital Financing Policy and Firm Profitability: Evidence from Bangladesh

ABSTRACT

Aims: For any manufacturing organization, working capital management decision is considered to be one of the crucial managerial decisions. In the working capital management process, an aggressive financing policy uses higher levels of current liabilities and less long-term debt where a conservative financing policy uses more long-term debt and less current liabilities. Therefore, it is an important decisional issue in case of working capital financing policy, whether a manager should be aggressive and bear all the hassles of managing current liabilities or remain conservative and let the chance of minimizing cost of capital. This study attempts to solve this puzzle by examining the impact of working capital financing policy on firm profitability from the perspective of a developing country which is Bangladesh.

Methodology: The study took 80 Dhaka Stock Exchange (DSE) listed manufacturing companies over a sample period of 2009-2014 and employed fixed effect panel data regression technique.

Results: The study finds a negative impact of working capital financing policy on firm's profitability measured by return on assets (ROA).

Conclusion: At the policy level for implementing working capital financing policy, the study suggests to be conservative by relying more on long-term financing alternatives rather short term ones.

Keywords: Working Capital Management, Financing Policy, Aggressiveness, Fixed Effect, Profitability

1. INTRODUCTION

The working capital policies of a firm refer to the level of current assets and current liabilities maintained by it. The level of current asset maintained by firm represent its working capital investment policy and the means of financing used by the firm to finance the level of current assets maintained represents its working capital financing policy. Current liabilities as a means of financing can be divided into two parts; one, spontaneous financing such as accrued expenses and the other one non-spontaneous financing such as short-term bank loan and money market instruments. According to term structure theories, short-term interest rate is lower than long-term interest rate. Moreover the company doesn't have to pay any explicit cost for the spontaneous portion of the current liabilities. As a result financing through current liabilities should be a much cheaper alternative for a firm compared to financing through long-term components such as long-term bank loan, common stock, preferred stock, bond etc. if it is so, then companies should put their every effort to minimize their long-term financing portion and replace it by the short-term counterpart. But the empirically we see that major portion of the financing come from the long-term part. Why? There are several disadvantages of being aggressive in working capital financing. One of which is, the management may have to be very closely involved in managing day to day financial matters rather than focusing on long-term financial planning and growth. Another disadvantage could be the chance of default as the cash flow generating nature of the assets may not match with payment obligations. Even another disadvantage could be, due the change in market interest rate the cost of capital of a company will change frequently. Finally, overstretching of current liabilities may hamper reputation, destroy supply relationships, or even harm employee motivation (Nobanee 2011). Now, what should be the correct choice for a finance manager? Should she/he follow aggressive working capital financing policy and bear all the hassles of managing current liabilities and also take the risk of default and uncertainty that may arise due to change in market interest rate or remain conservative and let the chance of minimizing cost of capital go? Several empirical studies have been conducted to identify the relationship between working capital management and firm profitability. Some of those studies tried to

identify the impact of the efficient working capital management on profitability using working capital measures such as receivable collection period, inventory conversion period, payable deferral period and cash conversion period (Deloof 2003, Raheman and Nasr 2007). Some other studies attempted to determine the impact of working capital policies on profitability taking working capital investment policy and working capital financing policy into consideration (Weinraub and Visscher 1998, Nazir and Afza 2009) . But there is no consensus in the academic arena whether efficient working capital management enhances profitability or aggressive working capital policies can improve firm performance. Moreover, in the context of Bangladesh, no such study is found where the impact of working capital financing policy on firm performance is identified. The current study attempts to determine whether there is any reward for being aggressive or it is just a meaningless exercise. So the objective of this study is to examine the impact of aggressive working capital financing policy on profitability of Bangladeshi manufacturing companies. The findings of this study will help the practicing managers of Bangladeshi manufacturing companies in formulating their working capital financing policy. It will also assist the shareholders of Bangladeshi companies to understand whether the management of the company where she/he invested money, is in right direction or not. Further this study will aid the creditors by understanding the rationale behind the aggressiveness of a company in terms of working capital financing policy.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

From the review of past studies it is apparent that working capital management as an area of finance has been overlooked by academicians until the last decade of 20th century. One of the very early studies on working capital is Shin and Soenen (1998). This study tried to establish the relationship between working capital management and corporate profitability using net trade cycle as main measure of working capital efficiency. Numerous studies have followed this pattern and tried to determine the impact of working capital management on corporate profitability (return on assets or return on equity and later market value measure such as Tobin's Q) using working capital measures such as receivable collection period, inventory conversion period, payable deferral period and cash conversion period. Those studies include Deloof (2003), Raheman and Nasr (2007), Garcí'a-Teruel and Martí'nez-Solano (2007), Zariyawati et al., (2009), Vural, Sökmen and Çetenak (2012). Another pattern has evolved over time, mostly following the Weinraub and Visscher (1998) which focused on working capital policies such as investment policy and financing policy. As an extension to this study, Nazir and Afza (2009) tried to determine the impact of these policies on firm's profitability. Some other studies on working capital management policy and its impact on firm profitability include Vishnani and Shah (2007), Vahid, Mohsen and Mohammadreza (2012), Taani (2012), Murugesu (2013), Javid and Zita (2014) Kavitha and Shanmugam (2014).

To determine whether significant difference exists among industries in-terms of working capital policies, Weinraub and Visscher (1998), took a sample 216 companies from 10 industries and collected financial data over a period of ten years. The study found that distinctive and significantly different working capital policies exist among those companies.

The study of Nazir and Afza (2009) based on 204 Pakistani listed firms depicts a negative relationship between level of aggressiveness and profitability. This relationship applies for both working capital investment policy and financing policy.

The study of Vahid, Mohsen and Mohammadreza (2012) covered 28 Iranian companies listed in Tehran Stock Exchange over a period of five years. This study found significant positive relationship between the level of aggressiveness in working capital investment policy and profitability. However the relationship between the degree of aggressiveness in working capital financing policy and profitability is found to be negative and highly significant. In another similar study Taani (2012) finds positive relationship between level of aggressiveness in working capital policy and firm's profitability.

Murugesu (2013) tried to examine the impact of working capital policy on profitability of Sri Lankan firms. Including 20 manufacturing companies, listed in Colombo Stock Exchange as sample, this study found positive relationship between degree of aggressiveness in working capital investment policy and profitability. However this relationship is not significant.

Javid and Zita (2014) tried to measure the impact of working capital policy of profitability of Pakistani cement manufacturing companies. This study found negative relationship between level of aggressiveness in working capital investment policy and all those measures of profitability. Similar relationship is also found between working capital financing policy and the measures of firm performance. Kavitha and Shanmugam (2014) studied working capital management policy of 21 large pharmaceutical companies of India. This study found significant company difference in working capital management of those firms. This study also found negative relationship between degree of aggressiveness and firm's profitability both in-terms of working capital investment policy and working capital financing policy.

In Bangladesh, prior studies of Quayyum (2011a), Quayyum (2011 b), Hoque (2012) attempted to determine the relationship between working capital management (such as receivable collection period, inventory conversion period, payable deferral period and cash conversion period) and corporate profitability but none of them addressed the issue of impact of working capital policies. This study is the first to address the policy issue from the perspective of Bangladeshi listed firms.

Hypothesis of this study is as follows:

Ho : Aggressive working capital financing policy has negative effect on return on assets ($\beta \leq 0$)

against

H1 Aggressive working capital financing policy has positive effect on return on assets ($\beta > 0$).

2. METHODOLOGY

To maintain homogeneity in data, the current research covers only the manufacturing companies. Out of 339 companies which are listed in Dhaka Stock Exchange (DSE), 172 are manufacturing companies. These companies are distributed into ten different sectors such as food and allied, textile, engineering, cement, ceramics, fuel & power, jute, paper & printing, pharmaceuticals & chemicals, tannery. Five out of these ten sectors contain 85.62 percent companies, those five sectors are textile, engineering, pharmaceuticals & chemicals, food & allied, fuel and power. Out of the remaining five sectors, paper & printing sector and jute sector together contain only five companies and data on those companies are quite inconsistent. As a result those two sectors are excluded. Due to the unavailability of data over the entire study period some companies could not be included in the study. Finally the study includes 80 manufacturing companies from 8 sectors. Financial data from the annual reports of the sample manufacturing companies are collected over a period of six years; from 2009 to 2014 and thus a balanced panel dataset of 480 firm-year observations are included in this study. Based on those financial data, profitability ratio such as return on assets (ROA) and working capital policy ratios such as financing policy are calculated (Details on the variable definition is provided in Table-1). Pearson's correlation among the independent variables is calculated. Before generating regression output Hausman Test is conducted to decide whether a fixed effect or random effect regression is appropriate for the current study. All the data have been analysed using software of Statistical Package for the Social Science (SPSS)-18 and also Stata 12

Model Specification: To measure the impact of working capital financing policy on the profitability and value of firms following model is constructed. Similar models were constructed by Afza and Nazir (2008), Nazir and Afza (2009), Javid and Zita (2014), Vahid, Mohsen and Mohammadreza (2012), Murugesu (2013) Kavitha and Shanmugam (2014), Taani (2012).

Model (Impact of working capital financing policy on ROA):

$$ROA = \beta_0 + \beta_1 FP + \beta_2 FG + \beta_3 LEV + \beta_4 FSIZ + e \dots \dots \dots (i)$$

133

TABLE 1. DEFINITION OF THE VARIABLES

Variable	Symbol	Definition
Dependent Variables		
Return on Asset	ROA	Earnings before interest to total assets
Independent Variables		
Financing Policy	FP	Total Current Liabilities/Total Assets
Control Variables		
Firm Size	FSIZ	Log of total assets
Firm Growth	FG	(Year 1's sales-Year 0' sales)/ Year 0's sales
Financial Leverage	LEV	Total debt/total shareholder equity

134

135

136

137

3. ANALYSIS AND RESULTS

139

The correlation matrix presented in Table-2 .As none of the correlation coefficient between independent variables is greater than 0.80; so, no multicollinearity problem amongst independent variables exists (Gujrati, 1995, p.335)

142

143

144

TABLE 2. CORRELATIONS MATRIX

	FP	FG	LEV	FSIZ
IP	.437**	.000	-.019	-.193**
FP	1	-.023	.062	-.177**
FG	-.023	1	.017	-.052
LEV	.062	.017	1	.016
FSIZ	-.177**	-.052	.016	1

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

145

To determine the appropriateness of regression model Hausman Test has been conducted (Table- 3. The Hausman test rejects the null hypothesis. As P value (0.0001) is significant at 1% level and we accept H1. Here based on this test result, fixed effect model is appropriate.

149

150

151

TABLE 3. HAUSMAN TEST RESULT

152

Hausman Fixed .

---- Coefficients ----

154

155

156

157

158

159

160

161

162

	Fixed	Random	Difference	S.E.
FP	-.0099779	-.0196538	.0096759	.0035742
FG	.0023574	.0021288	.0002286	.
LEV	.0022061	.0019252	.0002809	.
FSIZ	-.0212202	-.0047578	-.0164624	.0048937

chi2(4) = 24.51

Prob>chi2 = 0.0001

164

165

166

The regression result of table- 4 shows that financing policy has negative impact on ROA, which means being aggressive in working capital financing policy a typical Bangladeshi manufacturing company may not be able to improve its ROA. However the relationship is insignificant. As expected, firm growth (FG), one of the control variables in this model, is showing positive relationship with ROA. But contrary to the expectation, firm size (FSIZ), another control variable, has significant negative impact on profitability. Further another control variable, leverage is showing positive impact on firm's profitability measured by ROA. The overall model is quite significant.

TABLE 4. FIXED EFFECT REGRESSION RESULT

Fixed-effects (within) regression	Number of obs	=	480		
	Number of groups	=	80		
R-sq: within = 0.0373	Obs per group: min	=	6		
between = 0.0523	avg	=	6.0		
overall = 0.0133	max	=	6		
F(4,396)	=	3.83			
Prob > F	=	0.0046			

	Coef.	Std. Err.	t	P> t 	[95% Conf. Interval]

FP	-.0099779	.0109647	-0.91	0.363	-.0315343 .0115784
FG	.0023574	.00109	2.16	0.031	.0002144 .0045003
LEV	.0022061	.0010201	2.16	0.031	.0002007 .0042116
FSIZ	-.0212202	.0087651	-2.42	0.016	-.0384521 -.0039883
_cons	.2744105	.0825404	3.32	0.001	.1121384 .4366826

R =	.73464842				
F(79, 396) =	13.06	Prob > F = 0.0000			

<i>Dependent: ROA</i>					

4. DISCUSSION AND CONCLUSION

The regression output shows negative relationship between working capital financing policy and return on assets, which means higher the level of current liabilities a firm employ to finance its assets, lower is the ROA. So the null hypothesis could not be rejected. Results of prior studies such as Javid and Zita (2014), Afza and Nazir (2008), Nazir and Afza (2009) Vahid, Mohsen and Mohammadreza (2012), Alavinasab and Davoudi (2013) also confirm this negative relationship. This result may be attributed to the fact that even though financing through current liabilities is a cheaper alternative compared to the long-term financing such as bond or common stock, the additional cost of managing the current liabilities may offset the cost saving (financing cost). Moreover the refinancing risk is high in case of short-term financing. This result could also be attributed to the fact that the money market is very thin in Bangladesh which limits the scope for Bangladeshi manufacturing companies in using cheaper short-term financing alternatives. Another fact could be mentioned here is companies in Bangladesh do not allow much credit.

At policy level, manager of a Bangladeshi manufacturing company should consider to formulate and implement conservative working capital financing policy is; he/she should rely more on long-term financing alternatives than on current liabilities.

The finding of this study are limited in the sense that the level current liabilities to total assets which can be considered as aggressive is yet to be established. In addition, only large firms are included in the study, financing alternatives and cost of finance vary significantly between small and large firms.

REFERENCES

- [1] Afza, T., & Nazir, M. S. (2008). Working Capital Approaches and Firm's Returns in Pakistan. *Pakistan Journal of Commerce and Social Sciences*, 1(1), 25–36.
- [2] Akinlo, O. O. (2012). Effect of Working Capital on Profitability of Selected Quoted Firms in Nigeria. *Global Business Review*, 13(3), 367–381.
- [3] Alavinasab, S. M., & Davoudi, E. (2013). Studying the relationship between working capital management and profitability of listed companies in Teheran stock Exchange. *Business Management Dynamics*, 2(7), 1–8.
- [4] Brown R. L., Durbin J., Evans J. M, 1975, Techniques for testing the constancy of regression relations over time, "Journal of Royal Statistical Society", (37): 149-192.
- [5] Deloof, M. (2003). Does Working Capital Management Affect Profitability of Belgian Firms?. *J Bus Fin & Acc*, 30(3-4), pp.573-588.
- [6] Enqvist, J., Graham, M., & Nikkinen, J. (2011). The Impact of Working Capital Management on Firm Profitability in Different Business Cycles: Evidence from Finland. *SSRN Electronic Journal*. <http://doi.org/10.2139/ssrn.1794802>
- [7] Garcia-Turuel, P.J. and Martininez-Solano, P. (2007). Effects of working capital management on SME profitability. *International Journal of Management Finance*, 3, pp.164–177.
- [8] Gujarati, D.N., Basic Econometrics, 3rd Edition, McGraw Hill, 1995
- [9] Hoque, M. A. (2012). Working Capital Management and Profitability: A Study on Cement Industry in Bangladesh. Retrieved from <http://www.jitbm.com/JITBM%2036th%20Volume/Md%20Amin7.pdf>
- [10] Javid, S., & Zita, V. P. M. (2014). Impact of Working Capital Policy on Firm's Profitability: A Case of Pakistan Cement Industry. *Research Journal of Finance and Accounting*, 5(5), 182–191.
- [11] Kavitha, R., & Shanmugam, R. (2014). A Study on Industry Practices Relating To Working Capital Policies. *Global Journal for Research Analysis*, 3(6), 132–140.
- [12] Murugesu, T. (2013). Impact of Aggressive investment policy on the firm performance. *Research Journal of Finance and Accounting*, 4(18), 64–68.
- [13] Nazir, M.S. & Afza, T. (2009). Impact of aggressive working capital management policy on firms profitability. *The IUP Journal of Applied Finance*, Vol. 15 No. 8, pp. 19-30.
- [14] Nobanee, H., Abdullatif, M., & AlHajjar, M. (2011). Cash conversion cycle and firm's performance of Japanese firms. *Asian Review of Accounting*, 19(2), 147–156. <http://doi.org/10.1108/13217341111181078>
- [15] Quayyum, S. T. (2011a). Effects of working capital management and liquidity: Evidence from the cement industry of Bangladesh. *Journal of Business and Technology (Dhaka)*, 6(1), 37–47.
- [16] Quayyum, S. T. (2011b). Relationship between Working Capital Management and Profitability in Context of Manufacturing Industries in Bangladesh. *International Journal of Business and Management*, 7(1). <http://doi.org/10.5539/ijbm.v7n1p58>
- [17] Raheman, A. and Nasr, M. (2007). Working capital management and profitability case of Pakistani firms. *International Review of Business Research Papers*. 3 (2), pp. 275 - 296.
- [18] Shin, H.H. and Soenen, L. (1998). Efficiency of working capital and corporate profitability. *Financial Practice and Education*, 8(2), pp. 37–45.
- [19] Taani, K. (2012). Impact of Working Capital Management Policy and Financial Leverage on Financial Performance: Empirical evidence from Amman Stock Exchange-listed companies. *International Journal of Management Sciences and Business Research*, 1(8).
- [20] Taurangana, V & Afrifa, G. A. (2013) *The relative importance of working capital management and its components to SMEs' profitability*. *Journal of Small Business and Enterprise Development*, Vol. 20 Iss 3 pp. 453 - 469
- [21] Vahid T.K ,. Elham G , Moshen A. K. and Mohammadera E. (2012) , Working Capital Management and Corporate Performance: Evidence from Iranian Companies, "Procedia-Social and Behavioral Sciences, Vol. 62,pp. 1313-1318.
- [22] Vishnani, S., & Shah, B. K. (2007). Impact of Working Capital Management Policies on Corporate Performance--An Empirical Study. *Global Business Review*, 8(2), 267–281.
- [23] Vural, G. Sokmen, A.H., & Cetenak, E.H. (2012) Effects of working capital management on firm's performance: Evidence from Turkey. *International Journal of Economics and Financial Issues*, 2(4), 488-495.

- 274 [24] Watson, P.K. and Teelucksingh, S.S. (2002), *A Practical Introduction to Econometric Methods :
275 Classical and Modern*, University of the West Indies Press, Barbados.
- 276 [25] Weinraub, H. J., & Visscher, S. (1998). Industry practice relating to aggressive conservative working
277 capital policies. *Journal of Financial and Strategic Decision*, 11(2), 11–18.
- 278 [26] Wooldridge, J.M. (2002), *Introductory Econometrics: A Modern Approach*. Ed 2, Published by
279 South-Western, CENGAGE Learning,, UK.
- 280 [27] Zariyawati, M. A., M. N. Annuar, H. Taufiq& A. S. Abdul Rahim (2009) *Working capital management
281 and corporate Performance: Case of Malaysia*. *Journal of Modern Accounting and Auditing*, Vol. 5,
282 Issue11, pp. 47-54.