Working Capital Management and Firm Performance in Pakistan's Textile Sector: A Multi-Dimensional Analysis of Value, Profitability, and Risk

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Abstract. This study investigates the impact of working capital management on firm value, profitability, and risk in the Pakistani textile sector. Using pooled OLS regression analysis on a panel dataset of 75 textile companies listed on the Pakistan Stock Exchange from 2010 to 2020, we find that net working capital (NWC) positively impacts firm profitability and negatively impacts firm risk, while its effect on firm value is insignificant. The cash conversion cycle (CCC) shows no significant relationship with any of the three outcome variables. These findings contribute to the literature by demonstrating the differential impacts of working capital management across multiple firm outcomes in an emerging market context. The study provides insights for textile sector managers on optimizing working capital strategies to balance profitability and risk in a developing economy.

Keywords: Textile Sector, Profitability, Firm performance, firm risk, firm valuation, working capital management, Cash Conversion Cycle, Net Working Capital

1. Introduction

Efficient management of working capital facilitates the reduction of unutilized capital and the minimization of the burden of interest, consequently resulting in enhanced profitability (Lefebvre, 2022). It encompasses efficiently managing cash flow, inventory, and accounts receivable and payable. Efficient Working Capital Management (WCM) is crucial for companies worldwide (Zaman, 2022); whether a small-scale business or a large-scale one, it can help increase profitability and stability. It is an indispensable subfield of corporate finance (Sharma & Kumar, 2011a). Businesses endeavor to achieve efficient management of working capital (WCM) due to the significant impact that inefficient WCM can have on firms' performance in emerging markets (Osei et al., 2023). WCM covers day-to-day expenses and measures how much cash or liquid assets a company owns against its short-term loans/payables. Net Working Capital (NWC) components include debtors, Inventory, and Creditors. These accounts are related to income Statement accounts like Sales and Cost of Goods Sold. Hence, sales have a direct relationship with Debtors and inventory on the contrary, the Cost of Goods Sold (COGS) is related to creditors. Working capital (WC) efficiency has a positive influence on an enterprise's operations (Wasiuzzaman, 2006a). Efficient WC is one of the prerequisites for the success of an enterprise (Ahmad et al., 2022).

Researchers in the past few years have shown that enterprises are paying more attention to WCM as they realize its importance due to hyper-global competition and uncertainty (Ahmad et al., 2022). (Tauringana & Adjapong Afrifa, 2013) point out that the availability of technology and proper equipment helped firms manage WC efficiently. For example, relevant software records expiry dates of inventory. Moreover, all accounts receivable/creditors transactions are available with one click. As a result, WCM has become more accessible and efficient. Most researchers believe that if a firm manages its Working Capital (WC) efficiently in a boom economic period, it will improve its profitability and competitive position and reduce the adverse effects of economic turbulence on the firm's operations (Habib & Kayani, 2023). Proper working capital management coupled with intellectual capital can also help companies enhance their profitability (Habib & Dalwai, 2024). Continuing authors include that WCM is not an easy task, as it seems, because firms need to maintain liquidity or profitability while performing day-to-day operations. If firms are not able to manage the interrelations of Current Asset (CA) and Current Liabilities (CL), then this can force firms to become insolvent / Bankrupt (Abuzayed, 2012).

When firms maintain a high level of WC, sales can be increased, and more significant discount periods for payments can be obtained, ultimately enhancing firms' value (Baños-Caballero et al., 2014). NWC is the component of Free Cash Flow (FCF), which is the measure of firm value; hence, when there is an increase in NWC, FCF automatically enhances and eventually increases firm value. However, there is a flip side as well, as researchers also showed a negative relationship between high levels of NWC and firms' value (Aktas et al., 2015), (Baños-Caballero et al., 2014)). For, in a US market-based study, (Aktas et al., 2015) contributed that although more extensive inventories help in reducing high supply costs and act as a hedge against price fluctuations of raw materials, a high level of WC requires a large amount of financing, which will consequently increase financial costs (high-interest expense) hence the probability of bankruptcy will also increase; adding to this too much cash tied with WC restricts firms to invest in value-enhancing short-term projects. The scenarios mentioned above lead to value destruction for shareholders and discourage them.

WCM also influences the firm's profitability, but it depends on the firm's management policy to positively impact profitability. (Sharma & Kumar, 2011a) discussed a popular measure of WCM, i.e., Cash Conversion Cycle (CCC), which means how much cash is received and paid for the sale and purchase of goods, goods that are bought to sale in the future or they influence the Cost of Goods Sold (COGS) in a specific period or most of the time in a year, CCC consists of $(Days\ Sales\ Outstanding\ (DSO) + Days\ Inventory\ Outstanding\ (DIO) -$

Days Payables Outstanding (DPO)). DSO shows how fast companies have received cash against sales in a specific period, DSI shows how fast and how much inventory companies have sold in a specific period, and DPO shows how fast or slow a company is paying against the COGS in a specific period. A renowned study (Shin & Soenen, 1998) found an inverse relationship between longer firms' profitability and CCC. Moreover, notable researchers (Deloof, 2003) showed that if firms have a longer CCC, profitability might increase as longer CCC leads to higher sales, but the corporate probability can decrease if the cost of investment in WC rises. (Mathuva, 2010) studies that unwarranted investments, which are comparatively high-volume investments in current assets, can reduce the rate of return. While explaining WC's effects on profitability (Dong & Su, 2010) mentioned that WC should be neither high nor low but adequate. To earn profit, firms must maintain their liquidity as well, because earning profit at the cost of liquidity can lead to financial distress. (Theodossiou & Savva, 2016) stated that many scholars found that risk and returns have a positive relationship.

Although there is voluminous literature available dealing with WCM and its impact on profitability, value, and risk, there is less that is known about the dynamics of WCM in the textiles division within the context of Pakistan. Moreover, prior literature indicates that these elements are largely analyzed individually while their interaction is not taken into account as well as interactions between WCM, profitability, and risk. This indicates that factors peculiar to the textile industry including the use of inventory and requirement of seasonal materials add another dimension to the connection between the Net Working Capital, Cash Conversion Cycle, and firm performance. Another question that remained untapped is, why there is a trade-off between CCC which leads to increased profitability, and NWC which helps in reducing risk is not well understood especially in industries with high working capital needs such as textiles. This study fills this gap by exploring the relationship between changes in NWC and profit and risk in the textile sector using a theoretical framework that may help practitioners, financial analysts, and policymakers make more sound decisions. Hence the paper attempts to answer the following research questions:

- How does a change in the Cash Conversion Cycle (CCC) impact Net Working Capital (NWC) and, subsequently, a firm's profitability?
- How does the relationship between risk and return affect Working Capital Management (WCM) in the textile sector?
- What is the impact of Working Capital Management (WCM) on a textile firm's performance in terms of profitability, value, and risk, holistically?

This paper investigates how much risk is associated with profitability when firms try to increase their NWC to enhance their value, particularly in Pakistan's textile sector. The distinguishing facet of the textile sector, like the heavy reliance on inventory, seasonal viability of raw materials, and other factors, makes working capital management more crucial(Textile Inventory Management System, 2023). An increase in NWC will simultaneously affect CCC. CCC has a negative relationship with profitability; for example, if there is a decrease in CCC, then profitability will increase. Oppositely, a decrease in CCC will also result in an NWC decrease. As a result, firms will face a reduction in FCF value. If risk and return have positive relationships, what will be the relationship between risk and WCM? Few studies have addressed the effects of change in Net Working Capital on a firm's risk.

This study endeavors to make a valuable addition to the preexisting reservoir of knowledge about working capital management, with a specific focus on the textile industry. It provides valuable insights and discoveries that can enlighten practitioners within the textile industry, financial analysts, and policymakers in making well-informed decisions concerning working capital strategies. While there are limited studies that specifically examine the effects of working capital management (WCM) on profitability, value, and risk separately, using a holistic approach allows for a more comprehensive understanding of how working capital impacts a company's total performance. Additionally, since the study covers an extensive framework of WCM which provides necessary tips for the improvement of

the WCM framework in Pakistan, it provides guidelines for understanding the right mix of liquidity and profitability for the textile firms of Pakistan, for their steady and sustainable growth and creating long term value for their stakeholders. Thus, these findings are valuable for policymakers to develop suitable regulations and supportive frameworks as per the needs of the textile sector, which is one of the most important sectors in the economy of Pakistan.

The rest of the paper is structured as follows: The second section provides the literature review, which also includes an explanation of theoretical underpinning. The third section is about Methodology, comprising the details about the data and variables. The next section elaborates results, followed by the discussion. The last section concludes this research.

2. Literature Review

WCM is vital as it significantly impacts firms' profitability, risk, and, consequently, firms' value. Due to changes in the external environment, businesses must adapt different investment mixes in current assets and current asset financing (Mahmood et al., 2024). For such purposes, there are three approaches: conservative, aggressive, and moderate (Mcinnes, 2000). Approaches behind WCM give the framework of how firms should manage WCM so that its WC can demonstrate WC's influence over liquidity, solvency, efficiency, profitability, and value. The three approaches are explained briefly below.

The Conservative approach is long-term, fully, or partially financed. It usually involves high liquidity, lower risk, and profitability (Adamchik et al., n.d.). In this approach, companies sacrifice lower costs. The conservative approach deals with large amounts of cash, marketable securities, account receivables, and inventories financed through permanent capital/ long-term debt (Mcinnes, 2000).

Companies may follow an aggressive approach, keeping, but keeping high current liabilities as a percentage of total liabilities (Afza & Nazir, 2007). It usually involves low liquidity, high risk, and profitability (Adamchik et al., n.d.). Through an aggressive approach, higher profitability-cost financing can be witnessed (Sharma & Kumar, 2011b). An aggressive approach deals in smaller cash holdings, marketable securities, account receivables, and inventories financed with current liabilities.

The method is a middle ground between aggressive and cautious strategies. It involves using short-term credit to fund short-term assets, while long-term debt is used to finance the permanent amount of current assets (Mcinnes, 2000).The relationship between a firm's Working capital management, profitability, value, and risk can also be viewed through the lens of trade-off theory. This theory holds that certain costs and benefits are attached to every financing decision. Particularly, the tradeoff theory posits that firms are presented with a trade-off decision problem whereby they are forced to choose between having more liquid assets or expecting to gain higher returns by investing at higher risks. Therefore, efficient WCM is a fundamental prerequisite to achieving the goal of liquidity that is necessary to fulfill short-term commitments and to continue the company's operations (Jardine & Jardine, 2014; Serrasqueiro & Caetano, 2015)

Wang, (2019) States that the cash conversion cycle is a commonly employed measure for assessing the efficiency of a company's working capital management and the requirement for external funding. The Cash Conversion Cycle (CCC) of a business is the net duration that the firm needs to sell its inventory and collect receivables, after subtracting the time it takes to pay its payables. CCC encompasses four fundamental business activities: procurement or manufacturing, sales, receivables collection, and payment. These activities create flows within WC accounts. When a firm has a larger CCC, that indicates that WC relies on short-term financing. Hence, it shows that the firm has an aggressive WC approach, which eventually leads to an increase in profitability (Umar & Al-Faryan, 2023). If we look into different literature, we know that WCM usually focuses on individual components of WC because each component has different functions and purposes. Therefore, it should be managed aggressively (Mcinnes, 2000). To manage WC as an aggregate and inter-relationship of individual components of WC, the cash conversion cycle was purposeful (Richards & Laughlin, 2012).

H1: Will lowering CCC and NWC will positively affect firm performance?

NWC and CCC have a direct positive relationship as NWC consists of accounts receivable, Inventory, and creditors. At the same time, CCC consists of DSO, DSI, and DPO. The change in Debtors affects the DSO, Inventory affects the DSI, and creditors affect the DPO positively.

Two methods can measure firm performance. i.e., market value or accounting value. Market value is the current value of all shares, and accounting value is the firm's profitability. A reduction in CCC will positively affect the profitability but decrease the NWC, which will affect the FCF negatively, increasing firm value. So, this hypothesis will test lowering the CCC to a level that will keep ΔNOWC positive, negatively affecting FCF and firm value. This paper applies the market-to-book ratio method to measure firm performance.

Nevertheless, in the Pakistani market, these things cannot be predicted without proper investigation as textile firms have extremely large NWCs because of their large inventory quantity, especially of raw materials like cotton, which might result in greater profitability and firm performance. This increase is complicated because the cotton shortage in the Pakistani market is quite normal once a year or more than once, but it happens, leading to lower production. Firms who have planned and stored cotton for the future as well are less likely to disrupt their production process, which will result in more sales, if other firms have disrupted their production process, which will cause lower supply from these firms, those who have planned for future production will cause more profitability through increasing sales.

H2. The relationship between the level of NWC and stock-return volatility is negative.

(Aktas et al., 2015) used fixed effects regression to investigate the relationship between NWC and stock return. The result says that the relationship is non-linear. A firm with positive excess NWC will have a negative relationship with the stock return, but if it has negative excess NWC, it will share a positive relationship. Over time, the growth of firms leads to negative NWC. This gives purpose to (Salehi et al., 2019) studying the relationship between NWC and stock returns. Their findings reveal that changes in cash have a negative and significant relationship with stock return in Iran's economy, whereas NWC has no such meaningful relationship with stock return. In this paper, we incorporated equation 3, which contains stock volatility as a dependent variable, and NWC is measured by the book value of total assets, with another independent variable to investigate the hypothesis mentioned above.

3. Methodology

3.1 Data

Different studies have used different methods to gauge the determinants of Working Capital Management from different aspects (Abubakar et al., 2024; Habib & Kayani, 2023). The research uses a panel dataset consisting of 75 textile industry companies listed on the Pakistan Stock Exchange (PSX),. Initially, all the publicly traded textile companies at PSX were taken into account, but later the default companies were excluded from the sample. This paper has taken the textile sector into account, because despite being among the leading sectors of the sub-continent (Kalita & Kalita, 2023), this sector has shown a dip in production growth and export contribution, over the many areas. This declining trend gained the attention of policymakers to find the means of stabilizing the sector. A research span of eleven (11) years, from 2010 to 2020, was used to guarantee a thorough examination of trends and patterns. Financial statements, annual reports, and databases like Reuters and the Pakistan Stock Exchange (PSX) website were among the publicly accessible sources from which financial data, including net working capital (NWC), firm value, profitability metrics, and risk indicators, was gathered. Pooled Ordinary Least Square (OLS) is employed to assess the models.

3.2 Variables

Previous research indicates that the correlation between working capital and business values is complex and not easily understood (Wasiuzzaman, 2006b). (Le, 2019a) noted that discounting FCF can be used to estimate firm value. Following the prior studies, this paper used the below equation to calculate the Value of the Firm

$$V_0 = \sum_{t=1}^{\infty} \frac{FCF_t}{(1 + WACC)^t}$$

Where $\text{FCF} = \text{EBITDA}_t - \text{CAPEX}_t - \Delta\text{NOWC}_t$.

CAPEX is the amount incurred on non-current assets and;

ΔNOWC is the change in net operating working capital.

WC can affect firm value indirectly; firm value is estimated by discounting future FCF. Prior studies have used either by Market-to-book ratio or excess return on stocks as firm value (Le, 2019a). We used the Market-to-book ratio in this paper as previously modified by (Le, 2019a) from (Fama & French, 1998; Wasiuzzaman, 2006b).

Therefore, the MTB ratio, the independent variable, is used to measure firms' valuation, as follows:
Equation 1

$$MTB_t = \beta_0 + \beta_1 CAPEX_t + \beta_2 INTEREST_t + \beta_3 CASHD_t + \beta_4 GROWTH_t + \beta_5 CFOSALES_t + \beta_6 (LOG)SIZE_t + \beta_7 NWC_t + \beta_8 fe_t$$

A representation of the market value per share to book value per share at the end of the year is denoted by the symbol MTB. This model primarily examines the impact of the change in Net Working Capital (NWC) on the value of enterprises. The CAPEX is calculated by dividing the capital expenditure by the total book assets. INTEREST is the amount of money that the company has paid in interest over a year, divided by the entire value of its assets as shown in its financial statements. CASHD refers to the ratio of cash dividends paid by a business throughout a year to its total book assets. GROWTH represents the pace at which revenue increases. CFOSALES represents the ratio of operational cash flow to sales. SIZE refers to the aggregate book assets that are adjusted for the size of the business. 〚fe〛_t It is added to account for company- and year-specific impacts and mitigate problems associated with missing data. While WC is the essential component, it would be

$$NWC = \frac{Accounts\ Receivable + Inventory - Accounts\ Payable}{Total\ Book\ Assets\ OR\ CCC}.$$

An analysis of the impact that WCM has on the profitability of businesses is shown in the following model:
Equation 2

$$ROIC_t = \beta_0 + \beta_1 CAPEX_t + \beta_2 GROWTH_t + \beta_3 LEV_t + \beta_4 LOG(SALES)_t + \beta_5 VOL_t + \beta_7 NWC_t + \beta_8 fe_t$$

ROIC is the return on invested capital used to represent firms' profitability or performance ratio, which is used to measure the percentage of return a firm earned on invested capital. In this model, ROIC is used as the dependent variable. The centered variable is WC, that is, NWC, CCC, or the parts of CCC, which includes DSO, DSI, and DPO ($CCC = DSO + DSI - DPO$). CCC is the widely used measure to test WCM effects on the firm's probability. Following (Le, 2019b) As a control for firm risk, the standard deviation of daily stock-return (VOL) is utilized. Total income (SALES) is also used as a control for firm size.

To analyze the impact of WCM on company risk, this research makes use of the following model:

Equation 3

$$VOL_t = \beta_0 + \beta_1 LOG\ (SIZE)_t + \beta_2 MTB_t + \beta_3 LOG\ (AGE)_t + \beta_4 NWC_t + \beta_7 GROWTH_t + \beta_8 LEV + \beta_{10} fe_t$$

The dependent variable of this model is the volatility of daily stock return (VOL). Since the firm's IPO, the months are calculated to date, and AGE is used as a variable. The book value of all assets measures NWC.

Table 1 shows the variables used in the equations above and their calculation methods. Along with that, this table includes units of measure of all variables.

Table 1

Variables	Calculation Used	Unit of Measure	No. of Observations
AGE	The number of months since registered as a public limited company.	Months	825
CAPEX	Amount spent for purchasing Long Term Assets during a year.	Percent	825
CASHD	Total cash dividend paid by the firms divided by total book assets	Percent	825
CCC	It shows the number of days between the day cash is paid to purchase the inventory and cash recovered from the sales. The formula is Cash Conversion Cycle = DSI + DSO – DPO	Days	825
CFOSALES	Net Operating Cash flows divided by Sales	Percent	825
DPO	Days Payable Outstanding = (Creditors × 365)/cost of goods sold	Days	825
DSI	Days Sales Inventory = (Inventory × 365)/cost of goods sold	Days	825
DSO	Days Sales Outstanding = (Debtors × 365)/sales	Days	825
GROWTH	Sales growth = ((Current year sales – Previous year sales)/Previous year sales) × 100	Percent	825
INTEREST	Interest expense for the year divided by total book assets	Percent	825
LEV	Debt to Equity ratio	Percent	825
MTB	Market to Book ratio = Market value per share/Book value per share	Percent	825
NWC	*Net Working Capital = (Accounts receivable + Inventories − Accounts payable) divided by total book asset*	Percent	825
ROIC	*Return on Invested Capital* $= \frac{(Net\ Incone + interest\ expense) \times 100}{Total\ Capital + Short\ term\ debt + Current\ portion\ of\ long\ term\ debt}$	Percent	825
SALES	Total sales for the year	PKR in 000's	825
SIZE	Total book assets, Firm Size.	PKR in 000's	825
VOL	Stock Return Volatility = Standard Deviation of stock return	Percent	825

Notes: This table provides a concise overview of the specific characteristics of each variable utilized in this research report.

4. Results

This paper used descriptive statistics to comprehend the variables' fundamental properties and the dataset's general pattern. To determine the coefficients of interest, regression analysis was used to look at the direction and significance of the relationship between NWC and the dependent variables (risk, profitability, and company valuation). To ensure the results were accurate and reliable, robustness procedures such as multicollinearity tests were carried out.

4.1   Univariate Analysis

Table 2: Descriptive Statistics

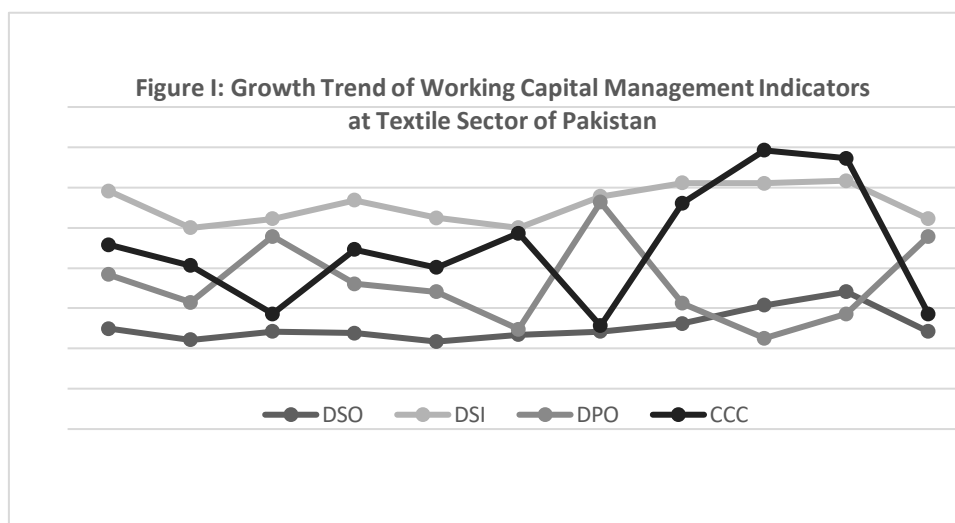| Variables	Mean	Median	Min	Max	Std Dev
AGE	297.29	252.00	0.00	840.00	153.94
CAPEX	0.05	0.04	-0.01	0.41	0.06
CASHD	0.01	0.00	0.00	0.29	0.02
CCC	67.50	70.52	-3,750.84	1,408.93	181.02
CFOSALES	0.03	0.03	-0.34	0.48	0.08
DPO	45.85	26.37	0.00	3,750.84	157.17
DSI	78.37	68.98	0.00	1,118.15	63.76
DSO	34.98	28.21	0.00	314.11	32.18
GROWTH	10.68	8.94	-100.00	692.47	40.77
INTEREST	0.03	0.03	0.00	0.21	0.02
LEV	1.30	1.34	-941.27	262.73	35.66
MTB	0.46	0.38	-127.80	38.44	4.94
NWC	0.21	0.23	-0.47	0.62	0.17
ROIC	0.05	0.05	-0.50	0.34	0.07
SALES	8,337,123.44	4,513,244.00	0.00	66,237,950.00	10,486,336.59
SIZE	8,805,438.24	3,371,952.00	70,806.00	117,530,275.00	14,524,242.23
VOL	0.03	0.02	0.00	0.34	0.03

Notes: The table provides a concise overview of the average, middle value, lowest value, highest value, and dispersion of all the variables utilized in this research.

Table 2 depicts the descriptive analysis of the variables. Our results show that AGE has a mean of 297.29, a median of 252, and a standard deviation of 153.94. The minimum age of companies in the month is 0. Our results find that CAPEX has a median value of 0.04, mean value of 0.05, minimum value of -0.01, and a maximum value of 0.41. The standard deviation of CAPEX from our results is 0.06, which shows that this data is clustered. Despite having a maximum value of 0.41, most companies' CAPEX falls around the 0.0 mean value. The descriptive statistics values derived from our data for the mean, median, minimum value, maximum value, and standard deviation of CASHD are 0.01, 0.00, 0.00, 0.29, and 0.02. The mean, median, minimum, maximum, and standard deviation values for CCC are 67.50, 70.52, -3,750.84, 1,408.93, and 181.02. The standard deviation shows that most values fall between -113.52 and 248.52. The mean, median, minimum, maximum, and standard deviation outcomes of CFOSALES are 0.03, 0.03, -0.34, 0.48, and 0.08. Our mean, median, minimum, maximum, and standard deviation results of DPO are 45.85, 26.37, 0.00, 3,750.84, and 157.17. The mean, median,

minimum, maximum, and standard deviation derived from our DSI data are 78.37, 68.98, 0.00, 1,118.15, and 63.76. Our results find that DSO's mean, median, minimum, maximum, and standard deviation are 34.98, 28.21, 0.00, 314.11, and 32.18, respectively. The standard deviation for DSO suggests that it takes at least 2.80 days to receive the amount from debtors for most firms, and most, it takes 67.16 days to receive the amount from the debtors. The mean, median, minimum, maximum, and standard deviation for firm growth are 0.11, 0.09, -1, 6.92, and 0.41, respectively. The mean, median, minimum, maximum, and standard deviation of interest unsheathed from our data are 0.03, 0.03, 0.00, 0.21, and 0.02, which shows that most companies' interest expense is not more than 3% of their assets. Our results find the mean, median, minimum, maximum, and standard deviation for LEV, which are 1.30, 1.34, -941.27, 262.73, and 35.66. MTB's mean, median, minimum, maximum, and standard deviation are 0.46, 0.38, -127.80, 38.44, and 4.94. This suggests that the data for MTB are significantly different from their mean. The descriptive statistics values derived from our data for the mean, median, minimum, maximum, and standard deviation of NWC are 0.21, 0.23, -0.47, 0.62, and 0.17. The outcomes for mean, median, minimum, maximum, and standard deviation of ROIC are 0.05, 0.05, -0.50, 0.34, and 0.07. Sales' mean, median, minimum, maximum, and standard deviation are 8,337,123, 4,513,244, 0.00, 66,237,950, and 10,486,337. The descriptive statistics value derived from our data for the mean, median, minimum, maximum, and standard deviation of SIZE is 8,805,438, 3,371,952, 70,806, 117,530,275, and 14,524,242. The mean, median, minimum, maximum, and standard deviation for VOL are 0.03, 0.02, 0.00, 0.34, and 0.03.

Figure I presents the trend in various Working capital indicators in the textile sector of Pakistan over eleven years, i.e., from 2010 to 2020. The figure shows a stable pattern of DSO and DSI, however, the DPO and CCC showed significant fluctuations in the later years.

Figure I: Growth Trend of Working Capital Management Indicators at Textile Sector of Pakistan

According to our data, AGE has a positive correlation with ten variables and a negative correlation with six variables, out of which the most eye-catching is interest, which is negatively correlated with AGE, which interprets that as AGE increases, interest decreases, which is because in this paper we have calculated interest as a percentage of size (total book assets). CAPEX has a positive relationship with 11 variables and a negative relationship with five variables. The NWC and ROIC have a maximum relationship value of 0.22 and 0.25, respectively. CASHD has a positive relationship with 13 variables and a negative relationship with three variables. CCC has a positive relationship with ten variables and a negative relationship with the other six variables. The most negative value in the correlation is between CCC and DPO, which is justified as the CCC is calculated as DSO + DSI – DPO. So, as the DPO increases, the CCC decreases, and the same is true with the DSO, DSI, and NWC, which also have the highest positive relationship with CCC. CFOSALES has a positive relationship with eight variables and

a negative relationship with eight variables, DPO has a maximum number of relations with CFOSALES of 0.23, and NWC has a minimum number of relations with CFOSALES of -0.17, which could be the result of more credit sales.

Table 3: Correlation Matric:

	AGE	CAPEX	CASH	CCC	CFOSALES	DPO	DSI	DSO	GROWTH	INTEREST	LEV	MTB	NWC	ROIC	SALES	SIZE	VOL
AGE	1.00																
CAPEX	-0.03	1.00															
CASHD	0.09	0.12	1.00														
CCC	0.12	0.06	0.06	1.00													
CFOSALES	-0.06	0.02	0.06	-0.24	1.00												
DPO	-0.08	-0.07	-0.06	-0.73	0.23	1.00											
DSI	0.09	-0.01	0.02	0.69	-0.13	-0.06	1.00										
DSO	0.08	0.03	0.04	0.42	-0.03	0.12	0.47	1.00									
GROWTH	-0.03	0.09	0.12	0.03	-0.11	-0.08	-0.03	-0.05	1.00								
INTEREST	-0.21	0.09	-0.08	-0.01	0.04	-0.03	-0.02	-0.06	0.13	1.00							
LEV	0.00	-0.01	0.03	-0.02	0.03	0.02	-0.01	0.00	0.00	0.01	1.00						
MTB	0.05	0.00	0.08	-0.01	0.05	0.01	-0.01	0.01	0.01	-0.04	0.94	1.00					
NWC	0.12	0.22	0.18	0.59	-0.17	-0.40	0.42	0.31	0.09	0.14	-0.05	-0.03	1.00				
ROIC	0.03	0.25	0.30	0.09	0.19	-0.10	0.05	0.00	0.30	0.27	0.01	0.04	0.33	1.00			
SALES	0.49	0.10	0.06	0.17	-0.05	-0.10	0.17	0.02	0.05	0.04	0.00	0.03	0.23	0.18	1.00		
SIZE	0.47	0.04	0.02	0.12	-0.06	-0.01	0.19	0.06	-0.01	-0.03	0.01	0.03	0.10	0.07	0.92	1.00	
VOL	-0.23	-0.08	-0.10	-0.15	0.02	0.13	-0.09	-0.04	0.06	0.14	-0.01	-0.05	-0.27	-0.12	-0.14	-0.18	1.00

DPO has a positive relation with four variables and a negative relationship with 11 variables, out of which CCC and NWC are minimum values. DSI has a positive relation with eight variables and a

negative relationship with eight variables. DSO has a positive relationship with 12 variables and a negative relationship with four variables. GROWTH has a positive relation with ten variables and a negative relationship with six variables. The maximum correlation value is with ROIC as sales measure growth. INTEREST has a positive relationship with eight variables and a negative relationship with eight variables. The maximum value for correlation is with ROIC (0.27) and NWC (0.14), which interprets that interest expense as a percentage of SIZE increases the ROIC and NWC also increase. LEV has a positive relation with seven variables, a negative relation with six variables, and equilibrium with three variables, which are GROWTH, Sales, and DSO. The maximum correlation value is with MTB, which is also the highest among the correlations of all the variables. MTB has a positive relation with ten variables, a negative relationship with five variables, and equilibrium with one variable, which is CAPEX. NWC has a positive relationship with 11 variables and a negative relation with five variables. ROIC has a positive relation with 13 variables, a negative relationship with two variables, and equilibrium with 1 variable, DSO. SALES has a positive relation with 11 variables and a negative relationship with five variables. VOL has a positive relation with four variables and a negative relationship with 12 variables, as volatility is usually negatively related.

Multivariate Analysis

We have run data in different ways to analyze the effect of NWC and CCC on Firm Value, Profitability, and Risk. For Firm value, we have used Equation 1 with different models, the first model consists of all the elements as mentioned in Equation 1. We used CCC instead of NWC, the second model consists of all the variables as mentioned in Equation 1, and the third model consists of all the variables except CFO Sales. For Firm profitability, we have used Equation 2 with different models. All the models are the same except for the last variable, which is CCC, DSI, DSO, and DPO, used in each model instead of NWC. For Firm risk, we have used Equation 3, which is based on two models. The first is the same as it is mentioned in Equation 3, but for the second model, we have removed LEV.

TABLE 4 shows our results for firm valuation. The first model shows that CCC has no significance for firm value. In contrast, the second model finds NWC negatively insignificant to firm value, and we have excluded the CFOSALES from the equation to eliminate the effect of cash flow on firm value from the equation, which also finds the NWC negatively insignificant to firm value, but removing the CFOSALES has decreased the p-value to get NWC close to the significant level. However, the adjusted R square of all three models is very low, which shows that there is very little to no effect of Working capital management on a firm's valuation.

Table 4: Firms' Valuation (Equation 1) Results

MTB	Model 1	Model 2	Model 3
C	-1.4051 (0.4761)	-1.8792 (0.3449)	-1.7628 (0.3748)
CAPEX	-0.5162 (0.8684)	0.1906 (0.9520)	0.4057 (0.8978)
CASHD	17.0006 (0.0334)	18.7604 (0.0207)	19.7436 (0.0144)
CFOSALES	2.9637 (0.1839)	2.6520 (0.2288)	
INTEREST	-8.7089 (0.2401)	-7.5450 (0.3109)	-6.7659 (0.3616)
GROWTH	0.0011 (0.8027)	0.0012 (0.7778)	0.0007 (0.8693)
(LOG) SIZE	0.2960 (0.3337)	0.3966 (0.2044)	0.3926 (0.2088)
CCC	-0.0006 (0.6814)		

NWC		-1.5191 (0.1944)	-1.7414 (0.1276)
Adj. R Square	0.002728	0.004600	0.004073

Notes: The fixed effects derived from a panel ordinary least squares (OLS) regression analysis involving the market-to-book ratio of companies, net working capital, and additional independent variables are displayed in this table. The values enclosed in brackets represent the p-value.

For our findings for firm profitability, we have used CCC, DSI, DSO, and DPO instead of NWC, and according to our results, all these are insignificant to firm profitability. On the other hand, NWC is positively significant to firm profitability, with a coefficient of 0.0811.

<p align="center">Table 5: Firms' Profitability (Equation 2) Results</p>

ROIC	Model 1	Model 2	Model 3	Model 4	Model 5
C	-0.1341 (0.0000)	-0.1344 (0.0000)	-0.1362 (0.0000)	-0.1374 (0.0000)	-0.0963 (0.0004)
CAPEX	0.2221 (0.0000)	0.2230 (0.0000)	0.2217 (0.0000)	0.2225 (0.0000)	0.1868 (0.0000)
GROWTH	0.0004 (0.0000)	0.0004 (0.0000)	0.0004 (0.0000)	0.0004 (0.0000)	0.0004 (0.0000)
LEV	0.0000 (0.6764)	0.0000 (0.6761)	0.0000 (0.6772)	0.0000 (0.6824)	0.0000 (0.4903)
LOG(SALES)	0.0264 (0.0000)	0.0262 (0.0000)	0.0267 (0.0000)	0.0269 (0.0000)	0.1814 (0.0000)
VOLATILITY	-0.1424 (0.0546)	-0.1413 (0.0558)	-0.1425 (0.0538)	-0.1453 (0.0496)	-0.0637 (0.3872)
CCC	0.0000 (0.8658)				
DSI		0.0000 (0.5540)			
DSO			0.0000 (0.7343)		
DPO				0.0000 (0.7418)	
NWC					0.0811 (0.0000)
Adjusted R Square	0.19	0.19	0.19	0.19	0.22

Notes: The table presents the fixed-time impacts of an ordinary least squares (OLS) regression on enterprises' profitability. The p-value is shown by numbers in brackets.

For our findings for firm risk, we have 2 models, as mentioned below. The first model finds that the NWC is negatively significant to firm risk with a coefficient of -0.0377. The second model also finds the same, but a significant change can be seen in MTB, whose probability decreased by 0.1298, making

the MTB significant with a coefficient of -0.0017, in the second model. The adjusted R square demonstrates that the variables in the first model constitute approx. 13.58% in total variation of the firm's risk, while adding leverage has increased the explanation of variation to 14.25%.

Table 6: Firms' Risk (Equation 3) Results

VOL	Model 1	Model 2
C	0.1348 (0.0000)	0.1316 (0.0000)
GROWTH	0.0000 (0.0277)	0.0000 (0.0259)
LEV		0.0002 (0.0057)
LOG (AGE)	-0.0297 (0.0000)	-0.0283 (0.0000)
LOG (SIZE)	-0.0039 (0.0309)	-0.0039 (0.0314)
MTB	-0.0003 (0.1316)	-0.0017 (0.0018)
NWC	-0.0377 (0.0000)	-0.0372 (0.0000)
Adj. R Square	0.135782	0.142457

Notes: The table presents the findings of an Ordinary Least Squares (OLS) regression analysis, which examines the relationship between stock volatility and net working capital, as well as other variables. The p-value is shown by numbers in brackets

5. Discussion

Our results for model 1 align with some articles that were published, but our results are also different from many articles. The reason for this could be the weaker law enforcement in the country. According to (Baños-Caballero et al., 2019), NWC is of more excellent firm value in countries where law enforcement is more substantial, and according to their results, a dollar increase in NWC is equal to roughly a dollar in these countries and $0.41 in other countries that have weaker law enforcement. (Sugawara & Nikaido, 2014) Also found capital expenditure does not affect firm value. The researchers examined how the presence of major investors influences the value of a company by analyzing the impact of these investors on the company's investment policies. They conducted their study using a sample of publicly traded companies in the Chinese Stock Market, where it is common for significant shareholdings to exist6. (Xiong, 2016) analysis indicates that institutional investors improve the value of a company by raising the amount of cash dividends distributed. The user conducted a study on the correlation between institutional investors and the value of firms listed on the Chinese stock market. The study focused on the period from 2008 to 2014.(Varaiya et al., 1987) also found growth insignificant to firm value, but many researchers find growth significant to firm value. (Martani & Khairurizka, 2009) Research results are relative to our results as they found CFO insignificant to firm value. This study aimed to investigate the significance of accounting information in explaining the fluctuations in stock returns. The proxies of accounting information utilized were profitability, liquidity, leverage, market ratio, size, and cash flow. The difference between their results and our result is that they found CFO insignificant, and we found CFO/Sales insignificant to firm value. (S & Machali, 2017) Research findings also indicate that business size has no substantial impact on firm value. The objective of this study was to examine the direct and indirect impact of asset structure and company size on the value of the firm. The study's sample consisted of thirty-four property and real estate enterprises that were listed on the Indonesian Stock Exchange between 2010 and 2014.(Baños-Caballero et al., 2019)

find that in countries where law enforcement is weak, the effect of the increase in $1 of NWC is equal to $0.41 on firm value. There is more research should be done on the effect of NWC on firm value, which should include the effect of law enforcement as well.

We have found CAPEX in all the models of Equation 2, which resembles the results of (Turner & Hesford, 2019). (Vartak, 2018) with other researchers finds that CCC has a significant relationship with firm profitability. Whereas, our results highlight that CCC has an insignificant relationship with firm profitability, and our results also highlight that in-depth research is needed which is based on Pakistani firms only. Our data highlight that NWC is positively significant to firm profitability, which was previously found in (Gulia, 2014), but our finding also shows that the Debt-equity ratio does not have any effect on firms' profitability, which was previously found (AMANDA, 2019). Whereas other papers suggest that the Debt-equity ratio impacts firms' profitability.

Our results from both models of Equation 3 find that NWC has a positive and highly significant relationship with firms' risk, which (Le, 2019a) has also proved, but they found NWC has a negative relationship with firms' risk. Our results also highlight that LOGAGE has a significant and negative relationship with firms' risk, which is identical to the result of (Xie et al., 2019). Our findings resemble those (Ahmed & Hla, 2019), who found that capital structure has a significant negative relationship, and our result finds a significant positive relationship with firms' risk.

Based on the results, this study can provoke the thoughts of owners, investors, and policymakers of Pakistan's textile sector. Firstly, there seems lack of law enforcement in Pakistan, which reduces the impact of Net Working Capital (NWC), suggesting a dire need to improve the legal systems and enforcing mechanisms for a firm. Moreover, the study also finds that NWC has a significant and positive relationship with profitability for firms in Pakistan, which means that it is important to enhance the working capital strategies. In this way, they can increase profitability without putting more dependence on external liabilities. In addition, based on the above study, it is now clear that firms in Pakistan may be required to undertake a reappraisal of their capital structure policies and shift their attention from using debt as their main source of finance and working towards enhancing their working capital control. Also, this study finds that increasing institutional investors' engagement would add great value to firms through better governance and relevant investment policies. The liberation of institutional investors in Pakistan may help boost the performance of their investments and risk reporting.

Finally, the study acknowledges the importance of having more specific studies on the industries of Pakistan, especially on the organizations operating in Pakistan. That is why further studies in the Pakistani context can give more conclusions regarding the connection between WCM and profitability, as well as the effect that risk has on them taking into consideration local peculiarities of economics and legislation.

6. Conclusion

This study provides empirical evidence on the multifaceted impacts of working capital management in the Pakistani textile sector. Our findings reveal that net working capital positively influences firm profitability and negatively impacts firm risk while having no significant effect on firm value. Surprisingly, the cash conversion cycle shows no significant relationship with any of the outcome variables. These results have important implications for both theory and practice. Theoretically, they extend our understanding of how working capital management influences various aspects of firm performance in emerging markets. Practically, they offer valuable insights for textile sector managers on balancing working capital investments to optimize profitability while managing risk. However, this study has limitations. The focus on the textile sector in Pakistan may limit generalizability to other industries or countries. Future research could address this by examining these relationships across different sectors or in other emerging economies. Additionally, incorporating qualitative research methods could provide deeper insights into the decision-making processes behind working capital

management strategies. In conclusion, as the Pakistani textile sector continues to evolve, understanding the nuanced impacts of working capital management becomes increasingly important. This study provides a foundation for future research in this critical area of financial management in emerging markets.

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