British Journal of Economics, Management & Trade
17(1): 1-6, 2017; Article no.BJEMT.32595
ISSN: 2278-098X

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Working Capital Financing Policy and Profitability: Empirical Study on Bangladeshi Listed Firms

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Authors' contributions

This work was carried out in equally collaboration between both authors. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/BJEMT/2017/32595
Editor(s):
(1) Kamarulzaman Ab. Aziz, Director, Entrepreneur Development Centre, Multimedia University, Persiaran Multimedia, 63100 Cyberjaya, Malaysia.
Reviewers:
(1) Erwin T. J. Lin, MingDao University, Taiwan.
(2) Jacob Donkor, Ghana Baptist University College, Ghana.
Complete Peer review History: http://www.sciencedomain.org/review-history/18707

Original Research Article

Received 3rd March 2017
Accepted 10th April 2017
Published 20th April 2017

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 and Recommendation: 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.

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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 [1]. 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 does not 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 [2]. 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 [3,4]. 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 [5,6]. 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 [7] 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

[3,4,8,9,10]. Another pattern has evolved over time, mostly following the authors [5] which focused on working capital policies such as investment policy and financing policy. As an extension to this study, some [6] 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 [11,12,13,14,15,16].

To determine whether significant difference exists among industries in-terms of working capital policies, the study [5] took a sample of 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 [6] 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 [12] 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 [13] it is found that there exists a positive relationship between level of aggressiveness in working capital policy and firm's profitability.

The previous study [14] 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.

The study of [15] 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. Based on 21 large pharmaceutical companies of India, the study found [16] a 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 [17,18,19] 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 ($\beta > 0$).

3. 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. To cover the latest financial data, the study selected a study period of 2009 to 2014 (at the time of study 2014 annual report was the latest available one). 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.

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 Growth	FG	(Year 1's sales-Year 0' sales)/ Year 0's sales
Financial Leverage	LEV	Total debt/total shareholder equity
Firm Size	FSIZ	Log of total assets

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 [20,6,15, 12,14,16,13].

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

$$ROA = \beta 0 + \beta 1\ FP + \beta 2\ FG + \beta 3\ LEV + \beta 4\ FSIZ + e \qquad (1)$$

4. ANALYSIS AND RESULTS

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 [21].

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)*

To determine the appropriateness of regression model (Fixed or Random) Hausman Test has been conducted (Table 3). The Hausman test suggests that fixed effect model is appropriate for the study.

The regression result of Table 4 shows that financing policy does not have any significant 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. 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 3. Hausman test result

Hausman Fixed

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

chi2(4) = 24.51, Prob>chi2 = 0.0001

Table 4. Fixed effect regression result

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

Dependent: ROA

5. CONCLUSION

The result of regression 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. However this relationship is not significant. Results of prior studies such as [15,20,6,12,22] 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 is limited in the sense that the level current liabilities to total assets which can be considered as aggressive is yet to be established. Another limitation could be, only large firms are included in the study; financing alternatives and cost of finance vary significantly between small and large firms.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
http://sciencedomain.org/review-history/18707