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EFFECT OF WORKING CAPITAL MANAGEMENT ON FIRM PERFORMANCE

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Abstract

This study examines the relationship between working capital management (WCM) and financial performance of seven companies listed on the Pakistan Stock Exchange (PSX) within the automobile parts and accessories sector, spanning the years 2015 to 2024. Despite the critical role of WCM, its influence on specific profitability metrics like Gross Operating Profit (GOP), Net Profit Margin (NPM), and Net Profit Ratio (NPR) remain underexplored, particularly in developing economies. This research addresses the existing gap by employing panel data regression analysis, utilizing both Fixed Effects and Random Effects models. The independent variables include key components of working capital management—Cash Conversion Cycle (CCC), Inventory Conversion Period (ICP), Accounts Payable Period (APP), and Receivables Collection Period (RCP)—as well as financial ratios such as the Debt-to-Equity Ratio (DER) and Current Ratio (CR). The dependent variable, financial performance, is measured using Gross Operating Profit (GOP), Net Profit Margin (NPM), and Net Profit Ratio (NPR).

Keywords- Working Capital Management, Pannel data Analysis, Gross Operating Profit, Net Profit Margin, Net Profit Ratio

Introduction:

Corporate finance plays a crucial role in business, as the decisions made by financial managers significantly influence a company's total profitability and the advantages received by different stakeholders, highlighting the importance of knowledgeable and strategic financial choices (Lefebvre, 2022). Corporate financial decisions naturally divide into two distinct time horizons. Long-term planning concentrates on major capital expenditures and establishing optimal funding structures, while short-term financial management prioritizes maintaining adequate liquidity and optimizing working capital resources (Baker et al., 2017). A firm's operational viability heavily depends on its proficiency in handling immediate financial obligations and resources collectively termed as Working Capital Management (WCM). WCM key components involve inventory management, accounts receivable, accounts payable, and cash balance, all play a significant role in determining a company's financial performance. When companies effectively manage their working capital components, they achieve multiple financial benefits including improved cash flow positions, lower operational expenses, and increased profit margins (Soda et al., 2022). This involves the management of both current assets and current liabilities that are viewed as the fundamental elements of working capital (Mahato et al., 2016; Naskar et al., 2016; Singh et al., 2017; Boruah & Yadav et al., 2020).

Working Capital Management (WCM) helps a business to add value and increase competitiveness. (Alkadmani & Nobanee, 2020). Based on the research, firms that have a proficient working capital mechanism receive better outcomes, enhanced financial fitness, and a higher overall value of their businesses (Aldubhani et al., 2022). The effective alignment of these financial elements prevents operational disruptions that could jeopardize the profitability of the business (Mardones, 2022). Contemporary financial theory recognizes working capital administration as equally consequential to capital budgeting decisions in organizational financial strategy (Kayani et al., 2020).

Research Objective:

Although numerous studies have examined the impact of Working Capital Management (WCM) on firm performance in sectors such as manufacturing and automobiles, the majority have relied on traditional financial indicators,

including Return on Assets (ROA) and Return on Equity (ROE), as measures of profitability. However, limited research has investigated the influence of WCM on firm performance using alternative profitability measures such as Gross Operating Profit (GOP), Net Profit Margin (NPM), and Net Profit Ratio (NPR). To address this gap, the present study employs the key components of WCM, namely the cash conversion cycle, inventory conversion period, receivable collection period, and accounts payable period, along with the debt-to-equity ratio and current ratio as independent variables, while adopting GOP, NPM, and NPR as the dependent variables.

Research Question:

1. How do the cash conversion cycle, inventory turnover, receivables collection, and payable deferral periods impact profitability in the automobile parts and accessories industry?
2. To what extent do the current ratio and debt-to-equity ratio mediate the impact of working capital efficiency on firm profitability?

Literature Review and Theoretical Framework

Theoretical Framework

Cash Conversion Cycle theory:

Cash Conversion Cycle (CCC) is a crucial indicator of a company's liquidity and operational effectiveness. CCC theory highlights the ability to manage cash flows, inventory, and payment cycles. Specifically, theory refers to how long a company's money is tied up in its daily operations from the time it pays for materials to the time it receives payment from customers Kroes et al. (2014). Studies also indicate that CCC tracks how many days it takes for a business to turn its cash outflows (like paying for supplies) into cash inflows (like receiving money from sales) (Lin et al, 2021; Wang, 2019). CCC consists of three important parameters: Days Sales Outstanding (DSO) is based upon the amount of time that it takes to recover the funds that were sold to the customer, Days Inventory Outstanding (DIO) is what measures the time it takes to sell the inventory and Days Payable Outstanding (DPO) is what results in measuring the time it takes to pay the suppliers. Cash Conversion Cycle formula is as follows: Cash Conversion Cycle = Receivables collection period Holding inventory period- Extension of payment of suppliers (Kroes & Manikas, 2014; Lin et al, 2021).

The Cash Conversion Cycle (CCC) is an important key to success that must be considered in monetary welfare of the business. This is credited to the reasoning that the working capital can assist in lowering the CCCs and by extension, its levels of liquidity and profitability (Cho et, 2019; Farris et, 2002; Tsai, 2008; Laik & Mirchandani, 2021; Vazquez et al., 2016). Decisions that incorporate provisions regarding working capital taking into consideration the CCC will play a critical role in the profitability of a company (Linh & Mohanlingam, 2018). The importance of CCC to any organization was explained by Hassan (2017) when he stated that it is an effective indicator of measuring the success of any firm in controlling its working capital. Most of the studies identified the positive relationship between a short CCC and profitability and firm value (Mun and Jang, 2015; Nobanee et al., 2011; Wang, 2019; Yazdanfar and Ohman, 2014; Zeidan and Shapir, 2017).

Trade off theory:

According to Miller and Orr (1966), the trade-off theory is the balancing of the need and the cost of carrying cash by firms to reach an optimal level. It is a combination of weighing the returns on liquid assets against the cost of transferring the funds, with the objective being to maintain optimal cash levels, which is one which supports financial stability and low risk. According to Bahreini and Adaoglu (2018), in developing capital structure, firms should strive to attain an optimal debt-to-equity ratio through the trade-off theory. According

to Esghaier (2024), companies make a gradual transition to an optimum level of debt. Interestingly, adjustment speed can be high (i.e., overleveraged firms can rapidly cut debts) or low (i.e., low-geared firms adjust at a slower pace). Such asymmetric adjustment implies that firms focus more on managing risk, especially in the case of high debt levels. The Trade-Off Theory is enriched with the considerations of global financial integration. Bekaert et al. (2007) state that global moves within the financial markets yield a highly effective influence on the financing decisions of firms in a young economy.

Burksaitiene and Draugele (2018) explain that higher equity prices relative to the capital structure of a company are associated with decreasing liquidity risk, whereas a higher debt percentage is associated with enhanced risk. This gives validity to the theory of trade-off, which asserts that companies weigh both the profit and liquidity aspects in determining capital structure decisions. The general consistency of such studies discloses that profitability and liquidity are inversely connected since excessive investment in present assets poses a risk to effectiveness (Kumar et al., 2018). The trade-off theory consensuses credence to this fact as it states that there is a trade among the liquidity aspect and the effectiveness perspective of the firm. As it is experiential in the articles by Bolek et al. (2021), Eljelly (2004), and Panigrahi (2023), the subject of liquidity and its joining to the aspect of profitability is rather multipurpose.

Literature Review:

Working capital management (WCM) requires balancing short-term assets and liabilities to achieve optimal liquidity, profitability, and risk management, as noted by Jabbouri et al. (2024). Working capital management (WCM) is critical in financial management as it is related to areas of capital structure, cost of capital, dividend payments and capital investment in the form of capital budgeting. It entails managing current liabilities and assets, which has a direct impact on a firm's profitability, decision-making, and overall financial performance (Umar and Al-Faryan, 2024). According to Akbar et al. (2021), after the events of the global financial crisis, the short-term financial objectives of institutions turned into a priority in inventory management policies at the cost of long-term goals. WCM is especially important to manufacturing and retail companies, which in most cases have large inventories. These enterprises are required to strike an equilibrium between the need for liquidity and the possibility of returns on the investment because excess cash can result in poor returns. On the other hand, the liquidity risk is likely to be higher in instances of inadequate current assets. Research indicates that the relationship between risk and returns in working capital management decisions is quite complex, which explains why balancing the potential returns with risks is not easy (Kabuye et al., 2019; Peng and Zhou, 2019). The management of working capital is a key concern for CEOs, as inadequate techniques can hinder a company's success. The study by Lefebvre (2022) and others confirm the relationship between effective WCM practices and the improvement of profitability. The adoption of the GMM approach would correspond to a negatively curving relationship between WCM practices and firm performance, which demonstrates the importance of optimal WCM practices (Arcuri & Pisani, 2021). An important element of WCM is the accounts payable turnover, which measures how quickly a firm pays its supplier bills. An efficient WCM is not only a priority when it comes to fulfilling the short-term demands but also protecting long-term assets, making it a top managerial agenda (Akbar et al., 2021). Based on current assets and current liabilities, the current ratio will show the liquidity position of a company. According to the study by Ilham (2020) a high current ratio is linked to profitability and improved financial performance, which further prospects greater investor returns and better stock performance. Businesses can therefore fortify their financial stability and performance by concentrating on WCM and a high current ratio.

Altawalbeh (2020) says that the art of working capital management is to balance liquidity and profitability. Whenever companies make an active strategy, the maximization of profits is given priority, which involves minimum current assets, but this maximization places liquidity risk. As a result, a good working capital strategy guarantees financial security and the maximization of the use of current assets, especially in inventory management, accounts receivable, and accounts payable. Proper working capital management is also crucial in improving the financial performance of companies, as organizations are given the opportunity of fine-tuning their working capital elements. By accomplishing it this way, the firm will be able to ensure its sustainable survival in the long term and its competitiveness (Shenoy, 2021). The conducted studies indicate the significant impact of macroeconomic risk factors on the performance of WCM (Reyad et al., 2022). Some of the firms will either turn conservative or aggressive in the management of their working capital due to such uncertain economic situations. The right balance struck between liquidity and profitability is key to the Company's maximization of value.

WCM is essential to businesses because it dictates the extent to which it can achieve the finest financial results. The researchers have also seen that the final aim of WCM is to place firms in a position where they would be able to cover short-term liabilities along with the correct balance between profitability and liquidity. This is achieved by planning, organizing, and controlling the present assets and liabilities so that the firms can remain afloat (Harris, 2005; Le, 2019). Sharma and Kumar (2011) demonstrate that working capital management is determinant in profitability in the case of the Indian firms. In the research, inventory and payable management have been flagged as ones that can influence profitability, whereas accounts receivable and cash conversion cycle can influence financial performance. Working capital is also one of the most important aspects of Indian firms to enhance their profitability and competitiveness. Besides, the maintenance of efficient working capital, mainly through the level of inventory, accounts payable or accounts receivable, can significantly influence the profitability of a company (Aktas et al., 2015).

Cash Conversion Cycle and its impact on firm performance:

The Cash Conversion Cycle (CCC) is a key performance indicator of working capital management efficiency (Prasad et al., 2018). This metric, developed by Richards and Laughlin in 1980, calculates the time gap between the purchase of raw materials and the payment when the finished goods are sold. A longer cycle requires more working capital investment, underscoring the importance of effective working capital management. Research indicates that a shorter Cash Conversion Cycle (CCC) is often linked to higher profitability, contrary to the potential benefits of longer payment terms (Prasad et al., 2018). Companies with tight control over their working capital have lower CCCs, via securing favorable payment terms with their suppliers or collecting their customer payments more quickly. Fewer CCCs may lead to superior working capital management of the business that could result in high cash flow and financial success (Wang, 2019). Based on the analysis of the study conducted against Indian manufacturing companies (Goel and Sharma, 2015), the company-specific factors and leverage, profitability, size, and age attributed a significant contribution towards the working cash management efficiency based on the Cash Conversion Cycle (CCC).

Inventory Conversion Period as component of WCM and impact on firm performance:

Inventory Conversion Period (ICP) measures the time taken to sell inventory and convert it into cash. It's a crucial component of the cash conversion cycle, reflecting a firm's efficiency in managing inventory (Richards & Laughlin, 1980). A shorter ICP indicates faster inventory turnover, reducing holding costs and improving liquidity (Wang, 2019). Effective inventory management strategies,

such as just-in-time (JIT) or vendor-managed inventory (VMI), can help minimize ICP. Optimizing inventory management can enhance working capital management (WCM) by minimizing holding costs and boosting cash flow. Research by Deloof (2003) supports the notion that effective inventory management can lead to increased profitability, underscoring the importance of strategic inventory control in driving business success. Research on inventory management's impact on profitability has yielded varying results. A Ugandan case study by Kakeeto et al. (2017) found a significant correlation between inventory management and profitability at Gumutindo Coffee Cooperative Enterprise Limited. The study revealed Pearson's coefficient of 0.455, indicating a substantial relationship between inventory management and profitability. Inventory management accounted for 20% of the change in profitability. In contrast, a Greek study by Folinas et al. (2017) explored the impact of Just-In-Time (JIT) practices and zero inventory on financial performance. The results showed no significant effect of JIT practices on financial performance, suggesting that inventory management strategies may have varying impacts depending on the context. Conversely a prolonged Inventory Conversion Period (ICP) can lead to slower inventory turnover, tying up capital and increasing holding costs, ultimately affecting key profitability indicators. Specifically, a longer ICP can negatively impact Gross Operating Profit (GOP) by increasing costs and reducing revenue (Garcia-Teruel & Martinez-Solano, 2007). This, in turn, can lead to a decrease in Net Profit Margin (NPM), as higher costs eat into profit margins. Furthermore, a prolonged ICP can also affect Net Profit Ratio (NPR), as inefficient inventory management can reduce overall profitability.

Receivable Collection Period (RCP) and impact on firm performance:

The oversight of the accounts receivable can also be of invaluable process to the flow of cash in an organization when companies are interested in it. RCP is a significant indicator that is employed in determining the efficiency of the collection of payment to customers. A decrease in RCP is a factor that can speed up entering a payment and consequently increase liquidity and financial performance (Baños-Caballero et al., 2020). Optimized payment collection processes will make the organizations financially sound and minimize bad debt risks. Due to the recent research on the topic, it is important to state the importance of efficient accounts receivable management in maintaining the business competitive advantage even in the dynamic world of business (Martinez-Sola et al., 2018). It was also determined that the Receivable Collection Period (RCP) may be reduced and favorably influence the financial results in the business. By reducing the time taken by realizing the payments collected by the customers, the debt business can also reduce the bad debt by reducing the time it takes to have cash, as well as to increase the Gross Operating Profit (GOP) (Deloof, 2003). An appropriate RCP management is also capable of boosting Net Profit Ratio (NPR) through the decreasing cost of financial cover, as well as enhancing profitability in general.

Account payable period and impact on firm performance:

Accounts payable refer to the actual debt of the firm to its creditors and suppliers. Accounts payable period refers to an average number of days taken to settle the bills and pay affected business creditors after a business has paid off by its suppliers. The ratio provides data on how a company handles its cash flow and relationship with suppliers because it shows how successfully it allows making timely payments on one hand and cash flow optimizations on the other, at the Corporate Finance Institute (CFI). (2023). Using strategically planned APP, enterprises will have an opportunity to conserve liquidity and cash thus improving financial performance of the remaining part of the portfolio business (Baitos, 2020). An effective accounts payable system can ensure that a company

reduces its expenses in financing to meet the optimum level of working capital, hence improving the financial health of the firm. This will be through creation of a system to guarantee suppliers get paid on time and maximization of the cash that ends up in reduction of cases of delayed cash flows that could have disrupted cash generation. The optimizations of payment disbursement processes allow the organization to occupy a stronger position within the financial sector and gain the competitive advantage in the modern world of high levels of dynamics (Aktas et al., 2015).

Debt to Equity ratio, Current ratio and its impact on firm performance:

Debt to equity ratio may involve significant financial performance and risk implications for a firm. A firm with the high debt-to-equity ratio is insolvent and in danger of being financially undermined (Aktas et al., 2015). Debt-to-equity ratio is extremely important when managing the financial stability and well-being of any given company. The optimum debt to asset ratios is varied depending on the business and the business firm. Some firms with predictability of their cash flow and good profitability will tend to use more debt, and other firms with uneven cash flow may not care to use as much debt (Gill et al., 2010). Businesses will be eager to control their debt /equity ratio to gain optimal financial performance.

Gross Operating Profit, Net Profit Margin, Net Profit Ratio:

Gross Operating Profit (GOP) is a formula to determine core level of company performance after subtracting operating cost of the firm to the gross profit (Deloof, 2003). Both the Net Profit Margin (NPM) and Net Profit Ratio (NPR) show what percentage of the revenue generated through sales is converted to the net profit, and thus they indicate at what efficiency a company manages the costs and generates the profit (Aktas et al., 2015; Gill et al., 2010).

The Net Profit Margin (NPM) is the value that gauges the effectiveness of the conversion of income into profit of a company. It has been illustrated that a business can significantly impact its NPM by managing its working capital variables such as the number of days it takes to get the receivables, inventory turn, and the duration of accounts payable (Wang, 2019). Organizations which manage their working capital to optimize it can enable optimizing their operating costs and increase their cash flow and can directly improve their profitability.

NPM is a key indicator of profitability of a company. Well-implemented WCM can be of a significant contribution to the NPM by simplifying the APP, RCP, and ICP (Wang, 2019). NPM can also be improved through a well-managed WCM, where the expenses are reduced, and cash flow improved that ultimately leads to improved financial performance. The impact that WCM has had on NPM is mixed and different elements of WCM could have varying effects to NPM. To illustrate, a lower CCC will increase NPM by reducing the need to attract external financing and cutting down expenses (Baños-Caballero et al., 2020).

As the subject of the impact of the WCM constituents on the profit measures has been considered quite briefly, the present paper would utilize GOP, NPM and NPR in measuring the performance of the firm in the Automobile parts and accessory industries of Pakistan.

Hypothesis:

- **CCC** has significant and positive impact on GOP and NPR, however its impact on NPM is positive but insignificant.
- **APP** has positive but insignificant impact on GOP, NPM and NPR.
- **ICP** has positive but insignificant impact on GOP, NPM and NPR.
- **RCP** has significant and positive impact on GOP, NPM and NPR.
- **DER** has significant and positive impact on GOP, but insignificant impact on NPR.
- **CR** has significant and positive impact on GOP, NPM and NPR.

Methodology

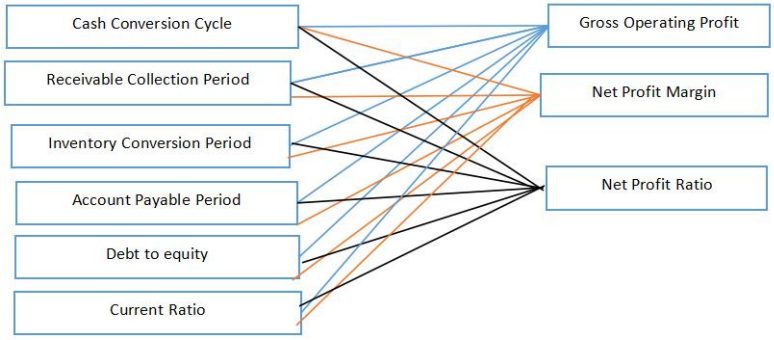
Introduction:

This section defines research methodology. It covers the conceptual framework, the model used, and how we defined and measured each of the variables. It also explains the estimation techniques we applied, where we sourced our data, and the analytical tools we used to interpret the findings.

Conceptual Framework:

Figure 1 below represents the conceptual framework developed for conducting the study. It shows the independent and dependent variables of the study. The independent variables considered in this study are CCC, RCP, ICP, APP, DER and CR. On the other hand, the dependent variable is GOP, NPM and NPR

Figure 1



Data Source:

The sample used in the article is of seven listed companies in Pakistan stock exchange pertaining to automobile part and accessories sector. The data was derived from annual financial statement of respective companies from 2015-2024. The independent variables considered in this study are CCC, RCP, ICP, APP, DER and CR. On the other hand, the dependent variable is GOP, NPM and NPR.

Model Specification:

To evaluate the variation among firms and the role of variables across time, this study adopted static panel data models. These models reflect those applied in earlier studies, including works by Sharma and Kumar (2011), Amin and Islam (2014), Yazdanfar and Öhman (2014), Tutino and Pompili (2018), and others up to Sinha and Vodwal (2022). There are two models:

Fixed Effect Model:

$$GOPit=\alpha i+\beta 0+\beta 1CCCit+\beta 2RCPit+\beta 3ICPit+\beta 4APPit+\beta 5CRit+\beta 6DERit+\varepsilon it$$

$$NPMit=\alpha i+\beta 0+\beta 1CCCit+\beta 2RCPit+\beta 3ICPit+\beta 4APPit+\beta 5CRit+\beta 6DERit+\varepsilon it$$

$$NPRit=\alpha i+\beta 0+\beta 1CCCit+\beta 2RCPit+\beta 3ICPit+\beta 4APPit+\beta 5CRit+\beta 6DERit+\varepsilon it$$

where, $t \sim iid(0,-2\_x001D\_), \alpha$

i = constant (the intercept, or point where the line cuts the Y axis when X = 0). β = Regression coefficient (the slope, or the change in Y for every one unit of X change), i = firms, and t = time.

Random Effect Model:

$$GOPit=\beta0+\beta1CCCit+\beta2RCPit+\beta3ICPit+\beta4APPit+\beta5CRit+\beta6DERit+ui+eit$$

$$NPMit=\beta0+\beta1CCCit+\beta2RCPit+\beta3ICPit+\beta4APPit+\beta5CRit+\beta6DERit+ui+eit$$

$$NPRit=\beta0+\beta1CCCit+\beta2RCPit+\beta3ICPit+\beta4APPit+\beta5CRit+\beta6DERit+ui+eit$$

where it ~ (iid 0,- _x001D_ 2) and -

it ~ , iid

_x001D_ 0 2

, β0 = Constant (the intercept, or point where the line cuts the Y axis when X = 0). β = Constant (the point where it intersects the Y axis when X = 0), ∈it = Within-firm error, μit = Between-firm error (relates to the postulation that differences between firms may impact the dependent variable), i = firm, and t = time

Data Analysis and Result:

Introduction:

This section presents the results derived from the data analysis techniques as discussed in the previous chapter. The data collected from annual reports are analyzed using the e-view software. The section firstly elaborates the descriptive statistics, which summarizes the data in terms of the mean and the standard deviation. It further explains the correlation analysis for elaborating the intensity of the relationship between the variables, lastly presenting relationship between wcm component and profit metrics, using pannel data analysis. Three individual Pannel regression analysis consisting of fixed and random effect models were conducted to test relationships of WCM components with Gop, Npm and Npr.

4.2 Descriptive Statistics:

Figure 2

Variable	Mean	Median	Maximum	Minimum	Standard deviation	Observation
GOP	0.109456	0.090750	0.778209	-0.193078	0.138126	70
NPM	0.064971	0.050735	0.602762	-0.400185	0.130073	70
NPR	10.94557	9.075011	77.82088	-19.30776	13.81255	70
CCC	76.09547	69.22646	330.8361	-58.27463	81.28705	70
ICP	-101.2664	-101.6043	78.35620	-189.7834	43.96439	70
APP	-96.11367	-97.81972	100.2307	-224.0417	52.50991	70
RCP	81.24815	64.82231	281.2467	6.542295	55.62887	70
DER	0.930477	0.542810	7.602492	0.103380	1.132537	70
CR	3.067240	1.972461	9.114461	0.664541	2.222749	70

According to Figure 2, The descriptive statistics deliver a summary of the key variables examined in the study. The mean represents the average value, while the standard deviation measures how wide values deviate from the mean. The minimum and maximum standards indicate the range of each variable. Based on the sample, 70 observations were recorded for each variable. The dependent variables—Gross Operating Profit (GOP), Net Profit Margin (NPM), and Net Profit Ratio (NPR)—have mean values of 0.109, 0.065, and 10.946, respectively. In each case, the standard deviation (0.138 for GOP, 0.130 for NPM, and 13.813 for NPR) exceeds the mean, suggesting moderate to high variability, especially for NPR. Among the employed capital variables, the mean value of the Cash Conversion Cycle (CCC) is 76.10, with a standard deviation of 81.29. Receivables Collection Period (RCP) has a mean of 81.25 and a standard deviation of 55.63. Inventory Conversion Period (ICP) and Accounts Payable Period (APP) have negative mean values of -101.27 and -96.11, with standard deviations of 43.96 and 52.51, respectively. These negative averages may indicate unusual working capital cycles for certain firms in the sample. In terms of leverage and liquidity, the

Debt-to-Equity Ratio (DER) shows a mean of 0.930 and a standard deviation of 1.133, with values ranging from 0.103 to 7.602. The Current Ratio (CR) has a mean of 3.067 and ranges from 0.665 to 9.114, with a standard deviation of 2.223. Overall, the descriptive statistics highlight considerable difference across firms in terms of profitability, working capital efficiency, leverage, and liquidity.

Correlation Matrix:

Figure 3

	GOP	NPM	NPR	CCC	ICP	APP	RCP	DER	CR
GOP	1								
NPM	0.912970	1							
NPR	1	0.912970	1						
CCC	0.192571	0.029198	0.192571	1					
ICP	0.236108	0.220858	0.236108	0.129605	1				
APP	0.180905	0.271144	0.180905	-0.531430	0.593472	1			
RCP	0.265554	0.124059	0.265554	0.587176	-0.040735	-0.301644	1		
DER	-0.208503	-0.331501	-0.208503	0.188499	-0.168535	-0.255953	0.167037	1	
CR	0.360786	0.507216	0.360786	-0.370639	0.032534	0.424507	-0.166598	-0.524510	1

The correlation matrix shows a strong optimistic association among profitability measures, with GOP, NPM, and NPR all highly correlated. CCC is strongly correlated with RCP (0.857) and negatively with APP (-0.531), indicating their significant influence on the cash cycle. DER has a negative correlation with profitability, especially NPM (-0.331), suggesting higher leverage reduces margins. CR shows a positive relationship with profitability, particularly NPM (0.507), highlighting the role of liquidity. Additionally, DER and CR are negatively correlated (-0.525), reflecting the trade-off between leverage and liquidity.

Relationship of WCM with Gross Operating Profit:

Figure 4

Variable	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
C	-0.062523	0.2108	0.072050	0.2313	0.045172	0.4691	-0.098343	0.0656
CCC	0.000711	0.0008						
ICP			0.000463	0.2248				
APP					0.0000744	0.8316		
RCP							0.001320	0.0000
DER	0.009245	0.5401	0.004305	0.7916	0.001772	0.9134	0.007297	0.6097
CR	0.035623	0.0002	0.026174	0.0078	0.022750	0.0198	0.030558	0.0014
R-squared	0.245549		0.131089		0.113962		0.327902	
Adjusted R-squared	0.211256		0.091593		0.073688		0.297352	
Durbin-Watson	1.526547		1.533422		1.378572		1.584566	
Hausman test	0.1663		0.5173		0.1998		1.0000	

Figure 4 displays the results of GOP using two models: Random Effect Model and Fixed Effect Model. In Table 4, fixed effect model is the best-fitted model. The findings reported in this section are derived from the fixed effects model, which successfully accomplished the study's objectives about the influence of WCM on GOP. The findings show that the Cash Conversion Cycle (CCC) has a positive and statistically significant impact on Gross Operating Profit (GOP), as its p-value was less than 0.05. This suggests that, holding all other factors constant, a longer CCC is associated with higher profitability. This might mean that companies are strategically advantaged to hold the cash longer or to take longer

to sell inventory and collect from customers. On the other hand, Inventory Conversion Period (ICP) was found to positively but insignificantly affect GOP since its p-value was greater than 0.05, implying that the relationship is not reliable. Equally, the Accounts Payable Period (APP) also positively affected GOP, but not significantly, since its p-value was greater than 0.05. The analysis also indicated that the Receivable Collection Period (RCP) positively and significantly affects GOP since its p-value was less than 0.05, which implies that the longer the period it takes to collect the receivables, the more profitable the company will be. The RCP is a significant result, indicating that there is a high strategic advantage to lengthening the credit terms in this industry.

Relationship between WCM and NPM:

Variable	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
C	-0.062363	0.1777	-0.057650	0.3215	0.009843	0.8697	-0.108001	0.0130
CCC	0.000318	0.0890						
ICP			-0.000290	0.4399				
APP					0.000239	0.4269		
RCP							0.001043	0.0005
DER	-0.001182	0.9305	0.006123	0.7035	-0.005185	0.7074	0.013184	0.3634
CR	0.033993	0.0002	0.028530	0.0237	0.027040	0.0056	0.024761	0.0270
R-squared	0.213406		0.592349		0.179665		0.676375	
Adjusted R-squared	0.177652		0.448473		0.142377		0.562155	
Durbin-Watson	1.625992		1.730645		1.637964		1.773042	
Hausman test	0.2741		0.0213		0.6375		0.0188	

According to the Hausman test, the p-value was more than 0.05 in both Cash Conversion Cycle (CCC) and Accounts Payable Period (APP) regressions, which means that the Random Effects Model was chosen as the most suitable. On the other hand, the Fixed Effects Model was adopted in the Inventory Conversion Period (ICP) and Receivables Collection Period (RCP) regressions since the Hausman test p-values were less than 0.05. The analysis revealed that despite a positive coefficient of 0.000318, the relationship between CCC and Net Profit Margin (NPM) is not statistically significant. Similarly, ICP has a negative coefficient of -0.000290, but its relationship with NPM is also statistically insignificant, suggesting that a longer time to sell inventory does not reliably impact profitability. The same holds true for APP, which has a positive coefficient of 0.000239 but an insignificant p-value, indicating that a longer period to pay suppliers does not have a measurable impact on NPM. In contrast, RCP demonstrates a statistically significant and positive relationship with NPM, with a coefficient of 0.001043. The business implication is clear: a longer period for collecting receivables is directly associated with a meaningful increase in profitability, suggesting that extending credit terms can be a strategic move to boost a company's bottom line.

Relationship between WCM and NPR:

Figure 6

Variable	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
C	-6.252283	0.2108	7.204968	0.2313	4.517233	0.4691	-9.834291	0.0656
CCC	0.071111	0.0008						
ICP			0.046296	0.2248				
APP					0.007436	0.8316		
RCP							0.132041	0.0000
DER	0.924478	0.5401	0.430496	0.7916	0.177239	0.9134	0.729651	0.6097
CR	3.562287	0.0002	2.617418	0.0078	2.275035	0.0198	3.055790	0.0014
R-squared	0.245549		0.131089		0.113962		0.327902	
Adjusted R-squared	0.211256		0.091593		0.073688		0.297352	
Durbin-Watson	1.526547		1.533422		1.378572		1.584566	
Hausman	0.1663		0.5173		0.1998		1.0000	

test				

Based on the Hausman test p-value of 1.0000, the Random Effects Model was selected as the most appropriate for the Net Profit Ratio (NPR) regression. Effect of CCC on NPR is like GOP. The analysis reveals that the Receivables Collection Period (RCP) has a positive and statistically significant impact on NPR, with a coefficient of 0.132041 and a p-value of 0.0000. The key business implication here is that a longer period for collecting payments from customers is directly and positively linked to a firm's profitability, suggesting that extending credit terms can be a highly effective strategy. In contrast, the Debt-to-Equity Ratio (DER) shows no statistically significant relationship with NPR, despite a positive coefficient of 0.729651 (p=0.6097), indicating that a company's leverage level does not reliably impact its net profitability. However, the Current Ratio (CR) has a positive and statistically significant impact on NPR, with a coefficient of 3.055790 (p=0.0014), highlighting that a stronger liquidity position is directly associated with a higher net profit ratio.

Discussion:

The analysis highlights the most critical components of working capital that influence a firm's profitability. Not all strategies yield measurable results, so management should prioritize those with statistically significant impacts. Two variables consistently drive profitability. First, the Current Ratio (CR) shows a strong, positive relationship with all three-profitability metrics—Gross Operating Profit (GOP), Net Profit Margin (NPM), and Net Profit Ratio (NPR). This confirms that firms with strong liquidity, reflected in a healthy balance between current assets and liabilities, tend to be more profitable.

Second, the Receivables Collection Period (RCP) also exhibits a significant positive relationship with profitability. Surprisingly, longer collection periods correlate with increased profitability, suggesting that extending credit terms to key clients may help boost sales and overall returns.

In contrast, metrics like the Inventory Conversion Period (ICP), Accounts Payable Period (APP), and Debt-to-Equity Ratio (DER) show no significant impact on profitability. This implies that reducing inventory days or delaying payments may not yield tangible financial benefits.

The Cash Conversion Cycle (CCC) has a mixed influence. While it positively affects GOP and NPR, its link to NPM is insignificant. In conclusion, firms should focus on improving liquidity and strategically managing receivables to enhance profitability.

Conclusion and Limitation:

The study offers a clear and evidence-based perspective on the relationship between working capital management (WCM) and profitability in Pakistan's automobile parts and accessories industry. It challenges the traditional one-size-fits-all approach by emphasizing that WCM strategies must be tailored to industry-specific dynamics. A key finding is the strong, positive correlation between the Receivables Collection Period (RCP) and all three-profitability metrics Gross Operating Profit (GOP), Net Profit Margin (NPM), and Net Profit Ratio (NPR). This defies conventional wisdom that quicker cash collection always improves performance. Instead, longer credit terms appear to help firms strengthen client relationships and boost sales, which ultimately enhances profitability. In this sector, strategic credit extension seems to be a vital competitive tool. Conversely, the Inventory Conversion Period (ICP) and Accounts Payable Period (APP) show no significant impact on profitability. This suggests that aggressively cutting inventory days or delaying supplier payments may not yield real financial benefits.

Another critical insight is the strong positive link between the Current Ratio (CR) and profitability, highlighting liquidity as a pillar of financial health. Overall, the study advises firms to prioritize liquidity and receivables management over

traditional WCM practices, adopting a strategy grounded in industry-specific realities to drive sustainable profitability.

Recommendation:

Based on the empirical results of the study, the following recommendations can be given to managerial decision-making in the Pakistani automobile parts and accessories sector. These suggestions are aimed at ensuring proper working capital management that can directly lead to better profitability for the firm.

Firm should use Receivables as a Strategic Tool

Prioritize Liquidity as a Foundation

Reallocating Resources from Low-Impact Working Capital Areas

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