Arthamimansa, July-Dec 2025, Vol-17, Issue-II- ISSN 2320-0197

Navigating the Nexus: How Working Capital Management Influences Profitability in Nifty Pharmaceutical Companies

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Abstract:

Effective working capital management is a key driver in shaping a company's financial performance and profitability. It focuses on managing short-term assets and liabilities to ensure that a business has enough cash flow to cover its immediate commitments and operational demands. The purpose of this study is to assess the relationship between working capital management and the profitability of pharmaceutical companies in India. For the empirical analysis, data from 20 pharmaceutical companies listed in Nifty Pharma were considered spanning a decade i.e, 2014-15 to 2023-24. The results are estimated using a multivariate panel data regression technique. The analysis was conducted using pooled ordinary least squares (POLS). To validate the results of the POLS approach, a post-estimation Breusch-Pagan Lagrange Multiplier test was employed, which ultimately led to the rejection of the null hypothesis. Additionally, the research analyzed the suitability of the fixed effects model versus the random effects model through the Hausman test. The study indicates that the random effects model is better suited than the fixed effects model.

Keywords: *Breusch- Pagan, Hausman Test, Panel data, Profitability, Random effect model, Working Capital Management.*

1. Introduction

The idea of working capital was originally introduced by Karl Marx, albeit in different forms, and was called "variable capital" **(Bhattacharya, 2009)**. Subsequently, **Guthman and Dougall (1948)** defined working capital as the difference between current assets and current liabilities, with further analysis provided by **Park and Gladson (1963).** Effective working capital management enhances financial performance by supporting smooth daily operations and enabling firms to capture opportunities. Maintaining an optimal balance between profitability and liquidity is crucial, though managing day-to-day liquidity remains a keychallenge for managers. Any imbalance between current assets and current liabilities can significantly impact the firm's growth and performance **(Dr. Muhammad Azam, 2011)**. When financed through long-term sources, it can increase the company's burdens and costs, ultimately leading to a negative impact on profitability **(Subramanyam, 2014)**. Working capital management (WCM) presents a significant challenge for companies, as it is essential for maintaining an adequate level of liquidity to meet short-term financial obligations arising from operational financing. Effectively managing working capital ensures business continuity and helps maximize profitability **(Aldubhani et al, 2022).** Holding excessive current assets can result in

diminished returns on a company's overall short-term investments. Conversely, having too few current assets can expose the firm to challenges, including operational mismanagement, a decreased ability to fulfill short-term financial obligations, and heightened liquidity risk s **(Nguyen et al., 2020).** Historically, corporate finance has centered on analyzing long-term choices, particularly regarding capital structure, dividend policies, and investment strategies **(Afza & Nazir, 2008)**. However, by leveraging working capital management and evaluating the working capital alongside the cash conversion cycle, companies can effectively manage their daily operations. This strategy not only helps them fulfill short-term commitments but also boosts their profitability **(Padachi, 2006).**

1.1 Overview of the Pharmaceutical Sector in India

India's pharmaceutical sector holds a strong global position, with notable leadership in generics, OTC products, active pharmaceutical ingredients, vaccines, contract research and manufacturing services, as well as biosimilars and biologics. India is also a global leader in generic medicine production, capturing 20% of the market share by volume worldwide and hosting the largest number of US-FDA-approved pharmaceutical facilities outside the United States. With over 3,000 companies and 10,500 manufacturing units, the pharmaceutical industry benefits from a highly skilled workforce.

In the pharmaceutical sector, full FDI is allowed under the automatic route for greenfield projects, while brownfield projects permit up to 74% automatically, with higher investment subject to government approval. Valued at around $50 billion at present, India's pharmaceutical industry is projected to expand to about $65 billion by 2024 and further surge to nearly $130 billion by 2030. The country exports to over 200 nations, supplies about 60% of global vaccines, and provides 70% of the vaccines in the WHO's essential immunization schedule, including DPT, BCG, and measles vaccines **(Invest India, 2024).**

1. Literature Review related to our study

A Literature review involves summarizing and assessing current research on a particular subject. It identifies and examines important research, theories, and discoveries, laying the groundwork for future studies.

1.1 Review Based on working capital management

According to **(Chadda 1964)** The study on Indian firms found fragmented inventory management and recommended using modern methods, like operations research, to improve working capital efficiency. **Sarma and Chary (1999)**, in their analysis of VST Industries Ltd., reported weak working capital management due to the absence of a clear investment and financing policy. The firm also failed to exploit tools such as trading on equity and hedging to improve working capital efficiency. **Shroff (2013)** found that trade receivables form the largest component of current assets, highlighting their key role in current asset management efficiency. The study also examined changes in working capital policy through trends in related ratios. **Brealey et al. (2013)** note that holding excess inventory is costly, as it ties up non-earning capital and increases storage and insurance

expenses. **Shin and Soenen (1998)** compared the financial data and capital structures of Kmart and Wal-Mart and found strong similarities in sales, assets, equity, and debt profiles. **Farris II and Hutchinson (2002)** argue that competitor analysis helps managers benchmark performance and design firm-specific strategies. They also emphasize that improved liquidity achieved through a shorter cash conversion cycle can increase firm value by lowering capital locked in working capital.

2.2 Review Based on Financial Performance:

Reddy (1983) evaluated the profitability of the Indian paper industry by referencing financial data from joint-stock companies in India. The results reveal a strong and statistically meaningful positive association between growth and profitability within the paper industry. **Kim and Kunchul (1996)** explored how profitability, growth, and risk are interconnected, aiming to grasp the differences in profitability through their mutual relationships. **Rei and Sur (2001)** analyzed the interrelationships among profitability ratios using multiple correlation and regression techniques, finding both positive and negative associations with firm position, performance, and overall profitability. According to **Krishna Prasad Upadhyay (2004)** Various financial ratios were employed to evaluate the financial performance of the chosen finance companies. Specifically, the study utilized solvency ratios, liquidity ratios, efficiency ratios, profitability ratios, and valuation ratios. **Shrabanti Pal (2012)** emphasized that firms must strengthen liquidity, solvency, and operational efficiency to enhance profitability, warning that neglecting these areas may erode financial performance. **Neol Capon et al., (1996)** recognizes the minimum efficient scale of industries, geographic distribution of production, barriers to entry, and economies of scale as factors that positively influence performance. In conclusion, the findings align with industrial organization theory.

2.3 Review Based on working capital management and Financial Performance:

Deloof (2003) analyzed firm data from 1992–1996 and found that extended receivable, inventory, and payable periods are linked to poorer performance, while shortening inventory and receivable cycles improves shareholder value, despite profitable firms tending to delay payments. **Azam and Haider (2011)** revealed that liquidity has a negative impact on firm performance, whereas the debt ratio demonstrates a positive effect on performance. **Nguyen and Nguyen (2018)** examined Vietnamese listed firms over 2008–2014 and found that more effective working capital management is associated with higher profitability. **Amponsah-Kwatiah and Asiamah (2020)** similarly reported that, among Ghanaian listed manufacturing firms, improvements in working capital components are positively linked to profitability. According to **Dalci et al. (2019)** decreasing the length of the cash conversion cycle has a beneficial effect on the profits of small and medium-sized businesses. This result was achieved through a range of approaches such as pooled OLS, fixed effects, random effects, and GMM techniques. **Mahmood et al. (2019)** found an inverted U-shaped relationship between working capital and profitability by applying the generalized method of

moments (GMM) methodology to a sample of Chinese firms from 2000 to 2017. Similarly, **Laghari and Chengang (2019)** also reported empirical evidence of this inverted U-shaped relationship for Chinese listed companies, utilizing the same GMM approach. **Seth et.al (2020)** are likely among the first to address potential endogeneity issues by assessing the influence of various exogenous variables on working capital management efficiency and firm performance. **Kabuye et al. (2019)** analyzed 110 Ugandan supermarkets and found that effective working capital management, alongside internal control systems, plays a key role in determining financial performance.

3. Research Methodology

3.1 Research Design: This study analyzes the effect of working capital management on profitability using panel data from 20 Nifty Pharma Index firms, drawn from the CMIE Prowess database for the period 2014–15 to 2023–24.

3.2 Description of Variables used in the Study

3.2.1: Dependent Variable (Profitability)

Profitability measures a firm's ability to generate profit and indicates how efficiently management uses resources to increase business value. **Ebabu Engidaw (2021)** suggests that firms should assess performance using both financial and non-financial measures to gauge goal attainment. Return on assets reflects how efficiently management utilizes company resources to generate returns. It is calculated as:

Return on Asset (ROA)= Net Income (Profit after tax)/ Total Asset **(Bagh et al., 2016)**

3.2.2: Independent Variables (Working Capital Management)

Working capital management ratios are financial tools used to evaluate how effectively a company handles its short-term assets and liabilities. These ratios help assess a firm's liquidity, operating efficiency, and financial stability. This study employs four independent variables.

- **Quick Ratio (Q.R)**: A more conservative measure of liquidity that excludes inventory from assets to determine if a company can pay off short-term liabilities without selling inventory.
- **Inventory Conversion Period (ICP)**: The inventory conversion period (days inventory outstanding) represents the average number of days a firm takes to sell its inventory and is a key indicator of inventory efficiency within the cash conversion cycle.
- **Debtor Collection Period (DCP)**: The debt collection period (accounts receivable period) measures the average time a firm takes to collect cash from customers after credit sales, reflecting how efficiently receivables are converted into cash and managed for liquidity.
- **Cash Conversion Cycle (CCC)**: The Cash Conversion Cycle (CCC) serves as a vital financial gauge, capturing the duration a company needs to turn its investments in inventory and other resources into actual cash from sales. This metric effectively reveals the efficiency with which a company oversees its working capital.

3.2.3: Control Variables

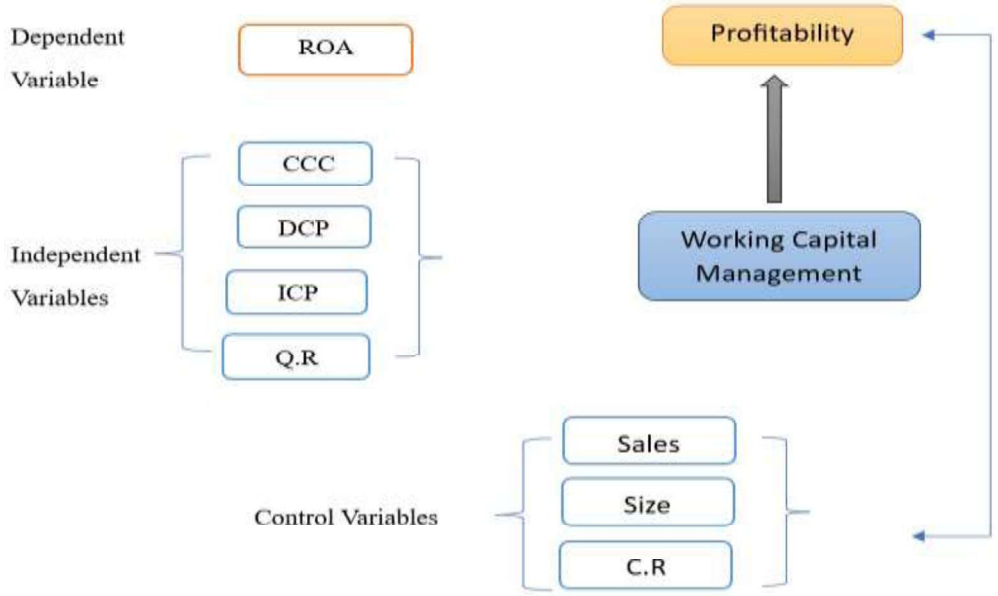
- **Sales**: Including sales as a control variable helps isolate the effects of other independent variables on the dependent variable by accounting for variations in sales, allowing

clearer interpretation of relationships.

- **Firm Size**: Firm size refers to the scale or magnitude of a company, often measured in various ways. In our study we have calculated it as natural logarithm of total asset.

- **Current Ratio (C.R)**: Current assets are resources that a company anticipates will be transformed into cash or utilized within a year or its operating cycle, whichever is longer. These assets are vital for ensuring the company's liquidity and enhancing its operational efficiency.

3.3 Conceptual Framework of the Study



Source: Author own Compilation

3.4 Statistical Tools/ Techniques

The study uses descriptive statistics and correlation analysis to assess multicollinearity, while panel unit root tests, Levin–Lin–Chu, Im–Pesaran–Shin W-stat, ADF-Fisher, and PP-Fisher ensure data stability.Testing for heteroskedasticity is essential in panel data analysis, as its presence can lead to biased and inefficient coefficient estimates. Accordingly, the Breusch–Pagan–Godfrey and Harvey tests are applied. To examine the effect of working capital management on profitability in pharmaceutical firms, panel regression models—pooled OLS, fixed effects, and random effects are estimated. The Breusch–Pagan Lagrange Multiplier test is used to assess the suitability of pooled OLS, followed by the **Hausman (1978)** test to select between fixed and random effects models.

Framework of the Empirical Model:

$ROA_{it} = \alpha + \beta_1 (CCC)_{it} + \beta_2(ICP)_{it} + \beta_3(DCP)_{it} + \beta_4(QR)_{it} + \beta_5(Sales)_{it} + \beta_6(Size)_{it} + B_7(CR)_{it} + \mu_i + \varepsilon$ ..... (equation 1)

Where, 'i' denote the companies, 't' denotes the year, 'a' is the intercept, 'β' is the coefficient of independent and control variable, 'μ' is the unobserved time variant and 'ε' is the error term.

4. Hypotheses of the Study

H_1: CCC shows no statistically significant effect on ROA

H_2: DCP shows no statistically significant effect on ROA

H_3: ICP shows no statistically significant effect on ROA
H_4: QR shows no statistically significant effect on ROA
H_5: Size shows no statistically significant effect on ROA
H_6: C.R shows no statistically significant effect on ROA
H_7: Sales shows no statistically significant effect on ROA

5. Results and Findings

The study begins which descriptive statistics which help us to know the nature of the variables followed by correlation analysis. To check for the stationarity of data, different panel data unit root test has been considered in our study followed by Breusch- Pagan-Godfrey / Harvey Test for Heteroskedasticity. The examination was carried out using combined ordinary least squares (POLS), Lagrange Multiplier Tests for Random Effects was used for the estimation. The suitability of fixed effects relative to random effects was evaluated using the Hausman test. All the statistics used in our study are discussed below:

Table 1: Descriptive statistics of the Variables

	ROA	CCC	DCP	ICP	QR	SIZE	CR	SALES
Mean	10.28	20.71	88.68	37.01	1.57	9.02	2.33	6104.98
Median	9.88	24.34	87.96	34.98	1.31	9.06	1.90	4846.03
Maximum	23.48	107.56	268.33	83.80	7.74	10.74	9.85	21380.92
Minimum	-3.78	-82.00	15.40	4.31	0.24	7.01	0.44	628.18
Std. Dev.	5.27	37.02	43.52	19.36	1.12	0.90	1.50	43331.43
Observations	200	200	200	200	200	200	200	200

Source: Eviews 12 output

The mean ROA is 10.28 with a standard deviation of 5.27, ranging from −3.78 to 23.48. Firms exhibit an average cash conversion cycle of 20 days, with receivables collected in about 88 days (SD = 43), while inventory is converted in roughly 37 days. The mean quick ratio is 1.57. Liquidity, measured by the current ratio, averages 2.33 with a standard deviation of 1.50. Firm size, proxied by the natural log of sales, has a mean of 9.02 (SD = 0.90), with logged sales ranging from 628.18 to 21,380.92.

Table 2: Correlation Matrix between the variables

Variables	ROA	CCC	DCP	ICP	QR	CR	Sales	Size
ROA	1							
CCC	-0.067	1.000						
DCP	-0.345	0.310	1.000					
ICP	0.139	-0.045	-0.602	1.000				
Q.R	0.265	0.117	-0.013	-0.198	1.000			
C.R	-0.239	0.145	-0.046	-0.163	0.780	1.000		
Sales	-0.132	0.261	0.378	-0.036	-0.075	-0.070	1.000	
Size	-0.284	0.162	0.539	-0.176	0.020	0.021	0.726	1

Source: Eviews 12 output

Churchill and Iacobucci (2005) note that multicollinearity reduces the explanatory power of variables. In this study, ROA correlates positively with inventory conversion and quick ratio, but negatively with cash conversion cycle, debt collection, current ratio, sales, and firm size. The cash conversion cycle is positively linked to debt collection, liquidity, sales, and size, and negatively to inventory conversion, while debt collection correlates positively with sales and size but negatively with inventory conversion and liquidity ratios.

Table 3: Results of Panel Unit Root Test

	Levin,Lin, and Chu Test	Im, Pesaran and Shin W-Statistics	ADF-Fisher chi- square	PP-Fisher Chi-square	Results
Statistics with P Values					
ROA	-6.09266 (0.0000)	-2.83756 (0.0023)	80.8686 (0.0001)	56.4147 (0.0442)	***No unit root***
CCC	-7.09689 (0.0000)	-2.46755 (0.0068)	68.3782 (0.0034)	104.900 (0.0000)	***No unit root***
DCP	-13.5798 (0.0000)	-3.52069 (0.0002)	78.4546 (0.0003)	125.094 (0.0000)	***No unit root***
ICP	-10.3761 (0.0000)	-3.40374 (0.0003)	84.3858 (0.0001)	115.312 (0.0000)	***No unit root***
Q.R	-1.79252 (0.0365)	-1.76148 (0.0391)	59.7880 (0.0228)	228.216 (0.0000)	***No unit root***
C.R	-9.27093 (0.0000)	-2.80215 (0.0025)	70.7106 (0.0020)	149.905 (0.0000)	***No unit root***
Sales	-5.95271 (0.00000)	-2.92993 (0.0017)	76.1518 (0.0005)	253.246 (0.0000)	***No unit root***
Size	-7.89336 (0.0000)	-3.49570 (0.0002)	81.9627 (0.0000)	207.855 (0.0000)	***No unit root***

Source: Eviews 12 output

Panel unit root tests were conducted to verify the stationarity of panel data before estimation. The analysis employs the Levin–Lin–Chu, Im–Pesaran–Shin, ADF–Fisher, and PP–Fisher approaches. The results indicate that all variables are stationary, as their p-values are below 0.05.

Table 4: Test for Heteroskedasticity

Heteroskedasticity Test: Breusch- Pagan- Godfrey / Harvey Test Null Hypothesis: Homoskedasticity		
	Breusch- Pagan- Godfrey	Harvey Test
F- Stastistics	1.801209	0.987459
Obs R- squared	12.32448	6.950016
Scaled explained SS	14.10003	6.736170
Prob. F (7, 192)	0.0890	0.4416
Prob. Chi- Square (7)	0.0904	0.4341

Source: Eviews 12 output

The study uses two test to calculate heteroskedasticity. The above table shows that the SS version explained by the scale of F, $\chi 2$ statistics and test statistics come to the same conclusion, revealing the absence of heteroscedasticity as in all cases the p-values are greater than 0.05.

Table 5: Pooled Ordinary Least Square (POLS)

Dependent Variables: ROA				
Method: Pooled Ordinary Least Squares (POLS)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	33.68849	5.766063	5.842547	0.0000
CCC	-0.010637	0.010466	-1.016264	0.3108
DCP	-0.022581	0.012868	-1.754863	0.0809
ICP	0.000703	0.023439	0.029983	0.9761
QR	0.409537	1.526623	0.268263	0.7888
Sales	0.000487	0.000146	3.327472	0.0011
Size	-2.959881	0.766315	-3.862485	0.0002
CR	0.804259	1.153696	0.697115	0.4866
R-squared	0.246580	*Mean dependent var*		10.28487
Adjusted R-squared	0.219112	*S.D. dependent var*		5.271406
S.E. of regression	4.658230	*Akaike info criterion*		5.954326
Sum squared resid	4166.228	*Schwarz criterion*		6.086259
Log likelihood	-587.4326	*Hannan-Quinn criter.*		6.007717
F-statistic	8.976856	*Durbin-Watson stat*		1.063472
Prob (F-statistic)	0.000000			

Source: Eviews 12 output

The results for pooled data are displayed in the above table. Our dependent variable, ROA has a negative relationship with CCC and DCP but a positive relationship with ICP and Sales. ROA does not significantly correlate with size, CR, or QR. The results are examined for panel effect since the data may have a fixed effect or a random effect.

As the p value for Breush pagan test is less than 0.05 so we reject the null hypothesis which means that Pooled OLS is not stable. Selecting the appropriate panel regression approach requires evaluating whether unobserved heterogeneity is better captured through fixed effects or treated as random effects.

Table 6: Breusch- Pagan Test

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Breusch-Pagan 32.24912 (0.0000)

Source: Eviews 12 output

Table 7: Fixed Effect Model Estimation

Dependent Variables: ROA				
Method: Fixed Effect Model				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	37.99270	8.047269	4.721191	0.0000
CCC	-0.017609	0.014318	-1.229838	0.2204
DCP	-0.046917	0.044484	-1.054686	0.2930
ICP	0.019520	0.016147	1.208863	0.2284
QR	2.982413	2.381394	1.252381	0.2121
Sales	-2.072923	1.925670	-1.076469	0.2832
Size	0.000751	0.000180	4.177744	0.0000
CR	-3.523444	1.006973	-3.499047	0.0006
R-squared	0.501699	*Mean dependent var*		10.28487
Adjusted R-squared	0.426810	*S.D. dependent var*		5.271406
S.E. of regression	3.990945	*Akaike info criterion*		5.730907
Sum squared resid	2755.482	*Schwarz criterion*		6.176180
Log likelihood	-546.0907	*Hannan-Quinn criter.*		5.911102
F-statistic	6.699224	*Durbin-Watson stat*		1.457065
Prob(F-statistic)	0.000000			

Source: Eviews 12 output

Table 8: Random Effect Model Estimation

Dependent Variables: ROA				
Method: Random Effect Model				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	39.68829	6.715488	5.909964	0.0000
CCC	-0.016437	0.012362	-1.329666	0.0052
DCP	-0.002865	0.013890	-0.206281	0.0368
ICP	-0.003640	0.029561	-0.123148	0.9021
QR	1.627199	1.904182	0.854540	0.01939
SALES	0.000645	0.000160	4.036530	0.0001
SIZE	-3.770466	0.859118	-4.388763	0.0000
CR	-0.499002	1.501291	-0.332382	0.7400
R-squared	0.132448	*Mean dependent var*		4.467828
Adjusted R-squared	0.100818	*S.D. dependent var*		4.273502
S.E. of regression	4.052357	*Durbin-Watson stat*		1.331508
F-statistic	4.187468	*Sum squared resid*		3152.947
Prob(F-statistic)	0.000257	*Durbin-Watson stat*		1.331508

Source: Eviews 12 output

Table 9: Result for Hausman Test

Correlated Random Effects - Hausman Test Equation			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.954414	7	0.0732

Source: Eviews 12 output

Since the p-value exceeds 0.05, we do not reject the null hypothesis, indicating that the random effects model is more suitable **(Oberleitner et al., 2023); (Mengstie et al., 2024).**

6. Conclusion:

The pharmaceutical sector in India is a key player in the global healthcare landscape, recognized for its significant contributions to drug production and innovation. The purpose of this study is to investigate how WCM affects the profitability of pharmaceutical businesses that are listed on the Nifty. Data was collected from CMIE Prowess for a duration of 10 years. According to **Raheman and Nasr (2007)** effective working capital management (WCM) is a crucial component of financial stewardship, playing a vital role in enhancing a company's wealth generation by directly impacting both its profitability and liquidity. Prior to panel regression, multicollinearity and unit root diagnostics were performed. The random effects model was chosen since the p-value was above 0.05. Under the random effects specification, the quick ratio and debtors' turnover ratio emerge as statistically significant positive drivers of ROA, with both coefficients significant at the 5% level **(Paul and Mitra 2018).** Cash conversion cycle has a negative impact on profitability **Deloof (2003), khan et al. (2020)**. There is no impact of Inventory conversion period on return on asset **Mahalwala and Ahuja (2023).** According to the results of this study, companies are recommended to maintain their working capital components at optimal levels in order to efficiently oversee their operations. Effective utilization and managing of these components is crucial as they greatly affect profitability. This research will contribute to the current knowledge by showing how pharmaceutical firms improve their working capital management to enhance business profitability in a successful and efficient manner.

References:

Afza T, Nazir MS (2008): Working Capital Approaches and Firm's Returns in Pakistan. Pakistan Journal of Commerce and Social Sciences, 1(1):25–36.

Aldubhani, M. A., Wang, J., Gong, T., & Maudhah, R. A. (2022). Impact of working capital management on profitability: evidence from listed companies in Qatar. *Journal of Money and Business*, *2*(1), 70-81.

Amponsah-Kwatiah, Kofi, and Michael Asiamah. 2020. Working capital management and profitability of listed manufacturing firms in Ghana. International Journal of Productivity and Performance Management.

Azam, M., & Haider, S. I. (2011). Impact of working capital management on firms' performance: evidence fromnon-financial institutions of KSE-30 index. Interdisciplinary journal of contemporary research in business,3(5), 481-492.

Bagh, T., Nazir, M. I., Khan, M. A., Khan, M. A., & Razzaq, S. (2016). The impact of working capital management on firms financial performance: Evidence from Pakistan. *International Journal of Economics and Financial Issues*, *6*(3), 1097-1105.

Bhattacharya, H. (2009). Working Capital Management: Strategies and Techniques (2nd ed.). New Delhi: Prentice-Hall of India Pvt. Ltd

Brealy, Myers, & Allen (2013). Working Capital Management, Corporate Finance, New York, McGraw-Hill.

Capon, N., Farley, J. U., Hoenig, S., Capon, N., Farley, J. U., & Hoenig, S. (1996). What Determines Corporate Financial Performance? *Toward an Integrative Explanation of Corporate Financial Performance*, 1-25.

Chadda, R. S. (1964). Inventory management in India. Bombay: Allied Publishers.

Dalci, Ilhan, Ozyapici Hasan, Tanova Cem, and Murad Bein. 2019. The Moderating Impact of Firm Size on the Relationship between Working Capital Management and Profitability. Prague Economic Papers 28: 296–312

Debases Rai and Debasish Sur (Nov. 2001) Profitability analysis of Indian Food Products Industry: A case study of Cadbury India Ltd. The Management Accountant.

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms? Journal of businessfinance & Accounting, 30(3-4), 573-588

Muhammad Azam, s. i. (2011). impact of working capital management on firm performance. interdisciplinARY journal of contemporary research in business, 2, 481.

Ebabu Engidaw, A. (2021). The effect of external factors on industry performance: The case of Lalibela City micro and small enterprises Ethiopia. Journal of Innovation and Entrepreneurship, 10(1), 1–14.

Farris II, M. T. & Hutchinson, P. D., 2002, "Cash-to-cash: the new supply chain management metric", International Journal of Physical Distribution & Logistics Management, 32, 3, pp. 288-298.

Guthmann, H. G., & Dougall, H. E. (1948). Corporate Financial Policy (2nd ed.). New York: Prentice-Hall, Inc.

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the econometric society*, 1251-1271.

Kabuye, Frank, Joachim Kato, Irene Akugizibwe, and Nicholas Bugambiro. 2019. Internal control systems, working capital management and financial performance of supermarkets. Cogent Business and Management 6: 1573524.

Khan, M. M., Shafique, D. Z., Safdar, M. Z., Mustafa, K., Awan, A. M., & Qasim, A. (2020). Impact of working capital management on firm's profitability (a case of telecom sector in

Pakistan). *International Journal of Management (IJM)*, *11*(7).

Kim and Kunchul (Jan. 1996) Profitability, growth and risk optimization. DDAI.A 56/7.

Krishna Prasad Upadhyay (2004), "Financial analysis of finance companies in pokhara: A comparative study of pokhara finance limited and Annapurna finance company limited", The journal of Nepalese business studies.

Laghari, Fahmida, and Ye Chengang. 2019. Investment in working capital and financial constraints: Empirical evidence on corporate performance. International Journal of Managerial Finance 15: 164–90.

Mahalwala, R., & Ahuja, G. (2023). Impact of Working Capital Management on Profitability: A Study of the Select Indian Pharmaceutical Companies. *Review of Professional Management*, *21*(1).

Mahmood, Faisal, Dongping Han, Nazakat Ali, Riaqa Mubeen, and Umeair Shahzad. 2019. Moderating Effects of Firm Size and Leverage on the Working Capital Finance–Profitability Relationship: Evidence from China. Sustainability 11: 2029.

Mengstie, B., Mosisa, T., & Mosisa, T. (2024). Impact of working capital management on profitability of private commercial banks in Ethiopia. *Journal of Innovation and Entrepreneurship*, *13*(1), 23

Nguyen, A.H., Pham, H.T. and Nguyen, H. (2020), "Impact of working capital management on firm's profitability: empirical evidence from Vietnam", The Journal of Asian Finance, Economics, and Business, Vol. 7 No. 3, pp. 115-125.

Nguyen, An Thanh Hong, and Tuan Van Nguyen. 2018. Working capital management and corporate profitability: Empirical evidence from Vietnam. Foundations of Management 10: 195–206

Oberleitner, T., Zahel, T., Kunzelmann, M., Thoma, J., & Herwig, C. (2023). Incorporating random effects in biopharmaceutical control strategies. *AAPS Open*, *9*(1), 4.

Padachi K (2006): Trends in Working Capital Management and its Impact on Firms' Performance: An Analysis of Mauritian Small Manufacturing Firms. International Review of Business Research Papers, 2(2):45–58.

Park, C., & Gladson, J. W. (1963). Working capital. New York: Macmillan

Paul, P., & Mitra, P. (2018). Analysis of the effect of working capital management on profitability of the firm: Evidence from Indian steel industry. *Asia-Pacific Journal of Management Research and Innovation*, *14*(1-2), 32-38.

Raheman, A., & Nasr, M. (2007). Working capital management and profitability: Case of Pakistani firms. International Review Business Research Papers, 3(1), 279–300.

Reddy, "Profitability and Growth of Indian Manufacturing industries", Arthavikas Jan 1983, Vol. XIX, No. 12, Pp. 19-34.

Sarma M. S. And Chary T. (1999). Working Capital 100. Management in VST-An Appraisal. Finance India. Khandelwal, N. M. (1985), Working

Capital Management in Vol XII (1), March 1999, pp. 71-79.

Seth, Himanshu, Saurabh Chadha, Satyendra Kumar Sharma, and Namita Ruparel. 2020. Exploring predictors of working capital management efficiency and their influence on firm performance: An integrated DEA-SEM approach. *Benchmarking-An International Journal*.

Shin, H. H. & Soenen, L., 1998, "Efficiency of Working Capital Management and Corporate Profitability", Financial Practice & Education, 8, 2, pp. 37-45.

Shrabanti pal (2012), "Comparative study of financial performance of Indian steel companies under globalization", International journal of accounting and financial management research.

Shroff, S. J. (2013). An Empirical Analysis of Working New Delhi. Capital Policy, Risk and Leverage. Pakistan Lamberson, M. (1995). Changes in Working Capital of Business Review, 14(4), pp. 712-731.

Subramanyam, K. (2014), Financial Statement Analysis, McGraw Hill Education

https://www.investindia.gov.in/sector/pharmaceuticals#:~:text=The%20nation%20is%20the%20largest,through%20the%20government%20approval%20route.

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