

# Working capital management: Analysis of profitability during the Covid -19 pandemic of multinational and local pharmaceutical companies of Pakistan

Ijaz Hussain<sup>1</sup>, Syed Shabib Ul Hasan<sup>1</sup> and Sheikh Abdul Khaliq<sup>2\*</sup>

<sup>1</sup>Department of Public Administration, Faculty of Management & Administrative Sciences, University of Karachi, Karachi, Pakistan

<sup>2</sup>Department of Pharmacy Practice, Faculty of Pharmacy, Hamdard University, Karachi, Pakistan

**Abstract:** The goal of current study was to analyze profitability and working-capital-management of the multinational and local pharmaceutical companies of Pakistan during the pre, concurrent and post-COVID-19 era. Cross-sectional-survey was conducted from January-2016 to December-2023. Data was collected from multinational-pharmaceutical-companies (MPC) and national-pharmaceutical-companies (NPC). The data was collected by questionnaire; verified by annual-reports of companies and also from the Karachi-Stock-Exchange and analyzed by ordinary-least-square (OLS) regression-analysis. Despite the challenges of COVID-19 pandemic, MPC achieved its highest growth with 21% increase in 2021 versus 2020. Similarly, NPC attained its highest increase of 38% in 2022 versus 2021. Pearson-correlation-coefficient (r) and regression-coefficient (r<sup>2</sup>) in between era (2016 to 2023) and net-sales of MPC (r=0.972; r<sup>2</sup>=0.944; p=0.0014) and NPC (r=0.992; r<sup>2</sup>=0.984; p=0.0321); in between era (2016 to 2023) and gross-profit of MPC (r=0.682; r<sup>2</sup>=0.465; p=0.022) and NPC (r=0.963; r<sup>2</sup>=0.927; p=0.01); in between era (2016 to 2023) and % net-profit of MPC (r=0.054; r<sup>2</sup>=0.00291; p=0.082) and NPC (r=0.044; r<sup>2</sup>=0.00193; p=0.059); in between era (2016 to 2023) and % return-on-assets of MPC (r=0.216; r<sup>2</sup>=0.0466; p=0.051) and NPC (r=0.077; r<sup>2</sup>=0.0059; p=0.901). COVID-19 period has provided an opportunity for pharmaceuticals to enhance profitability. Working-capital-turnover and inventory-turnover have negative impact on profitability of both companies.

**Keywords:** COVID-19, working-capital-management, profitability, net-profit, return-on-assets.

*Submitted on 03-09-2024 – Revised on 19-09-2024 – Accepted on 6-10-2024*

## INTRODUCTION

The first case of covid-19 was identified and reported in Wuhan city of China in December 2019 (Casella *et al.*, 2023). The virus spread globally in a short span of time (Zhang *et al.*, 2022) and the world health organization (WHO) declared the Covid-19 as a global pandemic in March 2020. The Covid-19 and the associated lockdown has affected all the economies across the world and augment the uncertainty in the business sector (Bhattacharyya *et al.*, 2021). Further it upsets all the business operations, productions, expansions and profitability of almost all industries including pharmaceutical (Achim *et al.*, 2022). However, globally pharmaceutical industries have relatively positive impact of Covid19 pandemic due to more focus for better provision of healthcare services and medicines (Shaikat *et al.*, 2022).

Working capital management (WCM) is one of the most important short term financial decisions which take active part in the success or failure of any organization (Yameen *et al.*, 2019). Working capital is like the circulatory blood and a life for every business, which controls nerve centers of the business; if not managed properly leads to the business failure. (Gangadhar *et al.*, 2022) The

management of working capital include the management of cash, accounts receivable, inventory and account payable in such a manners to run the business operations smoothly with increase of profits (Zimon *et al.*, 2021). Efficient management of working capital (current assets and current liabilities) is an imperative part of the corporate strategy and enhances the shareholders wealth (Amponsah-Kwatiah *et al.*, 2021). In economic disastrous circumstances, the performance and survival of any organization largely depends upon proper and timely management of working capital (Ren *et al.*, 2019; Simon *et al.*, 2021). Tremendous amount of research work has been done on WCM and profitability in the normal economic conditions (Le, 2019); unfortunately, studies are very limited pertaining to management of working capital during economic crisis Covid-19 (Olowookere *et al.*, 2021).

The Pharmaceutical industry deals with the large volume of raw materials, work in process and finished goods inventories and mostly payments and receipts transactions are made on credit basis. The covid-19 has also affected the pharmaceutical sector of Pakistan like other sectors of the economy. Therefore, it is worth-full to examine how WCM responses were prevailed in pharmaceutical industries in such economic crises. Pharmaceutical industries play an important role in the economic development and social welfare of any country. A large

\*Corresponding author: e-mail: sheikh1974@gmail.com

population of Pakistan mainly depends on pharmaceutical industry for their employment and jobs. How the pharmaceutical firms responded and managed their working capital at the time of crises? The decisions usually taken by the finance managers regarding working capital management are worthy and helpful to enhance the profitability (Lerner *et al.*, 2020). Some Pakistani pharmaceutical companies have been able to adapt themselves to the new situation while the others are still struggling. Therefore, it is essential to measure the financial performance of the industry with relationship of WCM.

Following research questions should be raised due to importance of profitability and WCM during Covid-19:-

1. Whether the profitability of pharmaceutical companies is affected by WCM?
2. If above question is correct; then there is a need to determine relationship in between profitability and WCM of pharmaceutical sector in context to covid-19?

In order to get the answers of these questions pertaining to pharmaceutical companies; the main goal of the current study was to determine the impact of WCM on profitability during Covid-19 and compare it with pre, during and post covid-19 era.

## **MATERIALS AND METHODS**

*Study Design:* Cross-sectional survey.

*Study duration:* January 2016 to December 2023.

*Place of study:* Karachi, Pakistan

*Target population:* Multinational pharmaceutical companies (MPC) and national pharmaceutical companies (NPC) located in Pakistan

### **Data collection method**

The collection of data was done by questionnaire; questionnaire was filled by the staff of pharmaceutical industry working at managerial position in finance, accounts, human resource, business unit, group product managers, marketing managers, sales managers, chief finance officer and/or chief executive officer. Information collected for the duration of 2016 to 2023 by questionnaire and variables identified were: Gross Operating Profit (GOP), sales, net profit and return on assets as a proxy for the profitability ratio and four working capital management (WCM) variables namely; inventory turnover in days, accounts receivable turnover in days, account payable turnover in days and cash conversion cycle in days and working capital turnover ratio (table 1). The study separated data into three periods; period before the Covid-19 pandemic (2016, 2017, 2018, 2019), Covid-19 pandemic period (2020 and 2021) and the period after the Covid -19 (2022, 2023). The data was verified by the websites of the companies; which are available in the form of annual reports and also from the KSE (Karachi Stock Exchange). Total registered pharmaceutical companies at KSE are twelve; among which five are MPC and seven are NPC.

*Inclusion criteria:* Pharmaceutical companies listed in KSE.

*Exclusion criteria:* Pharmaceutical companies not listed in KSE.

*Data analysis:* To achieve study objectives, multiple statistical tests were applied on the collected data including correlation / regression analysis.

Following research hypothesis of the study was formulated:

*H<sub>1</sub>:* WCT negatively affect the GOP in pre, concurrent and post pandemic period.

*H<sub>2</sub>:* ITO negatively affect the GOP in pre, concurrent and post pandemic period.

### **Modeling framework**

Regression models were applied to forecast the value of variables by using GOP as a dependent variable; while working capital turnover ratio and inventory turnover ratio were independent variables. The framework of Deloof *et al.* (Deloof, 2003) was used in the study.

Model:  $GOP = \beta_0 + \beta_1 (WCT) + \beta_2 (ITO) + \epsilon$

Where: -

GOP = Gross Operating Profit

ITO = Inventory turnover in days

Bo = Intercept

ε = Error term

## **STATISTICAL ANALYSIS**

Ordinary least square (OLS) regression analysis was employed for data analysis to determine the correlation between independent and dependent variables by Statistical Package of Social Sciences (SPSS) 22. Significance was considered at p-value less than 0.05.

## **RESULTS**

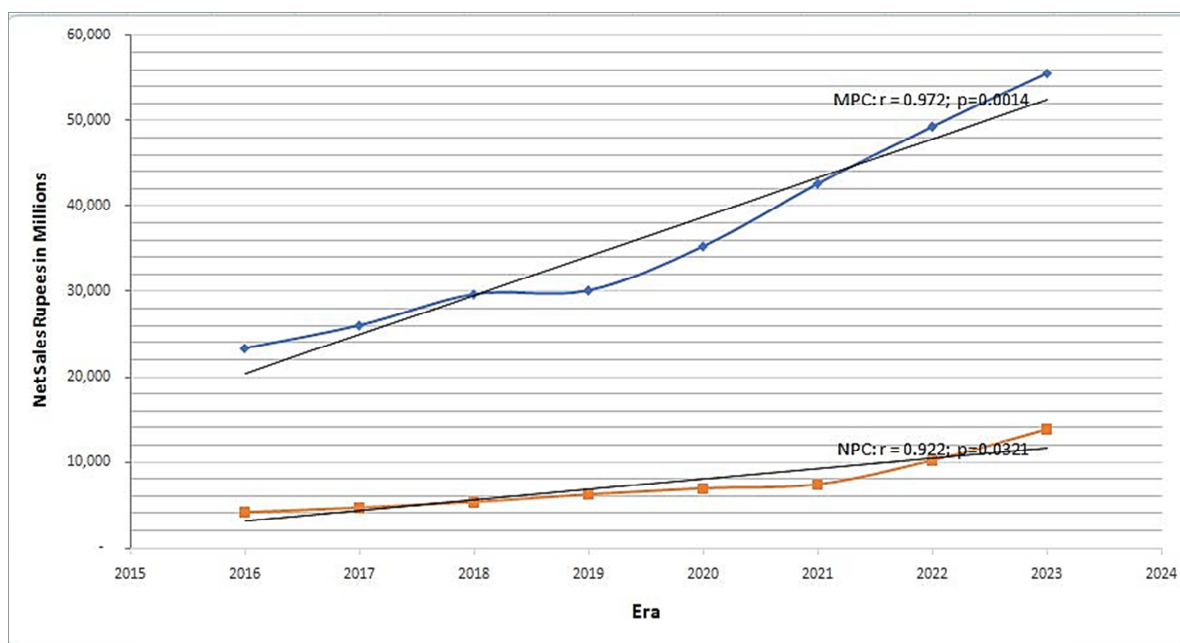
Profitability performance measures are summarized and compared in table 2 for net sales, gross profit, profit after taxation, gross profit ratio, net profit ratio and return on assets in between MPC (Multinational Pharmaceutical Company) and NPC (National Pharmaceutical Company) with pre pandemic, during pandemic and post pandemic era (table 2). Despite the challenges of the COVID-19 pandemic, the net sales of both companies continued to increase. MPC achieved its highest growth with a 21% increase in 2021 compared to the previous year. Similarly, NPC attained its highest increase of 38% in 2022 compared to the prior year.

Pearson correlation coefficient (r) and regression coefficient (r<sup>2</sup>) in between era (2016 to 2023) and net sales of MPC (r=0.972; r<sup>2</sup>=0.944; p=0.0014) and NPC (r=0.992; r<sup>2</sup>=0.984; p=0.0321) have shown significance (fig. 1).

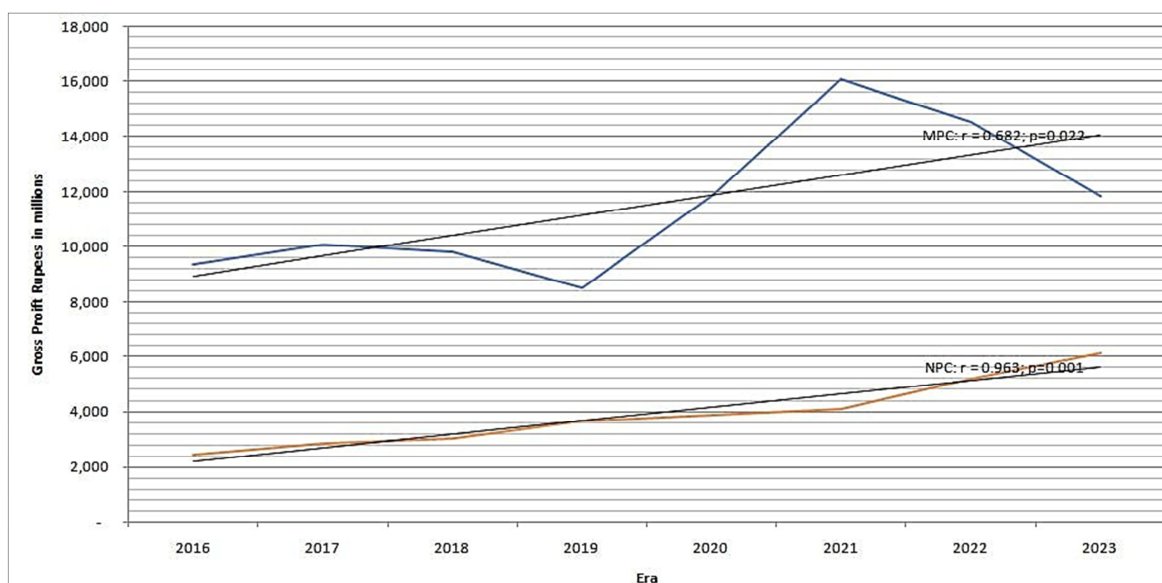
There is a significant decline observed in the gross profit of MPC in 2018; however, it has been overcome by company in 2021, but again decline is noted in 2023.

**Table 1:** Key profitability indicators

Profitability Indicator	Formula	Key Points in Business
Profitability Ratio		
Net Profit ratio (NP)	$NP = \text{Net Income} / \text{net sales} \times 100$	Net profit ratio measures how much profit a company generates as a percentage of its revenue
Gross Profit ratio (GOP)	$GOP = \text{Gross Profit} / \text{net sales} \times 100$	This ratio compares gross profit to sales and shows how much money is left after covering the cost of goods sold.
Return on Assets (ROA)	$ROA = \text{Net Profit} / \text{Total Assets} \times 100$	The return on assets ratio measures how efficiently a company is using its assets to generate profit:
Efficiency Ratio Working capital turnover (WCT)	$WCT = \text{Net sales} / \text{working capital}$	This ratio measure efficiency of a company in using its working capital to support sales and growth.
Inventory turnover (ITO)	$ITO = (\text{Inventories} \times 365) / \text{Cost of Goods sold}$	This ratio is how fast or how many times the company can sell inventory during a specific time period



**Fig. 1:** Pearson correlation coefficient in between net sales growth and Covid-19 pre, during and post pandemic era



**Fig. 2:** Pearson correlation coefficient in between gross profit and Covid-19 pre, during and post pandemic era.

**Table 2:** Profitability performance measures (Gross Profit, Net Profit, Return on Assets)

Era	Year	Net Sale (Rupees in millions)		Gross Profit (Rupees in millions)		Profit after taxation (Rupees in millions)		Gross Profit ratio (%)		Net Profit ratio (%)		Return on Assets (%)	
		MPC*	NPC**	MPC*	NPC**	MPC*	NPC**	MPC*	NPC**	MPC*	NPC**	MPC*	NPC**
Pre-Pandemic	2016	23,388	4,206	9,368	2,460	4,022	1,087	40%	58%	17%	26%	23%	13%
	2017	26,088	4,725	10,089	2,874	4,205	1,233	39%	61%	16%	26%	22%	14%
	2018	29,719	5,382	9,801	3,041	2,694	1,207	33%	57%	9%	22%	13%	13%
During Pandemic	2019	30,156	6,253	8,528	3,659	1,300	1,447	28%	59%	4%	23%	6%	15%
	2020	35,283	6,946	11,846	3,861	4,535	1,588	34%	56%	13%	23%	18%	16%
	2021	42,570	7,420	16,075	4,117	5,967	1,565	38%	55%	14%	21%	21%	14%
Post Pandemic	2022	49,258	10,262	14,526	5,223	3,004	1,428	29%	51%	6%	14%	9%	11%
	2023	55,475	13,858	11,848	6,143	262	1,190	21%	44%	0%	9%	1%	7%

\*MPC=Multinational Pharmaceutical Company, \*\*NPC=National Pharmaceutical Company

On the other hand no significant changes were observed in the gross profit of NPC; nevertheless it is continuously increasing. Pearson correlation coefficient (r) and regression coefficient (r<sup>2</sup>) in between era (2016 to 2023) and gross profit of MPC (r=0.682; r<sup>2</sup>=0.465; p=0.022) and NPC (r=0.963; r<sup>2</sup>=0.927; p=0.01) have shown significance (fig. 2).

Similarly significant decline observed in the % net profit of MPC and NPC since 2018; infact % net profit has decreasing trend in MPC, while in NPC almost static. Pearson correlation coefficient (r) and regression coefficient (r<sup>2</sup>) in between era (2016 to 2023) and % net profit of MPC (r=0.054; r<sup>2</sup>=0.00291; p=0.082) and NPC (r=0.044; r<sup>2</sup>=0.00193; p=0.059) have not shown significance (fig. 3).

Although there is an inclining trend is observed in the % return on assets of MPC and NPC since 2018; however, this incline is statistically not significant in MPC (p=0.051) and NPC (p=0.901). Pearson correlation coefficient (r) and regression coefficient (r<sup>2</sup>) in between era (2016 to 2023) and % return on assets of MPC (r=0.216; r<sup>2</sup>=0.0466; p=0.051) and NPC (r=0.077; r<sup>2</sup>=0.0059; p=0.901) have not shown significance (fig. 4).

**Regression model result**

*Model:  $GOP = \beta_0 + \beta_1 (WCT) + \beta_2 (ITO) + \epsilon_{it}$*

The result of the model equations are shown in table 3. Based on the table 3, the regression equation of this research data is:  $GOP = -14.55 - 0.6092 WCT + 0.6208 ITO$

Based on the regression equation above, it can be explained that:

- i. The value of constant is -0.14.55 which showed that if the value of independent variables (WCT and ITO) is 0, then the GOP is -014.55.
- ii. The WCT coefficient value of -0.6092 and marked negative means that for every 1% increase in the WCT value, the GOP will decrease by 0.6092 units.

The value of the ITO coefficient is 0.6208 and has a positive sign, meaning that for every 1% increase in the ITO value, the GOP value will increase by 0.6208 units.

**DISCUSSION**

Findings of current research have opened the door for interesting discussion on WCM of pharmaceutical industries of Pakistan. WCM has always been pivotal aspect of financial strategy for business; however, its significance took on a new dimension in the wave of the COVID-19 pandemic (Hossain, 2020). Two major economic crises adversely affected the liquidity and working capital; these crisis were economic recession of 2008 and current COVID-19 pandemic (Chowdhury *et al.*, 2020; Olowookere *et al.*, 2021). It is noteworthy that net sales of both multinational and national pharmaceutical companies have an upward trend.



Fig. 3: Pearson correlation coefficient in between % net profit and Covid-19 pre, during and post pandemic era.

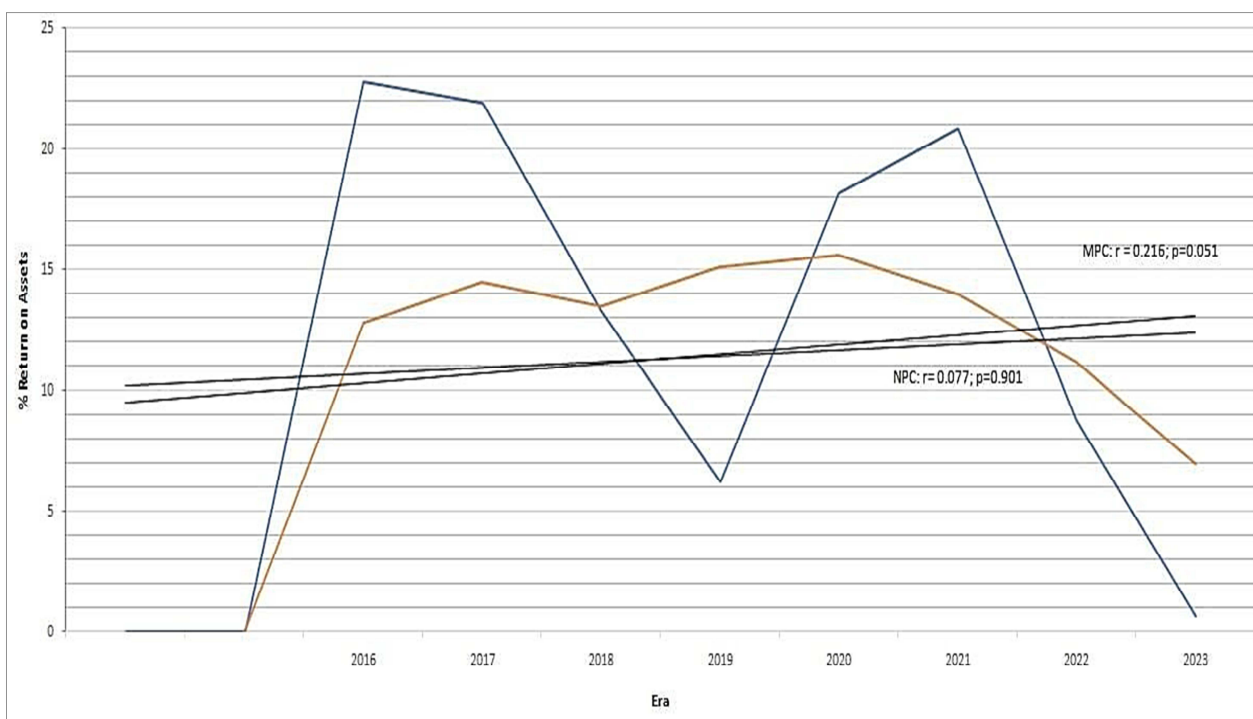


Fig. 4: Pearson correlation coefficient in between % return on assets and Covid-19 pre, during and post pandemic era.

Table 3: Regression analysis for model

Variable	Coefficient	t-Statistic	Probability (p-value)
C (Y-intercept)	-14.55	-1.49908	0.15774
WCT	-0.6092	-2.11694	0.05412
ITO	-0.6208	6.241977	0.00003
LOG Sales?	2.165745	2.1338	0.0329
R-squared		0.75016	

MPC reported a sales increase of 12% in 2016 and 14% in 2018. However, growth decelerated to just 1% in 2019, primarily due to a 3.1% decline in pharmaceutical sales, attributed to an adverse economic and regulatory environment. During the COVID-19 pandemic, the company experienced a notable recovery, with sales rising by 17% and 21% in subsequent periods, driven by increased demand for nutritional products and laboratory diagnostics.

In the post-pandemic period, sales growth remained robust, with increases of 16% in 2022 and 13% in 2023. Similarly, NPC's sales showed an upward trend before the COVID-19 pandemic, with increases of 12%, 14% and 16% from 2017, 2018 and 2019 respectively. The growth rate of sales during the COVID-19 period was slow and sales rose only by 11% in 2020 and 7% in 2021. This decline was primarily due to a 22.9% drop in exports, caused by political unrest and the temporary closure of the Afghanistan border. In the post-COVID-19 period, the NPC experienced a significant increase in sales, with growth rates of 38% in 2022 and 35% in 2023. This surge was largely driven by a substantial 27% rise in domestic retail sales, primarily attributed to the strong performance of top brands of NPC (Cetirizine, Calcium Supplement, Cefaclor) and sales to Afghanistan. It is noteworthy that efficient WCM will allow firms to redeploy underutilized resources of firm to higher-valued use in which it could result in the heightening of firm's performance. (Sawarni *et al.*, 2020) The outcome of the study is consistent with the study of that firms got high return on sales during the crises period of time (Zimon *et al.*, 2021).

Pharmaceutical companies can enhance the profit by maintaining the working capital elements at optimal level (Farhan *et al.*, 2021). Findings of current study reveals that the gross profit of MPC have shown a notable decline before the COVID-19 pandemic; which is primarily attributable to macroeconomic factors such as inflation and currency devaluation. Conversely, during the pandemic MPC experienced a significant recovery with gross profit increasing by 39% in 2020 and 36% in 2021. This recovery can be largely attributed to enhanced sales volume, strategic pricing adjustments and an optimized product mix. However, in the post-pandemic period, MPC's gross profit contracted by 10% in 2022 and 18% in 2023, perhaps driven by persistent currency devaluation, inflationary pressures and elevated product costs. In comparison, NPC demonstrated consistent gross profit growth in the pre-pandemic period, with increases of 17%, 6%, and 20% observed in consecutive years. However, during the COVID-19 pandemic, the growth rate decelerated, with gross profit rising by only 6% in 2020 and 7% in 2021. This deceleration can be primarily attributed to a reduction in export activity, exacerbated by political instability and the temporary closure of the Afghanistan border. In the post-pandemic period, NPC

demonstrated a robust recovery, with gross profit increasing by 27% in 2022 and 18% in 2023, largely due to a resurgence in domestic retail sales. The results of the study supported the findings that there is a strong negative relationship exists between profitability and working capital elements; research elaborated that cash conversion cycle is inversely related to the profitability; he further elaborated that by managing the working capital components efficiently will enhance the shareholder's value (Valaskova *et al.*, 2021).

The Net Profit ratio of MPC showed a declining trend before the COVID-19 period, decreasing from 17% in 2016 to 4% in 2019. However, the company improved its net profit during the COVID-19 period, achieved 13% (2020) and 14% (2021) due to an improvement in gross profit margin. The ratio decreased again in the post-COVID-19 period, falling to 6% in 2022 and 0.5% in 2023. This decline was associated with decrease in gross profit margin and the imposition of a super tax, levied at a rate of 10% for the prior year and 4% for the current year. In a study of Romania for different business sectors; the performance, profits and overall market was decreased by 37.43% during Covid-19 compare to pre-Covid-19 era (Achim *et al.*, 2022). In comparison, NPC's net profit ratio initially showed a positive trend, with the ratio of 26% in 2016 and 23% in 2019. However, during the COVID-19 pandemic, the ratio slightly decreased to 23% in 2020 and then 21% in 2021. This drop was due to renewed promotional activities and hiring more staff to support aggressive growth goals, which affected the company's profits. After COVID-19, the net profit ratio declined further, reaching 14% in 2022 and 9% in 2023. The decrease was mainly due to higher business operating costs and significant investments in human resources to boost sales. Additionally, marketing and selling expenses rose sharply. The company's finances were also impacted by a new loan, along with rising KIBOR (Karachi Inter-Bank Offered Rates), which significantly increased finance costs.

Another parameter is return on assets (ROA) ratio; ROA ratio of MPC showed a decreasing trend before the COVID-19 period, starting from 23% in 2016 and declining to 6% in 2019. The company improved its performance during the pandemic, with the ROA was rising to 18% in 2020 and 21% in 2021, it was driven by an increase in net profit. However, in the post-COVID-19 period, the company's ROA ratio showed a declining trend again, dropping to 9% in 2022 and further to 1% in 2023. This decline was primarily due to the imposition of various taxes, which decreased the net profit margin. On the other hand, the ROA ratio of NPC showed an upward trend before COVID-19, starting from 13% in 2016 and increasing to 15% in 2019. The ratio slightly improved to 16% in 2020 but then dropped to 14% in 2021 due to a decrease in net profit margin. Similarly, the ratio further

declined in the post-COVID-19 period, falling to 11% in 2022 and 7% in 2023, again due to a decrease in net profit margin.

The first hypothesis of this study aimed to establish the relationship between working capital turnover (WTO) and profitability of pharmaceutical firms listed on the Karachi Stock Exchange. In the analysis of data of current study; regression coefficient is negative of working capital with non-significant probability ( $p=0.609$ ). This suggested that WCT has a negative effect on the profitability of both pharmaceutical companies before, during and after COVID-19 pandemic. As company's working capital turnover ratio is negative, therefore the company may need to quickly raise funds by borrowing money or increase product sales to generate cash to meet its current obligations. Negative working capital reduces the company's profitability and sales (Lukić, 2023). Therefore, current study findings are supporting the findings of previous studies; which proved that working capital turnover negatively affects the profitability of company (Claudia et al., 2020; Desliana et al., 2018; Nguyen et al., 2020).

The second hypothesis of the study was to establish the relationship between inventory conversion period and profitability of pharmaceutical firms. The results of the regression model estimation have shown a t-statistical value of  $p=0.6208$  and adjusted regression 0.75; which means that inventory conversion period can explain the profitability by 751%. Therefore, it can be concluded that the turnover of inventories has a negative and significant effects on the profitability of both pharmaceutical companies before, during and after covid-19 pandemic era. Different researchers also found that inventory turnover has a negative effect on GOP (Desliana et al., 2018; Nguyen et al., 2020).

The result of the study supported the findings that there is a negative correlation with account receivable turnover in days, inventory turnover in days, account payable turnover in days and cash conversion cycle (Danyadado et al., 2022).

## CONCLUSION

MPC profitability trend was declining; however, during the COVID-19 pandemic, the company experienced a significant improvement in its profit margins; while NPC profit margins were slightly decreasing due to higher cost of business operations. Working capital turnover and inventory turnover have negative impact on the profitability of MPC and NPC.

Based on these conclusions, it is recommended that the company's management place greater emphasis on the constituent components of working capital, particularly

the use of excessive debt, which can adversely affect profitability. Further research could focus on re-examining variables that influence the company's profitability, especially those fundamental variables directly impacted by the COVID-19 pandemic. This study confirms the negative effect of working capital turnover on profitability. It is important to note that during the period studied, factors beyond the components of working capital also contributed to the company's profitability, leading to this observed negative impact. To enhance the analysis, future research should consider a detailed examination of the company's profit and loss statements, with particular attention to non-operating income.

## REFERENCES

- Achim MV, Safta IL, Văidean VL, Mureșan GM and Borlea NS (2022). The impact of covid-19 on financial management: Evidence from Romania. *Econ. Res.-Ekonomika Istrazi.*, **35**(1): 1807-1832.
- Amponsah-Kwatiah K and Asiamah M (2021). Working capital management and profitability of listed manufacturing firms in Ghana. *Int. J. Product. Perform. Manage.*, **70**(7): 1751-1771.
- Bhattacharyya SS and Thakre S (2021). Coronavirus pandemic and economic lockdown; study of strategic initiatives and tactical responses of firms. *Int. J. Organ. Anal.*, **29**(5): 1240-1268.
- Cascella M, Rajnik M, Aleem A, Dulebohn S and Di Napoli R (2023). Features, evaluation, and treatment of coronavirus (COVID-19) WHO COVID-19 Research Database. FL. USA: Stat Pearls Publishing LLC. **1**: 01-21
- Chowdhury MT, Sarkar A, Paul SK and Moktadir MA (2020). A case study on strategies to deal with the impacts of COVID-19 pandemic in the food and beverage industry. *Oper. Manag. Res.*, **15**(01): 166-178.
- Claudia V and Lusmeida H (2020). The Impact Of Working Capital Turnover, Inventory Turnover, Cash Turnover, And Company Size On Profitability. Paper presented at the ICASI 2020: Proceedings of the 3rd International Conference on Advance & Scientific Innovation, ICASI, Medan, Indonesia. **20**(6): 285-291
- Danyadado AM and Jinjiri K (2022). Cash conversion cycle and profitability of listed consumer goods companies in Nigeria. *Int. J. Intellect. Discou.*, **5**(1): 89-103.
- Deloof M (2003). Does working capital management affect profitability of Belgian firms? *JFBA*, **30**(3-4): 573-588.
- Desliana E and Irawan A (2018). Pengaruh Perputaran Modal Kerja Dan Perputaran Persediaan Terhadap Profitabilitas Perusahaan Property Dan Real Estate Yang Terdaftar Di Bursa Efek Indonesia Periode 2009-2013. *J Appl. Manag. Account.*, **2**(1): 47-50.
- Farhan NH, Belhaj FA, Al-ahdal WM and Almaqtari FA (2021). An analysis of working capital management in

- India: An urgent need to refocus. *Cogent. Busin. Manage.*, **8**(1): 1-25.
- Gangadhar K and Chary TS (2022). Impact of working capital on profitability -- A case study of sukhjit starch mills, Nizamabad. *SAJMMR*, **12**(1): 1-11.
- Hossain T (2020). Determinants of profitability: A study on manufacturing companies listed on the Dhaka stock exchange. *AEFR*, **10**(12): 1496-1508.
- Le B (2019). Working capital management and firm's valuation, profitability and risk: Evidence from a developing market. *Int. Manag. Fin.*, **15**(2): 191-204.
- Lerner J and Nanda R (2020). Venture capital's role in financing innovation: What we know and how much we still need to learn. *JEP*, **34**(3): 237-261.
- Lukic R (2023). Influence of net working capital on trade profitability in Serbia. *EJIST*, **15**(1): 48-67.
- Nguyen AH, Pham HT and Nguyen HT (2020). Impact of working capital management on firm's profitability: Empirical evidence from Vietnam. *JAFEB - EconBiz.*, **7**(3): 115-125.
- Olowookere JK, Odetayo TA, Adeyemi AZ and Oyedele O (2021). Impact of COVID-19 on working capital management: A theoretical approach. *J. Busin. Entrepren.*, **10**(1): 38-47.
- Ren T, Liu N, Yang H, Xiao Y and Hu Y (2019). Working capital management and firm performance in China. *ARA*, **27**(4): 546-562.
- Sawarni KS, Narayanasamy S and Ayyalusamy K (2020). Working capital management, firm performance and nature of business: An empirical evidence from India. *Int. J. Product. Perform. Manage.*, **70**(1): 179-200.
- Shaukat F and Ming J (2022). Green marketing orientation impact on business performance: Case of pharmaceutical industry of Pakistan. *Front. Psychol.*, **13**(1): 01-15.
- Simon S, Sawandi N, Kumar S and El-Bannany M (2021). Economic downturns and working capital management practices: A qualitative enquiry. *Qual. Res. Financ. Mark.*, **13**(4): 529-547.
- Valaskova K, Kliestik T and Gajdosikova D (2021). Distinctive determinants of financial indebtedness: Evidence from Slovak and Czech enterprises. *Equilibrium. QJEEP*, **16**(3): 639-659.
- Yameen M, Farhan NH and Tabash MI (2019). The impact of liquidity on firms' performance: Empirical investigation from Indian pharmaceutical companies. *Acad. J. Interdiscip. Stud.*, **8**(3): 212-220.
- Zhang L, Welsch RE and Cao Z (2022). The transmission, infection prevention, and control during the COVID-19 Pandemic in China: A retrospective study. *Int. J. Environ. Res. Public Health*, **19**(5): 01-15.
- Zimon G and Tarighi H (2021). Effects of the COVID-19 global crisis on the working capital management policy: Evidence from Poland. *J. Risk Financial Manag.*, **14**(4): 1-17.