

## Nexus between Working Capital Management and the Profitability: An Empirical Analysis

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### Abstract

The net profit of any organization for a certain time period can be explained as the final outcome of it investing, financing and operating activities. All of these activities are greatly influenced by management's decision and a number of other internal and external environmental factors. Working Capital Management is widely used to evaluate and measure the risks and returns of a company. The research is specifically concerned about studying the impact of working capital management on the profitability of textile sector listed companies in Karachi Stock Exchange. The study takes Return on Asset as dependent variable and as a measure of profitability. Average payment period, Average Collection Period, Average Inventory Days in Hand, Cash Ratio, Quick Ratio and Current Ratio are as considered as independent variables. The research is based on 5 year financial statement data ranging from 2017 to 2021. The results for the research were mixed i.e. both significant and insignificant correlation was found between independent and dependent variables.

**Keywords:** Working Capital Management, Profitability, Textile Sector, Return on Assets

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### 1. Introduction

Working Capital Management plays an important role in the daily operations of a business and is an essential component of corporate finance. The components of Working Capital Management such as accounts payable, accounts receivable, inventory management, cash conversion cycle are to be managed properly for the profitability and the stability of the company. The main objective of our empirical research is to find the relationship between working capital management and profitability of the textile sector listed companies in Pakistan Stock Exchange.

The financial unrest of 21<sup>th</sup> century has made the companies to focus on their working capital to fulfil their liquidity requirements. (Trinh 2012) suggested that liquidity allows a company to carry on its current operations without having the need to finance itself externally. Working capital is

deemed to be the operating capital of a company which constitutes current assets such as inventory, accounts receivable, prepayments, cash, short term investments etc. The difference of current assets and current liabilities is known as net working capital (Hillier et al. 2010)

### **1.1 Research Question:-**

- Does the working capital management influence the profitability of textile sector of Pakistan?
- What are the components of working capital that may affect profitability?
- Apart from working capital what are the factors that also have an impact on the profitability?
- To what extent profitability of a company is dependent upon the working capital management?
- What are the techniques with which textile sector can manage its working capital properly along with a sustainable profit margin?

### **1.2 Research Objectives:**

The objectives of research are:

- To find the link between working capital management and the profitability companies of textile sector of Pakistan.
- To find which components of working capital along with other factors affect this relationship?
- What is the nature of this relationship?

### **1.3 Research Hypotheses:-**

H1:- Average collection period has a significant impact on ROA

H2:- Average payment period has a significant impact on ROA

H3:- Average collection period has a significant impact on ROA

H4:- Current ratio has a significant impact on ROA

H5:- Quick ratio has a significant impact on ROA

H6:- Cash ratio has a significant impact on ROA

### **1.4 Research Design:**

Research design is Conclusive within which we will be using descriptive research design. The objective of descriptive research is to test hypothesis and to examine relationship among the variables. Sample size is large and research process is quantitative. Deductive approach will be used i.e. moving from general to specific. Deductive research begins by examining the past research work done on a particular area and then the proposition is subject to empirical analysis.

### **1.5 Research Implications:**

- ✓ The research is one the most recent researches as the time frame is 2017-2021.
- ✓ The research work can be beneficial for textile companies, future researchers and research students since they can gather secondary data from it. Its usefulness can also be extended to the government for making new policies.

## 1.6 Rationale:

With the help of this research, we seek to determine the effect of working capital management on the performance of textile companies listed on Pakistan Stock Exchange. Furthermore, this research attempts to gauge the impact working capital management has on the profitability of textile companies. This research will allow textile companies of Pakistan to determine their own working capital management depending on their financial needs. After critical analysis, this study will provide an insight as to how WCM should be managed for smooth running of a business.

## 2. Literature Review

The term working capital represents the cash required for conducting and maintaining day-to-day operations of a business such as payment to creditors/suppliers, purchasing raw materials, costs associated with work-in-process, salaries, demurrage or any other expenses (Trinh 2012). The amount that is left after subtracting current liabilities from current assets is known as net working capital (Hillier et al. 2010).

(Brealey et al. 2006) in their book "*Principles of Corporate Finance*" stated that net working capital represents the firm's effectiveness or ability to meet its short term financial commitments if current assets surpass current liabilities. The ideal ratio is 2:1 i.e. for every one liability there must be two short term assets to finance it. This ratio or a positive net working capital must be maintained in order to fulfil the current business requirements and imminent expenditures. Working capital is needed for sustained growth, profitable business operations, and payment of debts and in better investments decisions that can boost the sales of a company and can earn greater returns.

The process of managing the short term assets and short term liabilities is known as working capital management. The goal of working capital management is to provide requisite amount of current assets that will help the firm in continuing its current operations along with the ability to pay maturing short term liabilities. Another aim of working capital management is to maintain enough cash so that a firm is able to sponsor its forthcoming operational needs. By the help of WCM, managers aim to curtail the risk of liquidation while making the most from the return on assets (Eljelly et al. 2004)

(Nazir et al. 2009) highlighted the impact of aggressive and conservative working capital policy. Excess or surplus current assets can reduce the level of actual return from the expected return on investment since the cash might not be invested properly. On the other hand current liabilities exceeding current assets can lead to higher borrowing to pay off short term debts. (Brealey et al. 2006) explained that the management of working capital is dependent on four key areas i.e. inventories, accounts receivables and payables, and cash.

(Karamath 1989) suggested that receivables management focuses on three aspects namely credit standards, credit policies and the investment in accounts receivables. Credit management allows a business to make decisions about terms of sale, allocation of credit period (Chirume 2013). An aggressive receivable policy by a company will earn its revenues from sale but it might reduce the sales in the long run since the customers who are unable to pay immediately will shift to

substitutes or its competitor's products who offer reasonable time to pay. At the same time a lenient receivable policy will pose a threat of bad debts (Brealey et al. 2006). Therefore a firm must take into account these factors before setting up its receivables policy.

Accounts payable can be taken as a short term loan or a means of internal financing by which a company can avoid borrowing costs if it loans out from banks. This can be seen as a trade-off between internal funding and the impact it will have on the long term relationship with the suppliers if a firm continues to prolong its payments.

(Hillier et al. 2010) stated that the time span between obtaining raw materials, processing them into finished goods and selling the final products is inventory period. (Firth 1979) reported that the management of inventory is required since it constitutes a large fraction of the total assets of most of the firms. Inventory should be effectively and efficiently managed for smooth running of business operations such as production and selling. (Hampton et al. 1989) stated that the objective of inventory management is to reduce the cost of holding inventory and keeping it at a level that satisfies the need for production and sales.

Cash conversion cycle is the mixture of accounts receivable, payable and inventory period. (Padachi 2006) defined the cash conversion cycle as the time taken by the by the company to pay the cash as accounts payable for purchasing inventory, raw materials and to receive the cash from sale of inventory. The timing of these two activities is uncertain since the cash received from sale of products does not occur at the same time as cash paid for purchases.

Another advantage of a shorter cash conversion cycle is that it decreases the borrowing cost and the need to obtain debt for financing its operations. This in turn increases the value of the enterprise. Reverse happens in prolonged cash conversion cycle. Longer the CCC, lesser would be the return on investment since the cash will not be available for such purposes and the amount due from the debtors will remain tied up without getting any interest benefit (Mekonnen 2011).

(Chirume 2013) agrees with the research results of Abdul Raheman. Chirume stated that all components of cash conversion cycle revealed negative relationship on profitability. The evidence showed that if earlier payment is received from debtors it will boost return on assets. If strict collection policy is implemented there will be no need to write off large amounts in bad debts. Also return on assets and return on equity can be enhanced by selling off inventory quickly to reduce its warehouse and insurance costs. Lastly paying creditors on time will be compensated by discounts from the suppliers.

Extensive research has been done on overall industries which assist in proving the negative association between CCC and profitability. (Al-Debi'e 2011) carried in-depth analysis to examine the link between CCC and effectiveness of industrial firms listed on stock exchange of Amman, Jordan. It also established inverse correlation between creditor's period and profitability. Results revealed that firms which earn low or no profit take time to pay for raw material purchases made on credit. The results deduced for inventory period showed that for less profitable firms it takes longer time to sell its products. On contrary it is not always necessary that all components of CCC will demonstrate negative association with profitability as (M.Mathuva 2010) measured both the components of profitability and CCC in order to know the

relationship that existed in a sample of firms in Kenya listed on NSE (Nairobi stock exchange), although opposite relationship existed between days in collection period and company profitability. It can be interpreted that recovering money from customers in less time will provide cash to buy inventory which will increase sales and hence profit.

Similarly (Ngwenya 2012) tried to find relationship between components of CCC with profitability measured through gross operating profit. For this purpose a sample of firms were chosen from South Africa listed on JSE. Results discovered statistically fundamental inverse linkage between profitability and cash conversion cycle. Still a positive relationship was revealed between day's payable and profitability implying that the delay in payment to suppliers for the purchase of raw materials can be possible without spoiling the credit rating of the firms which increases profitability. Finally negative relation was found between day's receivable with profitability which indicated that earlier cash can be recovered with strict receivable policy.

Taking into consideration a different sector like non-financial firms, (Nobanee et al. 2009) discussed about the Japanese non-financial firms listed on stock exchange of Tokyo and their effect of CCC on profitability. The results indicated that Japanese firms have shorter cash conversion cycle than European and American firms only due to efficient management of working capital. Relationship between accounts payable in days with return on investment showed positive, insignificant and negative relationship at the start, middle and end of research period respectively. This explains that firm can take time to pay its creditors to be in a better cash flow position and it should not delay too much that may affect the reputation of firm in the long run. Rest of the components of CCC showed negative relation with ROI.

(Lazaridis et al. 2006) suggested that higher current and quick ratio are the indicators of good liquidity position and are desirable. But they also indicated that if current ratio is too high it can lead to high cash conversion cycle as it has a positive relation with it which means in future it can cause liquidity problems to the firm. (Haq et al. 2011) through different diagnostic techniques found that return on investment is positively related to current ratio. This positive relationship shows that working capital management has significant positive effect on the productivity and profitability of the cement industry in Pakistan and larger firms have a higher ROI.

(Raheman et al. 2007) found that current ratio is negatively related with return on capital employed but positively related with other profitability measures such as return on investment and return on total assets etc. (Wilson Uchenn et al. 2011) proved through their research that there is a positive relationship between current ratio and firm's profitability but the relation is weak, where a low current ratio may indicate that a company has to face some difficulty in paying off its obligations. (Uwuigbe et al. 2012) concluded that current ratio and sales growth both are positively correlated to profitability and they also found that if current ratio is greater than 1 than the companies are able to give off their bills and obligations without any difficulty. (Graham et al. 2013) concluded a positive high current ratio and they found the relationship between current ratio and profitability to be positive which shows that companies can increase their profitability by improving their margin of liquidity.

### 3. Methodology

#### 3.1 Sample and Data:-

For the purpose of research textile companies of Pakistan listed in Pakistan Stock Exchange. The time span of this research extends to the most recent 5 years from 2017 to 2021.

Overall the textile sector has been divided into 3 sectors namely spinning, composite and weaving sector. Out of 90 companies, 26 companies were of composite sector, 58 were of spinning sector and only 6 companies were of weaving sector.

#### 3.2 Research Variables:-

Dependent variable selected for research is;

- Return on Asset

Return on assets is used as measures of profitability. Return on asset can be defined as ratio of EBIT to total operating assets.

Independent variables used in this study are;

- Average collection period
- Average payment period
- Average inventory period
- Current ratio
- Quick ratio
- Cash ratio

#### 3.3 Research Model:-

In research Multiple Linear Regression Model will be used through which relationship among variables will be calculated. For this purpose the variables have been regressed through SPSS. The below mentioned regression equations will be tested to analyze the effect of working capital management on profitability.

Average collection period is used in this research as independent variable that shows the no. of days from selling products and then collecting the money from debtors. Average inventory period is also used as an independent variable that indicates the period of time from receiving raw material from the suppliers to the manufacturing and sale of goods. Average payment period explains the duration from receiving raw materials and goods from suppliers till the payment time. Current ratio indicates a company's capability to pay off its short term debt. Quick ratio allows a company to meet its current obligations with its most liquid assets. Cash ratio helps to measure a company's liquidity and also assists in finding how rapidly a company can pay back its short term debts.

Return on assets is calculated by dividing net profit by average total assets. It shows how much profit is gained by utilizing both the current and long term assets.

$$ROA = \beta_0 + \beta_1(ACP_{it}) + \beta_2(APP_{it}) + \beta_3(ITID_{it}) + \beta_4(CR_{it}) + \beta_5(QR_{it}) + \beta_6(CTR_{it}) + \epsilon$$

Where;

$\beta_0$ : The intercept of equation

$\beta_i$ : Coefficients of  $X_{it}$  variables

$X_{it}$ : The different independent variables for working capital management of firm  $i$  at time  $t$

$t$ : Time = 5 years

ROA: Return on Asset

ACP : Accounts receivable in days

APP : Accounts payable in days

ITID : Inventory turnover in days

CR : Current Ratio

QR : Quick ratio

CTR : Cash turnover ratio

$\varepsilon$  : The error term.

### 3.4 Analysis and Interpretation of Results

The data of textile sector entered into the SPSS was collected from secondary sources. A total of 90 companies were selected for the study. Overall the industry was divided into 3 sectors namely;

- Composite
- Spinning
- Weaving

Out of 90 companies, 26 companies were of composite sector, 58 were of spinning sector and only 6 companies were of weaving sector. The low amount of companies in the weaving sector acted as limitation for SPSS therefore, proper results for this sector were not generated.

### 3.5 ROA Composite Sector:-

#### Descriptive Statistics

	Mean	Std. Deviation	N
Return on assets	.046068	.0685682	26
Average collection period	4.4372541	56.4474614	26
Average payment period	6.9493011	139.6409296	26
Average inventory days	7.1938501	23.0219868	26
Current ratio	1.0440140	.4387140	26
Quick ratio	.507932	.2080202	26
Cash ratio	.065992	.0641044	26

The descriptive analysis shown in Table 1 illustrates that the mean value of dependent variable return on asset is 46.06% with a standard deviation of 0.0685. The mean value for average collection period for all the companies is around 5 days with a high standard deviation of 56.447, average payment period and average inventory days have a mean of 7 days with average payment period having a very high standard deviation of 139.64. The standard deviation of ROA for all the companies is low i.e. 0.068 which explains that the deviation from its mean value is quite low and the values are distributed around the centre. Hence we can conclude that on

average composite sector of textile industry is not facing high profitability as represented by return on assets.

### Correlation Matrix

	Variables	ROA	Average Collection Period	Average Payment Period	Average Inventory Days	Current Ratio	Quick Ratio	Cash Ratio
<b>Pearson Correlation</b>	Return on assets	1.000	-.550	-.591	.205	.659	.157	.206
	Average collection period	-.550	1.000	.894	.020	-.423	-.129	-.241
	Average payment period	-.591	.894	1.000	-.074	-.516	-.317	-.222
	Average inventory days	.205	.020	-.074	1.000	.100	-.282	-.304
	Current ratio	.659	-.423	-.516	.100	1.000	.687	.378
	Quick ratio	.157	-.129	-.317	-.282	.687	1.000	.548
	Cash ratio	.206	-.241	-.222	-.304	.378	.548	1.000

Correlation matrix is a type of quantitative analysis. It is basically used to find the relationship between different variables. Pearson Correlation specifically measures the extent to which different variables are related. The correlation matrix table shows that average collection period and average payment period have a moderately negative relationship with ROA, whereas average inventory days, quick ratio and cash ratio have a weak but positive relation with ROA. Current ratio has a positive and a strong relation with ROA.

Return on asset and current ratio have a moderately negative relation with average collection period, whereas quick and cash ratio have weak negative relation with ACP. Average payment period and average inventory in days are positively related to average collection period where average payment period shows a very strong relationship with it.

Quick and cash ratio have a weak negative relation with average payment period whereas return on asset and current ratio have a moderate weak relation with it. Average inventory days have a weak negative relationship with average payment period. Average collection period is the only variable that has a strong positive relation with average payment period.

Quick and cash ratio have a weak negative relation with average inventory days, whereas average payment period has a negative weak relationship with it. Current ratio, average collection period and return on asset have weak positive relation with average inventory in days. Average collection and payment period have a moderately weak relationship with Current ratio. Cash ratio and average inventory in days have a positive but weak relation with current ratio. Quick ratio and return on asset have a strong positive relationship with current ratio.

Average collection, average payment and average inventory all have a negative weak relationship with quick ratio. Return on asset has a positive weak relation with quick ratio.

Current ratio has a strong positive relation with quick ratio whereas cash ratio has a moderate positive relationship with it.

Average collection, average payment and average inventory all have a weak negative relationship with cash ratio. Return on asset and current ratio has a positive weak relationship with it.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. Change
1	.845 <sup>a</sup>	.714	.624	.0420509	.714	7.912	6	19	.000

- a. Predictors: (Constant), Cash\_ratio, Average\_payment\_period, Average\_inventory\_days, Quick\_ratio, Current\_ratio, Average\_collection\_period

In order to check relationship between studied variables, regression analysis is used. Return on assets is regressed through SPSS with independent variables under study to get the outcome of their relationship. R in model summary explains that whether the correlation is strong or weak, positive or negative. In the model summary if R is greater than 50% it means independent variables have a strong positive effect on ROA. If it is less than 50% it means relationship is weak. On the other hand if R is negative it means independent variables are negatively correlated and they move in opposite direction from ROA. In this case R is 62.0% which means independent variables have a very strong and positive effect on ROA. The R-square in model summary is known as the coefficient of multiple determinations. It denotes the percentage variation in dependent variable explained by independent variables which in this case is 38.5% i.e. ROA is facing a variance of 38.5% due to independent variables used in this research.

**ANOVA**

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	.084	6	.014	7.912	.000 <sup>a</sup>
1 Residual	.034	19	.002		
Total	.118	25			

Predictors: (Constant), Cash\_ratio, Average\_payment\_period, Average\_inventory\_days, Quick\_ratio, Current\_ratio, Average\_collection\_period, And Dependent Variable: Return\_on\_assets

The regression mean square is 18.312 and the residual mean square 3.443. The value of F which is 5.319 is obtained by dividing regression mean square with residual mean square and the level of significance is less than 0.05 which means null hypothesis will be rejected. The degree of freedom for regression is 6 and for residual is 51 and is calculated by the formula n-k-1.

## Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error				Beta	Lower Bound	Upper Bound	Zero-order	Partial	Parte	Toleranc
1 (Constant)	.039	.047		.830	.417	-.059	.137					
Average collection period	.001	.000	.454	1.270	.219	.000	.001	-.550	.280	.156	.118	8.484
Average payment period	.000	.000	-.713	-2.024	.057	.000	.000	-.591	-.421	-.248	.121	8.247
Average inventory days	.000	.000	-.135	-.843	.409	-.001	.001	.205	-.190	.103	.590	1.694
Current ratio	.157	.034	1.002	4.568	.000	.085	.228	.659	.723	.560	.312	3.201
Quick ratio	-.280	.085	-.848	-3.286	.004	-.458	-.101	.157	-.602	.403	.226	4.427
Cash ratio	.216	.169	.202	1.277	.217	-.138	.571	.206	.281	.157	.600	1.668

a. Dependent Variable: Return\_on\_assets

1. If the average collection period is increased by 1 day then ROA will increase by 11%. The significance of ACP for ROA is 48% and therefore null hypothesis will be accepted.
2. If average payment period is increased by 1 day then ROA will move in opposite direction and will decrease by 5%. The significance of APP is 42.5% and null hypothesis will be accepted.
3. If average inventory period is increased by 1 day then ROA will increase by 19%. The significance of AIP is less than 0.05 therefore null hypotheses for this will be rejected.

4. If current ratio is increased by 1 unit the ROA will decrease by 0.973. The significance level is 0.406 which is higher than 0.05 therefore null hypotheses will be accepted.
5. If quick ratio is increases by 1 unit then ROA will increase by 0.272. The significance level is 0.909 that is higher than 0.05 thus we will accept null hypothesis.
6. If cash ratio is increased by 1 unit then ROA will increase by 2.690. The significance is 0.363 which is higher than 0.05 therefore null hypotheses will be accepted.

### HYPOTHESIS ASSESSMENT RESULTS

#### Composite sector:-

Hypothesis	B	P-value	Empirical Conclusion
H1:- Average collection period has a significant impact on ROA	0.001	0.219	Reject
H2:- Average payment period has a significant impact on ROA	0.000	0.057	Reject
H3:- Average inventory days has a significant impact on ROA	0.000	0.409	Reject
H4:- Current ratio has a significant impact on ROA	0.157	0.000	Accept
H5:- Quick ratio has a significant impact on ROA	- 0.280	0.004	Accept
H6:- Cash ratio has a significant impact on ROA	0.216	0.217	Reject

#### 4. Conclusion

Working capital is deemed to be the operating capital of a company with which constitutes current assets such as inventory, accounts receivable, prepayments, cash, short term investments etc. The purpose of working capital management is to provide requisite amount of current assets that will help the firm in continuing its current operations along with the ability to pay maturing short term liabilities. Another aim of working capital management is to make sure that a company is capable of financing its forthcoming operational needs. By the help of WCM,

managers aim to curtail the risk of liquidation while making the most from the return on assets (Eljelly et al. 2004).

The purpose of this empirical research is to find the impact of working capital management on the profitability of textile companies of Pakistan. The data set consists of 90 companies of textile industry listed in Stock Exchange. The data is for the time period of 5 years from 2017 to 2021. The collection of data has been done through secondary sources.

The result for the composite sector illustrated that average collection period for ROA is insignificant and thus null hypotheses was accepted, similar is the case with APP, AIP and CTR. The Current Ratio showed a significant impact on ROA and thus null hypotheses was rejected on both the cases. Quick Ratio showed mixed type of results, where null hypotheses was rejected for ROA.

For the Spinning sector ACP, APP, QR and CTR showed insignificant impact on both ROA and thus null hypotheses was accepted for it.

AIP and CR showed mixed type of results, in AIP has a significant impact on ROA. Current Ratio on the other hand showed an insignificant impact on ROA.

#### 4.1 Research Limitations

- i. The effects of factors like GDP, exchange rates, inflation, interest rates have not been incorporated in arriving at the conclusion.
- ii. The study cannot be generalized to other fields since this research is purely for textile sector of Pakistan.
- iii. A limited number of variables have been considered in this research.
- iv. Due to very few companies in weaving sector SPSS software showed no values for R-square and significance whereas in Spinning sector the amount of companies was too high therefore the value of R found was very low.

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