



IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY: EVIDENCE FROM A MANUFACTURING UNIT

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ABSTRACT :

This study aims to comprehend how working capital (WC) effects on profitability in a manufacturing unit. It also focuses to study the association between the various components of WC. This empirical study uses ten years data from 2014 to 2023 and underlines a manufacturing unit named 'Peenya Fine Comp. pvt limited'. Panel data regression models - OLS along with correlation and descriptive analysis are applied to data analysis. This study identified several important elements that have a significant impact on working capital. Using the various analysis, the study highlights that the independent variables are vital elements in judging the WCM in a manufacturing unit. During the analysis we observed variables like leverage, size, profitability has a positive impact on WCM whereas SGR has a negative coefficient because of variations in market trends. The limiting factor is the sample size which is limited to a single manufacturing unit. The utilised analysis is applicable for limited period as every year the variables keep varying. The study's conclusions could be impacted by external economic and industry-specific factors that are outside the manufacturing unit's control. Multiple variables which have an impact on profitability are used to understand the dependency of working capital in a manufacturing unit. A handful of research studies have specifically addressed the Indian economy, even though several have looked at the effects of working capital on manufacturing units.

Keywords: Working Capital Management, profitability, Peenya Manufacturing unit.

INTRODUCTION :

The main hurdle that businesses encounter is working capital management (WCM), which can offer a practical and suitable degree of liquidity to help them meet their short-term financial obligations as an outcome of funding their operations. This helps the businesses maintain their operations and increase their profitability. WCM primarily deals with current assets and liabilities, which are crucial components of a company's total assets. Sustaining excessive quantities of resources causes the business's overall short-term investments to yield inefficient profits. Inversely, though, a company with comparatively limited current assets will be more susceptible to challenges and issues, including a quick failure to manage the company's operations, a reduction in the company's ability to satisfy its short-term financial responsibilities. For that reason, implementing an adequate approach to WC will help businesses boost revenue and add value for shareholders (Maad A. Q. Aldubhani, 2022). WCM thus has a significant and impactful effect on the liquidity, profitability, and operational effectiveness of the firms' owned resources, and consequently on the overall worthiness of company.

Therefore, it can be demonstrated that the company's WC is the lifeline and an integral continuation of the business's operations. The successful handling of WC is essential to the company's goal attainment. Effective WCM is essential to a company's long-term existence since it helps it stay competitive and prevent financial difficulties (Joseph Dery Nyead, 2018). Additionally, excessive investment due to poor WCM can completely ruin a company's worth. It implies that poor WCM severely harms a company's ability to create value for its owners (Fitim Deari, 2022).

This study aims to comprehend the effects of working capital on profitability in a manufacturing unit. It also focuses to study the association between the various parameters of WC. Thus, the paper is supported with literature reviews and data which has been collected from the company.

REVIEW OF LITERATURE :

Several researchers have examined the repercussions of WCM on profitability with the various determinants which have an impact on it. This literature study examines a compilation of research and academic works that investigate the complex relationship between profitability and WCM, with a particular emphasis on empirical data obtained from manufacturing units. This review attempts to provide important insights into the complex interactions between WC determinants and fiscal health of manufacturing entities by evaluating and synthesising earlier research. Comprehending these associations is crucial for professionals, legislators, and scholars in equal measure, as it establishes a basis for knowledgeable decision-making and tactical financial planning in the ever-changing manufacturing sector.

(Maad A. Q. Aldubhani, 2022) explored the consequences of WCM methodologies on the financial health of manufacturing firms quoted on Qatar Stock Exchange. The study uses parameters for the years 2015-2019. Extensive inventory turnover and Payables in advance durations are linked to improved profitability, which also show that organizations with optimal utilization of cash is a pro factor. The current research is noteworthy for its complete approach to measuring profitability, which includes operating profit margin, ROA, ROCE, and ROE. Additionally, first analysis of the Qatar Stock Exchange, offering insightful information on link between profitability and WCM. Kafeel (2020) investigates the relationship between WCM and the profitability of industrial firms from 2007 - 2018 by using a combination of models. A company's performance is measured by ROA, while WCM is measured by the length of the receivables collection period and the inventory conversion cycle.

Deloof (2003) examined Belgian businesses to investigate how WCM affects Belgium businesses' profitability and found that many businesses have a sizable amount of money put aside for working capital. Consequently, it follows that how WCM is managed will have a big impact on how profitable businesses are. Nufazil Altaf (2019) showcased the association between WC finance and performance over a ten-year period in 437 Indian non-financial enterprises. The study uses advanced statistical methods and the Capitaline database to show that WC finance and firm performance have an inverted U-shaped connection. Additionally, businesses with more resources can finance working capital with more short-term debt. This study adds significant fresh data to the limited body of literature on the subject, particularly considering India's expanding market conditions.

Fitim Deari (2022) demonstrated the association between WCM and firm profitability in eight member states of the European Union between 2006 and 2015. The study measures profitability by using the ROA ratio and a panel regression model. The independent variables include size, tangibility, financial leverage, and cash flow ratio. Interestingly, the cash flow ratio is used by the research to classify businesses as healthy or unhealthy. Results showcase that WC management and profitability are positively correlated, with national differences being evident. The study highlights the significance of preserving an ideal cash cycle length and recommends that businesses prioritize WC to maximize profitability. Joseph Dery Nyeadi (2018) examines the factors that influence the working capital requirements of Ghanaian listed companies. It was discovered that while working capital is substantially favorably impacted by age, profitability, and operational cycle, GDP growth, sales growth, and leverage have an inverse relationship with working capital. Monica Singhanian (2017) explores the complex connection between business profitability and WCM in eleven different Asia Pacific economies. Based on fiscal information from major indexes and analytical modelling, the study finds a non-linear relationship between WCM and profitability. This analysis is useful tool for local and international businesses who want to maximize their performance by comprehending and adjusting to the complex effects of WCM on profitability in various markets. The uniqueness of the study resides in how it clarifies the importance of WCM for businesses in East, South, and Southeast Asia.

Bhaskar Bagchi (2012) highlighted the connection of profitability and WCM in FMCG sector. The study analyses data from 10 FMCG companies over a 10-year duration using panel data regression analysis. The results signify that better profitability in the FMCG sector may result from efficient WCM. Julius Enqvist (2014) focuses in what way WCM affects a company's profitability across various business cycles. Information of listed companies spanning an 18-year period are taken into consideration. The goal of the research was to determine whether the relationship between WC effectiveness and business profitability varied in any way. The study concludes that a connection amongst WC and profitability is more prominent during economic downturns than it is during booms. The significance of having effective supervision of inventory and receivables account conversion periods during recessions is also emphasized. The results suggest that organizations should consider proactive WCM while doing their financial planning.

RESEARCH METHODOLOGY :

The annual report of Peenya Fine Comp private limited will be the source of secondary data; the sample size is ten years, or from 2014 to 2023. After considering the best-fitting factors listed below, an equation was developed to examine the connection between profitability and WCM. To do further investigation, financial accounts from previous years have been compared. The use of financial ratios as an analytical technique to assess a company's profitability and productivity. The data will be analyzed by using descriptive statistics, Correlation and Regression analysis.

The dependent variable is working capital itself and the independent variables used as the determinants of WCM which are Total assets (SIZE), Sales growth (SGR), Return on assets which is profitability (ROA) and Leverage (LEV).

Table 1: Shows the variables along with their proxy measures:

VARIABLES	CODE	DEFINITION
<i>dependent variable</i>		
Working capital	WCR	It is defined as working liquid assets less working liquid liabilities. It is calculated as [(Current Assets)- (Current Liabilities)]/Total Assets
<i>Independent Variables</i>		
size	SIZE	This is defined as the natural log of Total Assets
Sales Growth	SGR	It is the annual percentage change in sales. It is calculated as (Total Salest—total Salest-1)/total Salest-1
Profitability	ROA	It is the return on assets. It is calculated as Profit before Interest and Tax divided by Total Assets
leverage	LEV	It is calculated as total debt/(total debt + total equity)

Panel data analysis is used for assessing the elements that influence determinants of WCR. The model employed is r cross-sectional units, designated $r = 1, \dots, R$ observed at each of s time periods, $s = 1, \dots, S$. There is $r \times s$ total observations in the data set. The following regression model defines the foundation for the panel data:

$$y_{nt} = \alpha + \beta x_{nt} + \varepsilon_{nt}$$

Here the dependent variable (WCR) is indicated by y_{nt} , the intercept term on the descriptive variables is utilised and represented by α , and the matrix of samples is x_{nt} , which is $1 \times k$, $t = 1, \dots, T$; $n = 1, \dots, N$. The model's function is as below:

$$WCR = f(SIZE, SGR, ROA, LEV)$$

$$WCR = \alpha + \beta_1 SIZE_{nt} + \beta_2 SGR_{nt} + \beta_3 ROA_{nt} + \beta_4 LEV_{nt} + \varepsilon_{nt}$$

EMPHIRICAL EVIDENCE AND FINDINGS :

DESCRIPTIVE STATISTICS

Understanding the dataset of Peenya manufacturing unit *is made possible by the descriptive assessment of chosen variables in table 2*. The descriptive analysis presents a detailed snapshot of various financial variables within a manufacturing unit. The mean values indicate an average Working Capital Requirement (WCR) of \$69,236,398, a SIZE of 18.56, a Sales Growth Rate (SGR) of 5.24%, a Return on Assets (ROA) of 0.0183, and a Leverage (LEV) of 1.65. Standard errors provide insights into the precision of these averages, with WCR having an SE of \$9,706,425, SIZE at 0.41, SGR with 13.02%, ROA at 0.0134, and LEV at 0.0772. Standard deviations quantify the extent of data dispersion around the mean, offering a sense of variability. The kurtosis and skewness values shed light regarding the form of distribution, indicating whether the data is more peaked or spread out. The range, spanning from the minimum to maximum values, highlights the dataset's breadth. Collectively, these statistical measures furnish a comprehensive understanding of the manufacturing unit's financial landscape, aiding in robust analysis and decision-making.

TABLE 2: Explaining the descriptive statistics which covers the mean, median, SD and followed by other results.

	WCR	SIZE	SGR	ROA	LEV
Mean	69236398	18.56258	5.237397	0.018282	1.650643
Standard Error	9706425	0.409202	13.01575	0.01341	0.077203
Standard Deviation	30694411	1.294011	41.15943	0.042405	0.244136
Sample Variance	9.42E+14	1.674465	1694.099	0.001798	0.059603
Kurtosis	2.449529	7.672166	5.265954	-1.27386	0.799595
Skewness	-0.88168	-2.63938	-1.9072	-0.45427	1.131579

Range	1.13E+08	4.583146	156.5525	0.117099	0.731453
Probability	0.544597	0.000803	0.033743	0.633682	0.467383
Minimum	845034.8	15.04921	-98.9777	-0.04413	1.437004
Maximum	1.14E+08	19.63236	57.57481	0.072966	2.168456
Sum	6.92E+08	185.6258	52.37397	0.182819	16.50643
Sum Sq. Dev	8.48E+15	15.07019	15246.89	0.016184	0.536423
Count	10	10	10	10	10

REGRESSION ANALYSIS

Ordinary least squares regression (OLS) is widely used to calculate the parameters of linear regression that depict the connection that occur between a dependent variable and several independent quantitative variables in table 3. The coefficient for LEV is 1759048, with a standard error of 46929249. The T-statistic is 0.037483, and the probability associated with it is 0.9716. The positive coefficient for LEV suggests a positive association with WCR, but the association is not clearly established as the coefficient is not statistically significant (p-value = 0.9716). The negative coefficient for SGR implies a negative impact with WCR. However, this connection is non-statistically significant (p-value = 0.791), indicating that changes in sales growth rate are not consistently linked to changes in WCR. The positive coefficient for SIZE implies a positive relationship with WCR. This association is statistically significant at 5% level (p-value = 0.0392), indicating that bigger businesses typically to have higher working capital ratios. The positive coefficient for ROA suggests a positive relationship with WCR. However, this association is not statistically significant (p-value = 0.4651), indicating that changes in return on assets are not consistently linked to modifications in WCR.

TABLE 3: Explaining the impact of independent variables on dependent variable.

Dependent Variable: WCR

Least Squares Date: 01/18/24

Time: 11:42

Sample: 2014 2023

Included observations: 10

Variable	Coefficient	Std. Error	T-statistics	Probability
C	-4.09E+08	1.82E+08	-2.242534	0.075
LEV	1759048	46929249	0.037483	0.9716
SGR	-91359.11	326801	-0.2799556	0.791
SIZE	25445560	9171472	20774425	0.0392
ROA	1.67E+08	2.11E+08	0.790514	0.4651

R-squared	0.885727	Mean dependent var	69236398
Adjusted R-squared	0.794310	S.D. dependent var	30694411
S.E. of regression	13920877	Akaike info criterion	36.04253
Sum squared resid	9.69E+14	Schwarz criterion	36.19382
Log likelihood	-175.2127	Hannan-Quinn criter.	35.87656
F-statistic Prob	9.688756	Durbin-Watson stat	1.065368
prob (F-statistic)	0.014189		

CORRELATION ANALYSIS

Relationship between independent and dependent variables (i.e., how strongly one variable affects the other variable) is shown in table 4. The positive correlation coefficient of 0.91 between WCR and Size suggests a strong connection, indicating that larger companies tend to have higher working capital ratios. Furthermore, the positive correlation of 0.79 between SGR and WCR suggests that companies registering greater growth in sales are probably to have a more substantial working capital ratio. The negative correlations between ROA and Size (-0.20) and ROA and SGR (-0.28) indicate

that larger firms and those with increased growth in sales may face challenges in achieving higher returns on assets. Additionally, the negative correlation of -0.33 between LEV and WCR suggests an inverse relationship, indicating that as leverage decreases, working capital ratio tends to increase. In summary, these correlations shed light on potential linkages and trends within the financial performance metrics, emphasizing the influence on size, sales growth, and leverage on WC and ROA.

TABLE 4: Explaining the correlation analysis for the dependent and independent variables.

	WCR	SIZE	SGR	ROA	LEV
WCR	1				
SIZE	0.906638	1			
SGR	0.78935	0.91838	1		
ROA	0.062781	-0.19827	-0.27805	1	
LEV	-0.32966	-0.56552	-0.66232	0.789479	1

CONCLUSION:

A manufacturing facility needs WC to maintain efficient daily operations, good inventory control, and ideal cash flow. It offers the adaptability needed to handle alterations in the economy, satisfy seasonal demands, and adjust to changes in the market. A prime WC is essential for retaining one's financial stability and taking advantage of company prospects. The research has been conducted in Peenya Fine Comp pvt. Ltd. which revealed that the factors are imperative on working capital which have a significant effect. Using the basic descriptive, regression and correlation analysis, the study highlights that the independent variables are vital elements in determining the WCM in a manufacturing unit. During the analysis we observed variables like leverage, size, profitability has a positive impact on WCM whereas SGR has a negative coefficient due to variations in market trends. The limiting factor is that WC is also impacted by external factors which have not been in consideration in this study. External factors like GDP, economic activities or trends are also crucial for the WCM. To conclude with further research can be done by also considering the external variables which significantly influence WCM.

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