

Working Capital Management (WCM) and Performance of Pharmaceutical Companies

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Abstract

The study investigates how working capital management (WCM) influences the profitability of pharmaceutical companies in Pakistan. The study period is five years, from 2010 to 2014. The secondary information used in this paper was collected from the financial statements of the eight (08) pharmaceutical companies listed on the Stock Exchange of Pakistan. This study applies WCM as an independent variable, which includes the CATAR for current assets to total assets, CLTAR for current liabilities to total assets, QR for quick ratio, LOS for log of sales, and DER for debt-to-equity. The return on assets (ROA), a dependent variable, simultaneously assesses the company's profitability. The correlation analysis indicates that the ROA has a positive linkage with QR, LOS, and CATAR, while the ROA has a negative relationship with CLTAR and DER. Also, regression results indicate that QR and LOS have a positive relationship with profitability. However, QR and LOS are found to impact ROA significantly.

On the other hand, the variables CATAR, CLTAR, and DER have a negative association with profitability. Here, DER significantly impacts ROA, while CATAR and CLTAR have an insignificant impact on ROA. Panel data methodology is also used to research the effects of WCM on the performance of Pakistani pharmaceutical firms. This research suggests that the pharmaceutical sector can efficiently manage its working capital, which will result in an improvement in its overall performance. This investigation pertains to a single sector; however, prospective investigations should cover additional industries in Pakistan.

Keywords: Pakistani Pharmaceutical Companies, Return on Assets, and Working Capital Management

DOI: 10.7176/EJBM/16-8-05

Publication date: October 30th 2024

1. Introduction

WCM is a crucial phenomenon in the field of corporate finance. Working capital is the difference between short-term assets (CA) and short-term liabilities (CL). Proper WCM is essential to maintain a consistent stream of profits and ensure the company's liquidity. Efficacious WCM substantially affects the profitability and liquidity of the company (Taleb et al., 2010). Profitability refers to an organization's ability to generate revenues that exceed its expenses by utilizing its resources. Otherwise stated, this refers to an organization's ability to gain profits from its operations. The differentiation between cost and price is called Profit (Scott, 2003). In Pakistan, pharmaceutical companies are rising rapidly, making an excellent contribution to the national economy. There were no pharmaceutical companies during Pakistan's independence in 1947. Now, a large number of pharmaceutical companies operate in Pakistan. Working capital management primarily focuses on four primary components: accounts receivable, cash, marketable securities, and inventories. (Brigham, E., & Ehrhardt, 2004).

According to (Rehman & Anjum, 2013), WCM is often used to manage the company's competence within its operations. (Dong & Su, 2010), studied the straightforward inverse relationship between performance and the cash conversion cycle (CCC). The impact of WCM on profitability is significant due to the necessity for companies to achieve an optimal level of working capital by maintaining a balance between risk and

performance. Optimizing working capital balances involves maximizing potential revenues and minimizing the necessity for working capital (Ganesan, 2007).

Generally, the majority of studies in corporate finance have concentrated on fixed asset financing, which deals with long-term financial decisions while discussing the profitability of the companies. Such analyses revolve around the study of capital structure, investment, and company evaluation, amongst others. Current assets, however, are just as crucial as equally fixed assets, and effective management of these can improve a firm's performance. WCM is considered a vital instrument in corporate financial decision-making because it is linked to the firm's performance. WCM is essential for maintaining the balance between a company's profitability and liquidity (Eljelly, 2004). Efficient management of working capital may be advantageous for companies in the construction and manufacturing sectors, as the majority of their assets are current assets (Van Horne, J. C., & Wachowicz, 2000).

The comprehension indicates that working capital management (WCM) significantly influences the performance of pharmaceutical firms, which is beneficial for academics and practitioners in Pakistan and other foreign countries. The objective of this investigation is to ascertain the influence of WCM on the profitability of Pakistani pharmaceutical companies from 2009 to 2014. Here, my focus on the following areas are:

- Examining the impact of WCM on performance of pharmaceutical firms
- Finding the relationship between profitability and liquidity
- To determine the influence of debt on performance

2. Review of literature

WCM is a crucial element of Corporate Finance. Researchers have worked on WCM in different facets in their several research papers.

(Gul et al., 2013), studied the association between the performance of SMEs in Pakistan and WCM. They collected data from 55 firms between 2006 and 2012, with the dependent variable being the return on assets (ROA) and independent variables were used as average collection period ACP, INV number of day's inventory receivable, cash conversion cycle CCC and average payment period APP. Other variables, including the company's size, sales growth, and leverage, were used in addition to these variables. They found that the APP positively correlates with performance, while ACP, CCC, and INV have a negative connection with profitability. On the other hand, sales growth and size positively influence performance. In contrast, the leverage ratio has an inverse influence on performance.

(Qazi et al., 2011), conducted a review of the impact of WCM on the profitability of the firm. They took the data of 20 automobile and oil and gas companies from 2004 to 2009. This study's result indicated that WCM positively influences the company's profitability.

(Iqbal, 2015), assessed the relationship of WCM for the manufacturing sector's performance using auxiliary data obtained from the KSE-listed companies from 2005 to 2014. They concluded that the working capital is essential to a company's performance, while similarly, the firm size has a crucial relationship with company profitability. Contrary to this, there is a strong inverse relationship between corporate debt and performance.

(Iqbal, A., & Zhuquan, 2014), They investigated the nexus between performance and management of working capital. They exploited 253 non-financial companies from 2008 to 2013. In this investigation, they implemented NOP to quantify WCM. Their analysis revealed that both the optimistic and pessimistic approaches to managing working capital had a significant impact on the company's profitability.

(Ahmed et al., 2016), analyzed the pharmaceutical sector of Pakistan to confirm a link between WCM and performance. Their results indicate that all the variables of working capital used in this research are strongly and negatively related to the profitability of the pharmaceutical companies.

According to (Panigrahi, 2012), a moderate link exists between the ACC cement sector's profitability and working capital management.

(Ul Haq et al., 2011), They researched the relationship between WCM and profitability. They took data from 14 cement companies from 1996 to 2011. This study showed a moderate connection between the performance of a firm and its management of working capital.

(Raheman & Nasr, 2007), They have worked on the influence of WCM on the company's profitability by choosing 94 listed KSE firms. They proved that there is a negative relationship between working capital and the profitability of the firm.

(Karaduman et al., 2011), suggested that a decrease in the cash conversion cycle positively influences the return on assets (ROA). Additionally, a shorter cash conversion cycle (CCC) is a sign of WCM.

(Mohamad & Saad, 2010), The authors used data from 172 Malaysian firms listed on the Bursa Stock Exchange between 2003 and 2007 in their study. According to the findings of their research, there is a statistically significant negative relationship between corporate profitability and working capital factors.

3. Data and Measurements of Variables

The study evaluates the influence of working capital management on the profitability of pharmaceutical companies in Pakistan. We obtained the secondary data for this paper from the annual reports of eight pharmaceutical companies listed on the Pakistan Stock Exchange (PSE), analyzing information from the 2010-2014 five-year period using the statistics software E Views.

3.1 Variables

My research paper aimed to study the influence of WCM on the profitability of Pakistani pharmaceutical companies. This study uses WCM as an independent variable, which encompasses the following ratios: debt-to-equity (DER), log of sales (LOS), current liabilities-to-total assets (CLTAR), quick ratio (QR), and current assets-to-total assets (CATAR). Concurrently, the return on assets (ROA) is a dependent variable that evaluates the profitability of a company. These explanatory variables are calculated as follows;

3.1.1 Return on Assets

This is a sign of the company's profitability, measured by dividing its net income by its total assets and also shown as a percentage.

$$\text{Formula: ROA} = \frac{\text{Net Income}}{\text{Total Assets}}, \text{ (Gul et al., 2013)}$$

3.1.2 Ratio of Current Assets to Total Assets

This is a measure of the liquidity of a company's current assets relative to its total assets.

$$\text{Formula: CATAR} = \frac{\text{Current Assets}}{\text{Total Assets}}, \text{ (Panigrahi, 2012)}$$

3.1.3 Ratio of Current Liabilities to Total Assets

It provides an explanation of the firm's current liabilities relative to its total assets.

$$\text{Formula: CLTAR} = \frac{\text{short-term liabilities (CL)}}{\text{Total Assets}}, \text{ (Mohamad \& Saad, 2010)}$$

3.1.4 Quick Ratio

It assesses how fast a firm can pay off its current liabilities if its 'quick' assets need to convert into cash.

$$\text{Formula: QR} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}, \text{ (Ahmed et al., 2016)}$$

3.1.5 Log of Sales

This model used the log of sales (LOS), an independent variable, to determine the company's size.

Formula: $LOS = LN(\text{Sales})$, (A. Iqbal & Zhuquan, 2014)

3.1.6 Debt-Equity Ratio

The ratio of a company's total liabilities to its total equity is a measure of its financial leverage.

Formula: $DER = \frac{\text{Total Liabilities}}{\text{Total Equity}}$, (Qazi et. al., 2011)

4. Analysis and Results

4.1 Descriptive Statistical Analysis

Table 1 displays the data, including the average, standard deviation, lowest, and highest values. From 2009 to 2014, this research period spans five years. I have determined that the average value of ROA is 14.69275, and its standard deviation value is 10.86171. The minimum and maximum ROA values are -19.75000 and 36.02000, respectively. The standard deviation of CATAR is 0.139104, while its average value is 0.631232. The minimum and maximum values of CATAR are 0.343898 and 0.910190, respectively.

In contrast, the CLTAR exhibits an average value of -0.003559, a standard deviation of 0.068706, and a minimum and maximum of -0.194658 and 0.164733, respectively. In the same vein, the Quick ratio has an average value of 0.711500, and its standard deviation value is 0.615607, with a minimum of 0.090000 and a maximum of 2.570000. However, the LOS's average value is 15.44400, and its standard deviation value is 0.933275. The minimum and maximum values of the LOS are 13.89031 and 17.14352, respectively. The DER results show an average value of 0.880000, with the lowest and highest values being 0.160000 and 4.460000, respectively, and a standard deviation value of 0.782219.

Table 1 Descriptive Statistics Analysis

Variables	Observations	Average	Std.Dev.	Min	Max
ROA	40	14.69275	10.86171	-19.75000	36.02000
CATAR	40	0.631232	0.139104	0.343898	0.910190
CLTAR	40	-0.003559	0.068706	-0.194658	0.164733
QR	40	0.711500	0.615607	0.090000	2.570000
LOS	40	15.44400	0.933275	13.89031	17.14352
DER	40	0.880000	0.782219	0.160000	4.460000

Key of Variables: ROA stands for Return on Assets, CATAR implies Current Assets-to-Total Assets Ratio, CLTAR signifies Current Liabilities-to-Total Assets Ratio, QR stands for Quick Ratio, LOS is Natural Logarithm of Sales, and DER is Debt to Equity Ratio.

4.2 Correlation Analysis

The Coefficient of correlation clarifies the degree of connection between the two variables. This means that one variable changes due to another variable (Kohler, 1994).

Table 2 offers the correlation results. The magnitude of the dependent variable ROA is 0.639778 and 0.497175, with P-values of 0.0000 and 0.0011, respectively, and a positive and significant relationship with QR and LOS.

Furthermore, there is a significant and negative correlation between ROA and CLTAR and DER, with coefficients of -0.291304 and -0.649682, respectively, and p-values of 0.0582 and 0.0000. The relationship between ROA and CATAR is positive but insignificant, with a value of 0.030048 and a P-value of 0.8540.

Table: 2 Correlation Analysis

Variables	ROA	CATAR	CLTAR	QR	LOS	DER
ROA	1.000000	-	-	-	-	-
CATAR	0.030048 (0.8540)	1.000000				
CLTAR	-0.291304 (0.0482)	0.165324 (0.3080)	1.000000			
QR	0.639778 (0.0000)	-0.013075 (0.9362)	-0.085835 (0.5985)	1.000000		
LOS	0.497175 (0.0011)	0.134611 (0.4076)	-0.030589 (0.8514)	0.309021 (0.0524)	1.000000	
DER	-0.649682 (0.0000)	-0.107495 (0.5091)	0.327534 (0.0391)	-0.517060 (0.0006)	-0.267970 (0.0946)	1.000000

***Correlation is significant at the one per cent (0.01) significance level. **at the five per cent (0.05) level. *at the ten per cent (0.10) level. The correlation between ROA and QR is (0.639778), ROA and LOS (0.497175), ROA and CLTAR are (-0.291304), and (-0.649682) between ROA and DER.

4.3 Regression Analysis

4.3.1 Regression Equation:

$$ROA_{it} = \alpha_0 + \alpha_1(CATAR_{it}) + \alpha_2(CLAR_{it}) + \alpha_3(QR_{it}) + \alpha_4(LOS_{it}) + \alpha_5(DER_{it}) + \varepsilon_{it}$$

Where: ROA represents return on assets, i denotes the number of pharmaceutical firms 1, 2, 3...N, and t shows the period of study 1, 2, 3,...T, CATAR for current assets to total assets, CLTAR for current liabilities to total assets, QR for quick ratio, LOS for log of sales, and DER for debt-to-equity, α_0 is the intercept of this equation, $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$, are slope coefficients, regression coefficients of the model, and ε_{it} , This is the disturbance term in this model.

Table 3 displays the regression model results. At a 5 % significance level, QR in this regression model appears to be significant. Although DER and LOS are also substantial in this research model, their significance level is 5%. In contrast, CATAR and CLTAR are insignificant. The regression coefficient of CATAR is -1.475593 and insignificantly related to the dependent variable. Based on the slope coefficient value, a 1 unit rise in the CATAR (current assets to total assets ratio) is the reason for the average decrease in return on assets of 1.475593 units. The result appears consistent with the findings (AK Panigrahi, 2012). Likewise, the Coefficient of CLTAR is -21.52422. This negative sign coefficient means that CLTAR has an inverse association with ROA. It could be viewed as a CLTAR increase of 1 unit, leading to a 21.52422 unit decrease in the dependent variable. This

finding is similar to the study results of (Afza & Nazir, 2008), (Mohamad & Saad, 2010) and (Tufail & Khan, 2013). As shown in Table 3, the quick ratio significantly influences ROA. The regression coefficient of QR on ROA is 0.0067 at 0.05 levels, according to the results of Table 3. A similar result was also found by (Christopher & Kamalavalli, 2009) and (Ahmed et al., 2016). The slope coefficient of the log of sales, which is 3.403256, indicates a positive association between firm size and the return on assets. This outcome coincides with the findings of prior researchers (Raheman et al., 2010), (Raheman & Nasr, 2007), (Tufail & Khan, 2013) and (Gul et al., 2013). Again, here, the association is significant because of its 0.0122 p-values. A coefficient of -4.754293 indicates that the debt-to-equity ratio (DER) has a significant and negative association with ROA. This finding is in support of (Deloof, 2003), (Raheman et al., 2010), and (Tufail & Khan, 2013), who foretold a negative link between leverage and profitability.

The R-square value of .63 signifies that the independent variables explain 63% of the variance in ROA, and the F-statistic is highly significant, indicating the relevance of the independent variable in this model.

Table 3 Regression Analysis

Variables	Coefficient	Std. Error	t-Statistic	P>t
Constant	-37.35344	20.11462	-1.857030	0.0720
CATAR	-1.475593	8.412396	-0.175407	0.8618
CLTAR	-21.52422	17.82226	-1.207716	0.2355
QR	6.359689	2.203133	2.886656	0.0067*
LOS	3.403256	1.285926	2.646541	0.0122**
DER	-4.754293	1.824926	-2.605197	0.0135**

Note: In the above table 3, the t-values are shown *. Significant at the one per cent (0.01) level of significance. **. At the five per cent (0.05) level. ***. At the ten per cent (0.10) level.

5. Conclusion and Recommendation

The paper investigates the influence of working capital management (WCM) on the profitability of Pakistani pharmaceutical companies. The study period is five years, from 2010 to 2014. The secondary information used in this paper was collected from the financial statements of the eight (08) pharmaceutical firms listed on the Stock Exchange of Pakistan (PSE). This study applies WCM as an independent variable, which includes the CATAR for current assets to total assets, CLTAR for current liabilities to total assets, QR for quick ratio, LOS for log of sales, and DER for debt-to-equity. The return on assets (ROA), a dependent variable, simultaneously assesses the company's profitability. Panel data methodology is also used to research the impact of WCM on Pakistani pharmaceutical firms' performance. The result suggests that QR and LOS have quite a positive affiliation with profitability. However, QR and LOS are found to impact ROA significantly.

On the other hand, the variables CATAR, CLTAR, and DER have a negative association with profitability. Here, DER is found to have a significant impact on ROA, while CATAR and CLTAR have an insignificant effect on ROA. This study suggests that the pharmaceutical sector should manage working capital efficiently because their performance will increase. This study is conducted in one sector, but future studies should be done in other industries in Pakistan.

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