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Relationship between Efficiency Level of Working Capital Management and Profitability of Firms in the Textile Sector of Pakistan

Imran Omer Chhapra¹ and Nousheen Abbas Naqvi²

The main aim of this study is to investigate the relationship between working capital management (WCM) and firm's profitability in the textile sector of Pakistan. WCM plays an important role in firm's financial management decisions. An optimal WCM is expected to contribute positively to the creation of firm's value and enhancement of its profitability. Working capital, fixed assets' cost, Cost of production, cost of debt (interest expense), and size (capital) of the firm as control variables are also used to investigate their effect on profitability (net income). A sample size of 55 textile companies in Pakistan has been selected for a period of six years, from 2003 to 2008. The relationship between WCM efficiency and profitability is examined using correlation, regression analyses and ANOVA (Analysis of Variance) test. The results show a strong positive significant relationship between WCM and firm's profitability in Pakistan's textile sector. In case of control variables, it is found that there is a significant relationship between working capital, fixed assets' cost, cost of production, and size (capital) and profitability. However, results show a significant negative relationship between debt used by the firm and its profitability. The findings enhance the knowledge base of WCM and will help companies to manage working capital efficiently. Moreover, it will help the policy makers and decision making authorities to better orient themselves towards considering and adopting efficient ways of managing working capital.

JEL Classification: L11; L16; L25; L64

Key words: Working Capital; Profitability; Cost of Production; Fixed Assets; debt.

1. INTRODUCTION

1.1 Background

The concept of Working Capital (WC) includes both Current Assets and Current Liabilities. The total current assets represent "Gross Working Capital" and are also referred to as circulating capital because current capital as current assets, are circulating in nature. The difference between current assets and current liabilities is known as "Net Working Capital". The main objective of WCM is to ensure the maintenance of satisfactory level of WC in such a way that it is neither inadequate nor

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excessive. It needs not to be only sufficient to cover the current liabilities but also to ensure a reasonable margin of safety. The main sources of working capital are Trade credits, Bank credit, Current provisions and non-bank short term borrowings; and Long term sources i.e. equity share capital, preference share capital and other long term borrowings.

According to Van-Horne and Wachowicz (2004), working capital management is the management of current assets such as cash, marketable securities, receivables, and inventories. Osisioma (1997) described working capital management as the regulation, adjustment, and management of balance between current assets and current liabilities of a firm such that maturing obligations are met, and the fixed assets are properly serviced. Osisioma (1997) explained that efficient working capital management must guarantee an adequate relationship between the different components of an organization's working capital so as to make an efficient mix, which guarantees capital adequacy. Thus, WCM ensures that the desirable quantities of each component of the working capital are available for organization.

Considering the importance of WCM in textile sector of Pakistan, it is necessary to know the background of performance of the textile industry. Textile products are basic human requirement next only to food. It is the backbone of industrial sector which plays a vital role in the national economy it gives earnings, investment and contribution to value added industry by providing employment to largely unutilized workforce. Therefore, to boost the economy and to reduce the poverty in the country, the performance of all industrial sectors is very important and textile sector is one of the major sectors of all developing countries.

The performance of textile sector has strong relationship with the cost incurred by textile sector and effective management of net working capital. Pakistan is a developing country, which lack in most of the industrial resources same as the case with textile sector. It have to import most of the technical machinery used in textile sector from other developed countries, which increases the overall cost of the sector as well as lack of working capital, increase in fuel prices, electricity shortage, high cost of debt, taxation and all other factors together bring negativity in the performance of textile sector (www.apmta.org.pk).

The textile sector is the largest sector of Pakistan's economy which has the major shares in exports of the country but the major financing of this industry depends upon the bank loan. To purchase heavy machineries on cash or to lease them, the textile sector required huge amount of investment and to meet daily expenditures they need net working capital and for all that they have to borrow from bank by paying interest which increases the overall cost of textile sector. Although the textile sector of Pakistan is backed by the government with their greatest interest. They have arranged different types of investment policies and funds for textile sector but the improvement to other factors is still less then the requirement (shah 2007).

Rehman and Nasr (2007) narrated working capital is a very important component of finance because it directly affects the profitability and liquidity of any organization especially in developing countries like Pakistan. According to Ramchandran and Janakiraman (2009) it comprises funds invested in Current Assets, which in the ordinary course of business can be turned into cash within a short period without undergoing diminishing in value and without interruption of the organization. Current Liabilities are those which are projected to be paid in the ordinary course of business within a short time. Every company has to make arrangements for adequate funds to meet the day-to-day expenditure apart from investment in fixed assets.

However, Pakistan textile sector is on decline just because of the additional cost due to lack of working capital which can have impact on profitability and liquidity. As it is the major sector, which contributes in Pakistan's economy and generate foreign revenue, but the increase in cost, debt and improper management of working capital made it a declining sector in terms of profitability.

Keeping above draw backs in mind and inefficient evidences on firm's profitability and WCM for textile industry with reference of Pakistan, provided strong motivation for analyzing the relationship between the efficiency level of WCM and profitability of textile sector in Pakistan in detail. Therefore the current study focused on investigating the impact of WCM and profitability, and identified important variables that are influencing WCM efficiently.

Organization of the remaining sections is as follows: section two details literature review at national and international levels. Methodology, sampling and research design and data analyses technique are discussed in section three. Section four presents statistical analysis and results. Finally, concluding remarks of the findings of the study are presented in section five.

2. LITERATURE REVIEW

2.1 Review of Previous International and National Studies

Many researchers in Pakistan and abroad have studied working capital from different views and in different environments. The review of various previous international and national studies, which were very interesting and useful for conducting this research, is mention below:

2.1.1 International Scenario

Considering the importance of WCM at international level researches have focused on investigating the relationship between WCM and profitability. Uyar (2009) used ANOVA and correlation analysis to see the relation of cash conversion cycle with firm size and profitability for firms listed at Istanbul stock exchange. Results showed that retail/wholesale industries have shorter cash conversion cycle than manufacturing industries. Moreover, study also found significant negative correlation between cash conversion cycle and profitability; and cash conversion cycle and firm size.

According to Padachi (2006), the management of working capital is important to the financial health of businesses of all sizes. 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. Eljelly (2004) elucidated that efficient liquidity management involves planning and controlling current assets and current liabilities in such a manner that eliminates the risk of inability to meet due short-term obligations and avoids excessive investment in these assets. The relation between profitability and liquidity was examined, as measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies in Saudi Arabia using correlation and regression analysis. The study found that the cash conversion cycle was of more importance as a measure of liquidity than the current ratio that affects profitability. The size variable was found to have significant effect on profitability at the industry level. The results were stable and had important implications for liquidity management in various Saudi companies. First, it was clear that there was a negative relationship between profitability and liquidity indicators such as current ratio and cash

gap in the Saudi sample examined. Second, the study also revealed that there was great variation among industries with respect to the significant measure of liquidity.

Deloof (2003) discussed that most firms had a large amount of cash invested in working capital. It can therefore be expected that the way in which working capital is managed will have a significant impact on profitability of those firms. Using correlation and regression tests it is found a significant negative relationship between gross operating income and the number of days accounts receivable, inventories and accounts payable of Belgian firms. On basis of these results he suggested that managers could create value for their shareholders by reducing the number of days' accounts receivable and inventories to a reasonable minimum. The negative relationship between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills.

From another angle, Chiou and Cheng (2006) have analyzed the determinants of working capital management and explored that how working capital management of a firm is influenced by the different variables like business indicators, industry effect, operating cash flows, production cost, growth opportunity for a firm, firm's performance, fixed assets cost, and size of firm. The study has provided consistent results of leverage and operating cash flow for both net liquid balance and working capital requirements, however, variables like business indicator, industry effect, production cost, growth opportunities, performance of firm, fixed assets cost, and size of firm were unable to produce consistent conclusions for net liquid balance and working capital requirements of firms.

Shin and Soenen (1998) highlighted that efficient Working Capital Management (WCM) was very important for creating value for the shareholders. The way working capital was managed had a significant impact on both profitability and liquidity. The relationship between the length of Net Trading Cycle, corporate profitability and risk adjusted stock return was examined using correlation and regression analysis, by industry and capital intensity. They found a strong negative relationship between lengths of the firm's net trading Cycle and its profitability. In addition, shorter net trade cycles were associated with higher risk adjusted stock returns.

Ghosh and Maji (2003) examined the efficiency of working capital management of the Indian cement companies during 1992–1993 to 2001–2002. For measuring the efficiency of working capital management, performance, utilization, and overall efficiency indices were calculated instead of using some common working capital management ratios. Setting industry norms as target-efficiency levels of the individual firms, and also tested the speed of achieving that target level of efficiency by an individual firm during the period of study. It was found that the Indian Cement Industry as a whole did not perform remarkably well during this period.

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, and found significant differences existing between industries in working capital practices over time. Moreover, these working capital practices, themselves, change significantly within industries over time.

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 Stock Exchange. They found that most

companies in Sri Lanka have informal WC 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 an influence on the methods of working capital planning and control.

Visemith (2001) found the issue of WC to the operations of the Cameroon Development Corporation (CDC). Net WC (i.e. the excess of liquid current assets over current liabilities) is an indispensable component of any business organization's capital structure. The mismatch of working capital and fixed capital will always bring problems to the financial operations of the company. Optimum size of working capital to an organization's working life as too little working capital.

Smith and Begemann (1997) evaluated the association between traditional and alternative working capital measures and return on investment (ROI), specifically in industrial firms listed on the Johannesburg Stock Exchange (JSE). Results indicated that there were no significant differences amongst the years with respect to the independent variables. The results of their stepwise regression corroborated that total current liabilities divided by funds flow accounted for most of the variability in Return on Investment (ROI). The statistical test results showed that a traditional working capital leverage ratio, current liabilities divided by funds flow, displayed the greatest associations with return on investment. Well known liquidity concepts such as the current and quick ratios registered insignificant associations whilst only one of the newer working capital concepts, the comprehensive liquidity index, indicated significant associations with return on investment.

2.1.2 National Scenario

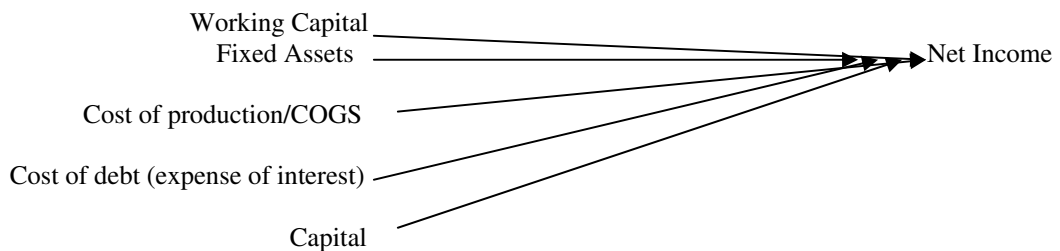
Considering the importance of WCM in Pakistan researches have focused on investigating the relationship between WCM and profitability, such as Afza and Nasir (2007, 2008), Rahman and Nasr (2007), and Shah and Sana (2006). In the Pakistani context, Rehman (2006) investigated the impact of working capital management on the profitability of 94 Pakistani firms listed at Islamabad Stock Exchange (ISE) for a period of 1999-2004, and 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. It is found that there is a strong negative relationship between above working capital ratios and profitability of firms. Furthermore, managers can create a positive value for the shareholders by reducing the cash conversion cycle up to an optimal level.

Raheman and Nasr (2007) evaluated the effect of working capital on liquidity as well on profitability of the firm by selecting a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years from 1999 – 2004, they have studied the effect of different variables of working capital management on the Net operating profitability of Pakistani firms. Debt ratio, size of the firm (measured in terms of natural logarithm of sales) and financial assets to total assets ratio have been used as control variables. Pearson's correlation, and regression analysis (Pooled least square and general least square with cross section weight models) were used for analysis and found a strong negative relationship between variables of the working capital management and profitability of the firm. Further, it was found a significant negative relationship between liquidity and profitability and a positive relationship between size of the firm and its profitability. Finally it was concluded a significant negative relationship between debt used by the firm and its profitability.

Afza and Nazir (2007 and 2008) focused on only WCM financing policies. 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, Pakistan for a period of 1998-2003. Using ANOVA and LSD test, the study found significant differences among their WC 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. Lastly, ordinary least regression analysis found a negative relationship between the profitability measures of firms and degree of aggressiveness of working capital investment and financing policies.

2.2 CONCEPTUAL FRAME WORK AND MODEL FORMATION

From detailed review of previous and recent studies it is conceptualized that different researchers has investigated relationship of WCM with profitability and has used different variables for different organizations. It is felt that still no evidence of profitability relationship has been found with WCM with reference of variables WC, fixed assets, and cost of production, cost of debt and cost of capital. Therefore a model is formed for textile sector in Pakistan for the data 2003-2008, which is as bellow:



2.3 Statements of Hypotheses

- H_{A1}:** Firms more efficient in managing their WC are expected to pose high level of profitability and vice versa.
- H_{A2}:** Investment in technological instruments (**Fixed Assets**) does affect the profitability of textile companies in Pakistan.
- H_{A3}:** High cost of production has an impact on the profitability of textile companies in Pakistan.
- H_{A4}:** There is a negative relationship between **debt** used by textile companies in Pakistani and profitability.
- H_{A5}:** There is a relationship between **size** of Pakistani textile companies and its profitability.

3. RESEARCH METHODOLOGY

This research is conducted by using secondary data, which is collected from the State Bank of Pakistan (SBP 2009). Data of textile firms for the most recent six years formed the basis of my calculations. The period covered by this study extends to six years starting from 2003 to 2008. The reason for restricting the time period to six years was that the latest data for investigation was available for these years. The collected data from the source have been compiled and used with due care as per the requirements of the study.

3.1 Sampling Design

The total population size for this study consists of 161 companies in the textile sector of Pakistan. The sampling frame only includes the entire textile sector of Pakistan. All other sectors are excluded from the sample as current research investigates the relationship of WCM and Profitability of textile companies in Pakistan. The sampling type was “Simple Random Sampling” randomly 55 companies were selected out of 161 textile companies. The sample size is based on financial statements of 55 Pakistani textile companies which is 34% of the population size.

3.2 Research Design

The purpose of this research was descriptive study as few researches are all ready conducted on this topic. The type of investigation was correlation as researcher tries to explore the relationship between dependent variable (Profit) and different independent variables (Working capital, fixed assets, size of firm, and cost of debts). Secondary data was used to conduct this research so the researcher has minimum interference. The study setting was non-contrived. Finally, the unit of analysis was industry and time horizon was cross sectional.

3.3 Data Analysis Methodology

The data collected from financial statements of all firms in the textile sector of Pakistan has been entered in the SPSS 16.0 software to check the authenticity of the data. Then, different tools and methods were applied on the data for the purpose of evaluation and statistical analysis of this research. These methods are Regression, Correlation and ANOVA analysis.

3.4 Sample Characteristics

The characteristics of this research sample is that only companies from textile sector are selected as research pertains to textile sector of Pakistan and all other companies and sectors are excluded from this study.

4 STATISTICAL ANALYSIS, FINDINGS AND RESULTS

The study is purely based on statistical analyses. So, best analysis tools for this study are Regression, Correlation and ANOVA analysis. Regression analysis is a statistical method used to describe the nature of the relationship between variables, that is, positive or negative, linear or nonlinear and Correlation method used to determine whether a relationship between variables exists or not. The Analysis of Variance (ANOVA) test is conducted to check the model's acceptability and how model fits.

4.1 Different Test and Analysis:

4.1.1 Regression Statistics Analysis

Table 2:		Model Summary		
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	0.807 ^a	0.651	0.645	247.29179
a. Predictors: (Constant), Working Capital, Fixed Assets, COGS, Interest Expense, Capital.				

In the model summary table, the capital “R” in this table is **Coefficient of Correlation**. The coefficient of correlation from the sample data measures the strength direction of a linear relationship between two variables. The range of the correlation coefficient is from -1 to +1. If there is a strong positive linear relationship between the variables, the value of “R” will be close to +1. If there is a strong negative linear relationship between the variables, the value of “R” will be close to -1. When there is no linear relationship between the variables or only a weak relationship, the value of “R” will be close to 0.

In above regression statistics analysis “R” is **0.807** which shows that there is **high correlation** (linear relationship) between dependent variable and independent variables.

The second column which shows “R Square” (**Coefficient of Determination or Regression Coefficient**) which shows that **65.1%** of variation in Net Income amount is caused by predictors third column is “Adjusted R square” **64.5%** variation is caused by predictors considering number of observations and the number of predicted variables.

4.1.2 - Analysis of Variance (ANOVA)

Table 3:		ANOVA				
Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	36884854.007	5	7376970.801	120.631	0.000 ^a
	Residual	19813647.079	324	61153.232		
	Total	56698501.085	329			
a. Predictors: (Constant), Working Capital, Fixed Assets, COGS, Interest Expense, Capital.						
b. Dependent Variable: Net Income						

The ANOVA table tests the model’s acceptability and how model fits. The first row which shows **Regression** display information about the variation accounted for by the model and the second row of **Residual** shows information about the variation that is not accounted by the model. In ANOVA table, if significance value of F > 0.05 then it means that model is not acceptable and variation illustrated by the model is by chance. However, if significance value of F < 0.05 then it means that model is acceptable and variation showed in the model is not just by chance.

Hence, the statistical analysis of this study shows that the **Significance value of F is 0.000** which is less than 0.05 so it means that my model is acceptable and the variation explained by this model is not just due to chance.

4.1.3 - Coefficient Analysis

Table 4: Coefficients						
Model	Un-standardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1	(Constant)	-45.583	17.087		-2.668	0.008
	Working Capital	0.145	0.049	0.641	2.956	0.003
	Fixed Assets	0.109	0.039	0.595	2.796	0.005
	COGS	0.087	0.030	0.458	2.886	0.004
	Interest Expense	-0.329	0.276	-0.106	-1.192	0.234
	Capital	0.252	0.046	1.639	5.448	0.000

a. Dependent Variable: Net Income

In the coefficients table, the first row shows **constant** which is second column of first row **-45.583** shows that when all predictors (**Working Capital, Fixed Assets, COGS, Interest Expense, and Capital**) are held to zero, then the amount of Net Income is **-45.583** and the constant is also significant as is $P < 0.05$.

Then, there is first slope which is **WC** that has a significant value $p = 0.003$, which is less than 0.05 ($p < 0.05$) and $t = 2.956$, which shows that WC has a significant impact on profitability. The value of “t” is quite big which shows healthy variability in profitability by efficient management of working capital. The value of B for WC is 0.145, which shows that if WC changes by 1 million, it will bring 0.145 million change in Profitability. Hence, H_{A1} is accepted.

Then, the second slope is **Fixed Assets**, it is also significant and its $p < 0.05$, $p = 0.005$; and $t = 2.796$, which shows that fixed assets also had an impact on the Profitability. The value of B for fixed assets shows 1 million change in fixed assets and will bring 0.109 million change in profitability. Hence, H_{A2} is accepted.

Third control variable is **Cost of Production (COGS)**, it is also significant like previous two variables $P < 0.05$, $p = 0.004$ and $t = 2.886$, which shows that there is a relationship between profitability and cost of production. The value of B for COGS shows 1 million change in COGS will bring 0.087 million change in profitability, which is not bigger change, but at least it will bring change and is significant. Hence, H_{A3} is accepted.

The next variable is **Cost of Debt i.e. Interest Expense** which is not significant $p = 0.234$, which is greater than 0.05 ($p > 0.05$) and $t = -1.192$, which mean that any change in interest expense will bring a negative change in profitability of textile companies in Pakistan. The value of B for it shows that 1 million, change in cost of debt will bring -0.329 million change in profitability. Hence, H_{A4} is accepted.

Finally, the last variable is **Size of the Firm i.e. Capital** that has a significant value $p = 0.000$, which is less than 0.05 ($p < 0.05$) and $t = 5.448$, which shows that Capital has a significant impact

on profitability. The value of “t” is also bigger shows healthy variability in Net Income by size of the firm. The value of B for capital shows 1 million change in capital, which will bring 0.252 million change in profitability. Hence, H_{A5} is accepted.

4.1.4 - Correlation Analysis

Table 5:		Correlations Matrix					
		Net Income	Working Capital	Fixed Assets	COGS	Interest Expense	Capital
Net Income	Pearson Correlation	1	0.751**	0.701**	0.663**	0.584**	0.798**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000
	N	330	330	330	330	330	330
Working Capital	Pearson Correlation	0.751**	1	0.728**	0.699**	0.634**	0.960**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.000
	N	330	330	330	330	330	330
Fixed Assets	Pearson Correlation	0.701**	0.728**	1	0.952**	0.873**	0.867**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000
	N	330	330	330	330	330	330
COGS	Pearson Correlation	0.663**	0.699**	0.952**	1	0.928**	0.805**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000
	N	330	330	330	330	330	330
Interest Expense	Pearson Correlation	0.584**	0.634**	0.873**	0.928**	1	0.727**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.000
	N	330	330	330	330	330	330
Capital	Pearson Correlation	0.798**	0.960**	0.867**	0.805**	0.727**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	
	N	330	330	330	330	330	330

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

On the basis of Correlation Matrix, Interest Expense (Cost of debt) is again rejected in relation to Net Income as “R” in Table 5 (Correlation Matrix) is less than 0.5 ($R < 0.5$) i.e. $R = 0.584$, which is

clearly showing a very low correlation between Cost of Debt and Profitability of textile sector. It has also proved insignificant as it showed a negative relationship with profitability that is evaluated in the Coefficient Table (Table 4). On the other hand, all other variables has the value of “R” greater than 0.5 ($R > 0.5$) which shows high correlation between independent variables and dependent variable.

4.2 Results

All the above tests clearly state that there is a negative impact of cost of debt (Interest Expense) on profitability of textile companies in Pakistan, but all other variable show a positive impact on the textile companies. There is relationship between efficient WCM and profitability of textile firms in Pakistan, so, on the basis of above tests the following Hypotheses are accepted.

- H_{A2}:** Firms more efficient in managing their WC are expected to pose high level of profitability and vice versa.
- H_{A3}:** Investment in technological instruments (**Fixed Assets**) does affect the profitability of textile companies in Pakistan.
- H_{A4}:** High cost of production has an impact on the profitability of textile companies in Pakistan.
- H_{A5}:** There is a negative relationship between **debt** used by textile companies in Pakistani and profitability.
- H_{A6}:** There is a relationship between **size** of Pakistani textile companies and its profitability.

5 CONCLUSION AND RECOMMENDATIONS

After evaluating the whole textile sector of Pakistan, it is concluded that WCM is greatly affecting the productivity, efficiency and profitability of textile sector. In Pakistan, textile sector is considered the most important investment sector, which greatly pushes Gross Domestic Product (GDP) and National Income (NI) of the country.

Therefore, to study such an important sector these (Working capital, fixed assets’ cost, Cost of production, cost of debt (interest expense), and size (capital) variables helped in evaluating the relationship of efficiency level of WCM and Profitability of textile companies and its impact on performance of textile sector in Pakistan.

The hypotheses used in conducting this research show the positive impact except cost of debt on profitability (net profit) of the textile sector in Pakistan. Therefore, it can be concluded that debt financing has a relationship with profit but it is a negative relationship, which is interpreted as the debt financing will affect the financial cost which will lead to decreasing profitability.

In view of the concluding remarks, it is suggested that particular norms for WCM should be followed to reduce the market risk and liquidity management activities may be more organized through using idle funds for productive investments.

Furthermore, financial information system should be introduced to develop financial discipline in WCM and financial forecasting; planning and control devices are to be more intensive to enhance the efficiency of cash management. Along with this, inter-firm comparison should be made from time to time with similar organization, and horizontal and vertical analysis through ratio techniques

would be more meaningful for effective management of WC and other control variables. However, more researches need to be conducted on this topic in Pakistan to establish better understanding of the relationship between profitability and WCM in different sectors of Pakistan in future.

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