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Working Capital Management and Firm Profitability in the Textile Industry of Bangladesh

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Abstract:
This paper has been conducted to examine the connection between working capital management measured and profitability performance is measured. The study is conducted based on secondary data from annual reports of respective textile firms listed in DSE and DSE monthly reviews. From 2000 to 2018. The objective of the study is to find out the working capital devoted to the firms registered in the Dhaka stock exchange and find the connection of their performance and working capital capitalized in registered textile firms in DSE. To address this panel data, besides ratio and quartile study, Hausman test, variance inflation test, and fixed effect regression was done for testing all the hypotheses and the study result shows the inverse association with age and payment deferred period but a positive association with fixed asset turnover, cash conversion cycle, days sales outstanding, inventory conversion period, sponsor shareholdings and total assets. It also suggests to produce an effective policy must be produced for each company for each component of working capital. Besides, well-organized management and financing of working capital can upsurge the operating profit of a textile firm. Shorter cash conversion cycle, days sales outstanding, and the inventory conversion period can increase firms' profit. These are some practical examples of working capital management.

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1. Introduction

The textile business is one of the booming businesses in Bangladesh and it is one of the major sources of export. The Textile industry in our country is mostly in the manufacturing, designing, and selling of yarn and clothing. In our economy the influence of the textile industry is huge. It is a fast-growing and export-oriented business. Bangladesh is the second-largest exporter of textile products after China. So, the significance of the textile industry is not only confined in Bangladesh but it has huge importance due to it cross the national border. The textile sector has great importance in our country not only for the contribution of GDP but also it is one of the sources of major service. So, the performance of the textile industry and its lucrativeness is also significant for us. Working capital is one of the vital parts due to it makes a better performance. So, ideal working capital is a chief part to make a profit. The object of the study is to find out the association between working capital management and firms' profitability which is indicated by elementary earning power.

The textile business has a potential source of investment. As an underdeveloped country, the labor cost of the garment's workers is much cheap. But the cost of equipment and apparatus is high. According to the Bangladesh Textile Mills Association, till 2019, there are a total of 1461 members of mills of which 425 yarn manufacturing mills, 796 fabric producing mills, and 240 dyeing printing mills. Investment in the prime textile sector is over 6 billion US dollars. Textile manufacturing contributed more than 12% in the GDP and 81% of total export earnings come from textile and textile-related products. Both Textile and Apparel sector contributed nearly US$27.563 billion till February 2019. A recent survey is conducted by the Centre for Policy Dialogue where they found around 3600 active RMG factories in Bangladesh. The textile and appear business in Bangladesh receive a foreign investment of around $500 million in the year 2018, in 2017 it was $421.68 million and in 2016 it was $364.44 million.

Working capital deals with the supervision of current assets and current liabilities of a firm. It is one of the vital parts for manufacturing businesses due to nearly fifty percent of their venture is done in this sector. Short term assets are an important part of a firm as it related to the capacity of short-term liability and a firm's solvency and liquidity. Current liabilities are those claims which are needed to be paid within an accounting year. Trade creditors, bills payable, bank overdraft, and short-term loans are common examples of short-term liabilities. on the contrary current assets compose of those assets which are converted into cash within an accounting year. Cash, short term investment, debtors, accounts receivables, and stock are common examples of current assets. Management of short-term assets and liabilities is important for the health of the business. So, working capital neither be more or less but an adequate amount to meet the daily requirement of a firm. An excess amount of working capital reduces the profitability and sign of managers' inefficiency. On the other hand, an inadequate amount of it can cause of lack of liquidity and stock out. so, it helps managers to find the importance of optimal inventory. Inefficient working capital management leads to idle assets and reduces the liquidity and profitability of a firm. The number of days of account receivable, investors, and accounts payable have an important relationship with the firm's working capital and profitability. So, there is a considerable position of working capital management to make consideration of academics. They focus on profitability and working capital management.

2. Literature Review

Gill, Biger, and Mathur (2010) found that there is a negative relationship with the accountant receivables and corporate profitability. The show collection of accounts receivables is correlated with low profitability. Profitability can be improved by reducing the credit granting period. Again, they found no significant relationship with the accounts payable and profitability. The cash conversion cycle and gross operating profit have a positive connection. A long cash conversion cycle might increase profitability because it leads to higher sales. However, corporate profitability might decrease with the cash conversion cycle, if the costs of higher investment in working capital rise faster than the benefits of holding more inventories and/or granting more trade credit to customers. But no significant relationship between the size of the firm and the gross operating profit ratio.

The research is on a sample of 88 American manufacturing companies listed on the New York Stock Exchange for 3 years from 2005-2007. It is suggested that the manager can create value for their shareholders by reducing the number of days for account receivables and reducing their cash gap in the cash conversion cycle. Besides the firm's performance-enhanced if the firm manages its working capital more efficiently. According to Baños-Caballero (2014), working capital management and corporate performance of non-financial UK companies show strong support for an inverted U-shaped relationship between the investment in working capital and firm performance. It means that the maintenance of working capital at an optimum level makes the balance between costs and benefits and it maximize the firm's value. Singhania, Sharma, and Rohit (2014) reveal that the performance of the firm can be improved by decreasing the number of day's receivables and increasing the number of day's payables. But they found a negative correlation between the cash conversion cycle with a firm's profitability. According to the study of Ali (2011) in 160 textile firms in Pakistan found a significant weak positive relationship between working capital management and the profitability of the textile firm. There is an insignificant positive correlation of coefficient between return on assets (ROA) and days in inventory. Both the days in receivables and payables have a significantly negative correlation with ROA. But the cash conversion cycle has a significant and positive relationship with ROA. It is used in the model firms' size, gearing ratio, current asset turnover, and the ratio of current assets to total assets as a control variable. The paper also suggests that the textile firms can improve their profitability by adopting strategies for collection. The model also made weight to the assumption that the less profitable firms are relying on the credit from their suppliers and try to prolong their due payment. Alshammari (2018) investigates corporate working capital management affects and corporate performance by examining corporate performance and market performance. In the model, it is used non-financial firms of six different countries in cross-sectional and pooling methods but the results are unique in the cash conversion cycle and corporate performance. In the model, the control variables are debt ratio and firm size. The paper also suggests that the efficient management of working capital makes managers enable them to arrange the timely payment of funding and resorting to cheap and non-expensive funding. Tripathi and Ahamed (2017) suggested that the firm's profitability is a periodic assessment of the firm's performance and here working capital plays an important role. WCM has the potential to bring down the performance of the firm unless it is taken care of properly. The model finds a significant positive relationship between cash conversion cycle and firm performance. Again the cash conversion cycle is affected by the average turnover, average receivables, and average payables. There are merit and demerit of over and under investment costs for accumulating the right amount of inventory, accounts payable, and receivable.

Vural et al. (2012) developed a model and there result shows that the collection period of account receivables and cash conversation cycle is negatively related to the firm's performance. According to the result, the relationship with the other components and the firm's profitability is insignificant. There is a negative relationship between a firm's profitability with leverage but has a positive relationship with firm size. According to the result of the regression analysis, a positive relationship between cash conversion cycle and firm value. This means that extending the cash conversion cycle increase the firm value and by lowering the leverage increase the firm value. San Ong et al. (2017) found that there is a positive relationship between the accounts payables period and gross operating income. The result suggests that extending the accounts payment period may be regarded as an attractive source of short-term financing. Firms can reserve working capital by delaying the payment to suppliers for increased profitability. Large inventory and generous trade credit policy may lead to high sales. The larger inventory also reduces the risk of a stock-out. According to Quayyum (2012), there is a relationship between profitability and working capital management in Bangladesh. He covers a period of 2005 to 2009 to explain the necessity of managing the optimum level of working capital to maximize profit. And the results show that there is a significant level of relationship between profitability and working capital components. The shorter the cash conversion cycle the more profitable the firm likely to be. He also finds that the profit margins increase as a consequence of either shorter receivable collection or longer accounts payable period. Chowdhury and Amin (2007) found that firms operating in Bangladesh have liquidity preference. The study does not consider the political and economic impact but considers policies and practices in the cash management system.

3. Hypothesis Development

H_{11}: There should be an adverse impact of the cash conversion cycle on basic earning power

The cash conversion cycle indicates how many days businesses required to convert their investment in raw material to cash from sales. The longer the cash conversion cycle the less the basic earning power and the shorter the cash conversion cycle the more the basic earning power. Basic earning power is taken as a gauge of profitability due to its free from leverage and tax burden.

H_{12}: There should be a negative impact of the current ratio on basic earning power

The current ratio indicates the ability of a firm's ability to meet its short-term liabilities by its current or short-term assets. The optimum level of the current ratio is two but it can be varied according to the pattern of the industry.

H_{13}: There should be a negative impact of days sales unpaid on basic earning power

A quick asset shows the ability of a firm to meet its current liabilities by its quick asset or the near-cash items. Generally, the optimum level of the quick ratio is considered one but it can be varied due to the need for the industry.

H_{14}: There should be a negative impact of the inventory conversion period on basic earning power

The inventory conversion period is the time required to convert inventory into cash by selling the product. The shorter the conversion period the high the profitability that is BEP.

H_{15}: There should be a negative impact of payable conversion period on basic earning power

The payable conversion period is the time required to pay money to the payables. The longer the period the higher the profitability.

4. Data and Methods

4.1 Sample

To analyze the working capital management and firm's performance, 49 textile companies are selected which are publicly traded their shares in the Dhaka Stock Exchange. Data have been collected for 18 years in the period of 2000 to 2018.

4.2 Source of Data

Data are collected from the annual reports of the selected companies for the period of 2000-2018. Audited financial statements like Balance Sheet or Income Statements are mainly used to collect financial data. Some data are collected from the director's report included in the annual report. Again, DSE monthly review is also used. For the collection of the annual report.

4.3 Econometric model

The objective of this paper is to find out the relationship with the working capital and firms' performance and to do that ratio analysis, quartile and regression analysis are done and the results are shown in various graphs and tables. This regression model is based on theory rather than empirical evidence. This model explains a variable in terms of explanatory and control variables. There are two parts to the regression model. The first one is the fixed effect and the second one is the random effect. Regression is a set of procedures used to find the relationship among related variables. It helps in describing the effect of a certain variable by a unit of independent variables. Regression is used to predict and forecast the relationship of independent variables. In a Random Effect Generalized Least Square model, a variable is used to show the relationship between the explanatory variable and the control variable and the variable to be explained. So, we need to formulate a regression model. The regression model is given below:

$$BEP_{it} = \alpha + \beta_1 Age_{it} + \beta_2 ln\_TA_{it} + \beta_3 FATO_{it} + \beta_4 WC_{it} + \beta_5 Spon_{it} + \varepsilon_{it}$$

Here, BEP= Basic Earning Power
α= Intercept of the model
β= Co-efficient of each model
Age= Indicator of learning effect
ln_TA= Natural logarithm of total assets
FATO= Fixed Asset Turnover
WC= Working Capital Indicators (Current ratio, Quick ratio, Cash conversion cycle, days sales outstanding, payment deferral period, inventory conversion period)
Spon= Fraction of Sponsorship Shareholding
ε= Random error term
i= Name of the company
t= Time (year)

4.3 Other Statistical Tools

Here, we use descriptive statistics to summarize the output. It quantitatively describes the feature of a collection of information. We use mean to find out the central tendency of many observations. It is a simple mathematical average of a set of two or more numbers. The mean of a given set of numbers can be calculated in many ways. Here, we use arithmetical mean for the calculation of the given series. Medium is used for eliminating the outliners from the observations. Quartile analysis is done to find out the effect of the control variable on the dependent variable. Here both mean and medium are used to quartile computation. The quartile of a ranked set of data values is the four subsets whose boundaries are the three quartile points.

5. Findings

We assume that the more the current ratio which indicates managers' inefficiency to utilize the current ratio, the less the basic earning power. The same reason for the quick ratio, the high the quick ratio, the less the basic earning power. The cash conversion cycle indicates how quickly the firm converts its investment in raw material to cash. So, the less the cash conversion cycle the more firms' profitability. The same reason holds for inventory deferral period and days sales outstanding, the shorter these periods, the more the profit firm can generate. But the payment deferral period has inverse relation, the longer the period, the more profitable for the firm. But our expected sign is positive and it is statistically significant which means it has suppliers that influence the buyers. On the other hand, age harms the firm's performance. Besides the government should provide incentives to the companies and effective diplomacy is inevitable to entry in foreign markets for this sector. And we see the age has a negative impact so we can say that there is a learning effect. And the sponsor shareholding has a positive impact which indicates if the managers are from the sponsor than it can reduce the agency conflict and make good governance.

Table 1: Expected sigh of the Variables

Variables	Expected Sigh	Actual Sign	Significant
Current Ratio	(-)	(-)	Significant
Quick Ratio	(-)	(-)	Significant
Cash Conversion Cycle	(-)	(-)	Significant
Days Sales Outstanding	(-)	(-)	Significant
Payable Differed Period	(+)	(-)	Significant
Inventory Conversion Period	(-)	(-)	Significant
Age	(+)	(-)	Significant
Log of Total Asset	(+)	(+)	Significant
Sponsor shareholding	(+)	(+)	Insignificant*
Fixed Asset Turnover	(+)	(+)	Significant

*Sponsor shareholding insignificant at 5% significant level but significant at 10% significant level.

Table 2: Correlation Matrix

	BEP	Age	ln_TA	FATO	CCC	Spon
BEP	1.0					
Age	-.03	1.0				
ln_TA	0.2	-0.1	1.00			
FATO	0.8	-0.2	0.26	1.00		
CCC	-0.07	-0.01	0.171	-0.05	1.0	
Spon	0.03	-0.1	-0.001	0.0562	-0.1	1.0

Table 3: VIF index of six model

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Variables	VIF	VIF	VIF	VIF	VIF	VIF
Age	1.12	1.12	1.12	1.19	1.13	1.13
ln_TA	1.14	1.11	1.24	1.10	1.19	1.19
FATO	1.15	1.17	1.15	1.19	1.17	1.16
Spon	1.07	1.06	1.03	1.08	1.04	1.02
CCC	1.08					
ICP		1.07				
DSO			1.14			
PDP				1.18		
Current ratio					1.14	
Quick ratio						1.11
Average	1.11	1.11	1.14	1.15	1.13	1.12

Table 4: Estimates of the Hausman Test

	Coefficients		(b-B)
	(b)	(B)	
Variables	Fixed	random	Difference
Age	-0 .0015301	-0.0008237	0.0002573
ln_TA	0.00647	0.0007623	0.0057136
FATO	0.34973	0.34434	0.0053911
CCC	-0.000009	0.0000002	0.0000004
Spon	0.0033138	-0.000427	0.0037415
$chi^2(4) = 11.68$ Prob. $chi^2 = 0.0199$			

Table 5: Fixed-effects Regression Estimates on Basic Earning Power Explanatory Variable Cash Conversion Cycle

Variables	Coef.	t	P > |t|
Age	-0.0015301	-5.00	0.000
ln_TA	0.0064758	2.14	0.033
FATO	0.3497311*	33.61	0.000
CCC	-0.0000092	-3.07	0.002
Spon	0.0033138	0.32	0.750
_cons	-0.0076974	-0.42	0.676
R-sq: Within = 0.7375 Between = 0.8207 Overall = 0.7342		Number of obs = 516 Number of groups = 49 F (5,462) = 259.65 Prob > F = 0.0000	

*correlation at 5% significant level**correlation at 10% level significant

Table 6: Fixed-effects Regression Estimates on Basic Earning Power Explanatory Variable Quick Ratio

Model 2

Variables	Coef.	t	P > |t|
Age	-0.0016541	-5.40	0.000
ln_TA	0.0085514	2.68	0.000
FATO	0.3615396*	34.86	0.000
Quick Ratio	-0.0019973	-2.36	0.019
Spon	0.0066282	0.63	0.530
_cons	-0.021922	-1.13	0.257
R-sq: Within = 0.7351 Between = 0.8029 Overall = 0.7184		Number of obs = 523 Number of groups = 49 F(5,469) = 260.28 Prob > F = 0.0000	

*correlation at 5% significant level**correlation at 10% level significant

Table 7: Fixed-effects Regression Estimates on Basic Earning Power Explanatory Variable Current Ratio

Model 3

Variables	Coef.	t	P > |t|
Age	-0.0016475	-5.39	0.000
ln_TA	0.0085752	2.7	0.007
FATO	0.3611455*	34.84	0.000
Current Ratio	-0.0018575	-2.56	0.011
Spon	0.0047479	0.45	0.651
_cons	-0.0197933	-1.04	0.299
R-sq: Within = 0.7356 Between = 0.7925		Number of obs = 523	

Overall = 0.7163	Number of groups = 49 F(5,469) = 261.00 Prob > F = 0.0000

*correlation at 5% significant level**correlation at 10% level significant

Table 8: Fixed-effects Regression Estimates on Basic Earning Power Explanatory Variable Days Sales Outstanding

Variables	Coef.	t	P > |t|
Age	-0.0014627	-4.79	0.000
ln_TA	0.006763	2.25	0.025
FATO	0.3469824*	33.36	0.000
DSO	-0.0000439	-3.90	0.000
Spon	0.0003876	0.04	0.970
_cons	-0.0072737	-0.40	0.692
R-sq: Within = 0.7407 Between = 0.8256 Overall = 0.7450		Number of obs = 523 Number of groups = 49 F(5,462) = 263.96 Prob > F = 0.0000	

*correlation at 5% significant level**correlation at 10% level significant

Table 9: Fixed-effects Regression Estimates on Basic Earning power explanatory Variable Inventory Conversion Period

Variables	Coef.	t	P > |t|
Age	-0.0015407	-5.05	0.0000
ln_TA	0.0065623	2.17	0.030
FATO	0.3492553*	33.67	0.000
ICP	-0.000013	-3.39	0.001
Spon	0.0041222	0.40	0.691
_cons	-0.0081837	-0.45	0.656
R-sq: Within = 0.7387 Between= 0.8196 Overall =0.7322		Number of obs = 516 Number of groups = 49 F(5,462) = 261.20 Prob > F = 0.0000	

*correlation at 5% significant level**correlation at 10% level significant

Table 10: Fixed-effects Regression Estimates on Basic Earning power explanatory Variable Payment Deferral Period

Variables	Coef.	t	P > |t|
Age	-0.0015826	-5.20	0.000
ln_TA	0.0075729	2.50	0.013
FATO	0.3526127*	34.53	0.000
PDP	-0.000063	-3.64	0.000
Spon	0.0041212	0.40	0.691
_cons	-0.0135196	-0.74	0.462
R-sq: Within = 0.7396 Between = 0.8218 Overall = 0.7307		Number of obs = 516 Number of groups = 49 F(5,462) = 262.49 Prob > F = 0.0000	

*correlation at 5% significant level**correlation at 10% level significant

6. Conclusions and Policy Implications

The objective of the study is to analyze the working capital management and the firm's performance on the companies in the textile industry and determine their relationship. Companies should reduce their poor management capabilities as much they can, which will ensure a better economic development of Bangladesh, companies in this sector should overcome their technological obstacle by introducing modern infrastructure and machinery. From the result, we have found some consistency among the result of descriptive and inferential statistics which have made some points clear to us. It seems that the firms have a large asset base have more profitability than those firms that have less asset base and this is due to the economics of scale and economies of scope. A higher fixed asset turnover indicates that younger companies invest more in the asset base than older companies and is also an indication of firms make a more capital investment in the early stage. The cash conversion cycle has a positive impact on the basic earning power. Interestingly, all components of the cash conversion cycle harm basic earning power but the payment deferral period has the largest negative impact and it makes a positive impact on the cash conversion cycle. So, it is an indication of managers' inefficiency to properly collect from the buyers and a large number of inventories are make a cost and it makes wastage of money. Companies should renew their production strategy and should keep eyes on research and development to launch a new product line. The non-financial variables like age and sponsor shareholding affect the basic earning power that is profitability.

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