ANALYSIS OF THE EFFECT OF WORKING CAPITAL, LIQUIDITY, SOLVENCY, AND ACTIVITY ON PROFITABILITY IN PHARMACEUTICAL SECTOR COMPANIES LISTED ON THE INDONESIAN STOCK EXCHANGE

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Abstract

This study investigates the impact of working capital, liquidity, solvency, and activity on profitability, with a specific focus on pharmaceutical companies listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023—a sector chosen due to its distinctive financial dynamics, including high research and development expenditures, prolonged product cycles, and heightened relevance in the post-pandemic period. Utilizing a quantitative approach with panel data regression, the study incorporates model selection tests (Chow, Hausman, and Lagrange Multiplier) and classical assumption tests to validate the model, addressing potential issues such as multicollinearity, heteroscedasticity, and autocorrelation. The analysis is based on secondary data from a defined sample of pharmaceutical firms, with operationalization of variables such as "activity" measured through asset turnover ratios. Findings reveal that while liquidity exerts a significant positive influence on profitability, suggesting the importance of effective cash management and short-term asset optimization, working capital and solvency display negative yet statistically insignificant effects, possibly reflecting the sector's dependence on long-term investments and leveraged capital structures. The study underscores the need for pharmaceutical firms to balance liquidity with strategic allocation of capital in light of industry-specific constraints.

Keywords: Activity, Liquidity, Profitability, Solvency, Working Capital

INTRODUCTION

The COVID-19 pandemic had far-reaching consequences across global economies, and Indonesia was no exception. It led to a significant economic downturn, disrupting numerous sectors and causing financial instability. Amid this turbulence, the manufacturing industry an essential pillar of Indonesia's economic framework continued to play a pivotal role by producing goods that fuel both domestic and international trade. Notably, the pharmaceutical sector within manufacturing demonstrated remarkable resilience and growth, largely due to heightened public demand for healthcare products and services during the pandemic.

This surge in demand created a rare opportunity for pharmaceutical companies, which not only increased their sales but also contributed to broader economic stability through job creation, trade multiplier effects, and sustained investor interest. Even in the post-pandemic period, this sector continues to exhibit strong performance. For instance, Indonesia's pharmaceutical industry recorded double-digit growth in the years following the pandemic, outpacing several other manufacturing subsectors (BPS, 2023). Given its strategic importance, analyzing the financial performance of pharmaceutical firms offers crucial insights, especially as these firms operate in capital-intensive and high-R&D environments where efficient financial management is key to sustaining profitability.

Profitability, as a measure of a company's ability to generate income over time, is influenced by several financial factors, including working capital, liquidity, solvency, and asset efficiency (Demila & Sundari, 2023). In capital-intensive industries like pharmaceuticals, working capital must be managed carefully to balance ongoing R&D costs and production cycles with short-term liabilities (Saputra, 2023). The use of debt to finance operations further elevates the need for prudent risk management. This is where financial ratios come into play. Liquidity ratios, for example, reflect a firm's ability to settle short-term obligations (Hamid, 2023), while solvency ratios indicate its capacity to withstand long-term financial risks (Syarifah, 2021). Activity ratios such as total asset turnover (TATO) help assess how efficiently a firm uses its assets to generate revenue (Endri et al., 2020).

Although financial statements available through the Indonesia Stock Exchange (IDX) provide the data needed for such assessments (Amriyadi, 2022), existing literature presents

conflicting findings on how these financial indicators influence profitability. Hamid (2023) found that solvency significantly enhances profitability, while Rasheed et al. (2022) reported a positive relationship between liquidity and profitability. In contrast, Septiano et al. (2022) and Faozani et al. (2020) found no significant effect from working capital turnover, and Wahyuliza & Dewita (2018) suggested that solvency does not impact profitability. Moreover, Angelina et al. (2020) reported no effect of total asset turnover on profitability. These inconsistent findings, often derived from studies in varied industries and geographical contexts, underscore a critical gap in the literature especially concerning Indonesia's pharmaceutical sector, which remains underexplored despite its economic prominence.

Given the unique operational characteristics and financial dynamics of pharmaceutical firms—such as high R&D expenditure, regulatory constraints, and inventory turnover complexities—there is a pressing need to re-examine how key financial indicators affect profitability in this sector. Therefore, this study aims to analyze the influence of liquidity, solvency, and activity ratios on the profitability of publicly listed pharmaceutical companies in Indonesia, thereby addressing the identified research gap and contributing to more sector-specific financial insights.

REVIEW OF LITERATURE

Agency Theory

Agency theory explains the relationship between principals (shareholders) and agents (company managers), emphasizing the potential for conflict when managerial decisions diverge from shareholder interests. In contexts such as working capital management, agency problems may arise if managers prioritize liquidity buffers excessively to reduce their own risk exposure, potentially sacrificing profitability. Conversely, underinvestment in working capital can jeopardize operational continuity. Similarly, managers' risk preferences and strategic incentives may shape solvency decisions—opting for higher leverage to pursue growth or, conversely, avoiding debt to minimize accountability. Thus, financial ratios like liquidity, solvency, and activity efficiency are not only performance indicators but also reflections of how effectively agency issues are managed. The theory provides a foundation for evaluating whether financial strategies are aligned with shareholder value maximization.

Financial Performance

Financial performance reflects a firm's success in generating returns and maintaining stability over a specific period. It informs managerial decision-making and investor assessment. Among various indicators, this study focuses on *Return on Assets (ROA)* as a measure of profitability—capturing how efficiently a company utilizes its total assets to generate net income (Rasheed et al., 2022). ROA is particularly relevant in sectors like pharmaceuticals, where asset-heavy investments in research and inventory may distort traditional profit margins. By concentrating on ROA, this study isolates profitability in relation to operational and capital efficiency, providing a consistent metric across firms.

Working Capital

Working capital represents short-term assets minus liabilities, functioning as a liquidity buffer for daily operations (S. S & Indriasari, 2021). Efficient working capital turnover suggests that a firm rapidly recycles its resources into revenue. However, from an agency perspective, excessive working capital could indicate managerial risk aversion, potentially reducing firm profitability. In contrast, inadequate capital may disrupt operations. Studies offer mixed findings: while Anissa (2019) and Syafitri & Wibowo (2016) identified a significant positive relationship between working capital turnover and profitability, others caution against assuming direct causality due to contextual differences in industry operations. In pharmaceuticals, for instance, long inventory cycles may delay returns, requiring more nuanced interpretations of turnover efficiency.

Hypotheses

Relationship Between Working Capital and Profitability

Working capital serves as a crucial instrument in sustaining a company's operations, acting as the foundation for business continuity. While it does not directly influence profitability, an optimal allocation of working capital enhances operational efficiency, ultimately impacting revenue generation. Research by Anissa (2019) found that higher working capital turnover leads to more efficient utilization, positively affecting profitability. Similarly, Winarno (2020) and Syafitri & Wibowo (2016) confirmed a significant positive relationship between working capital and profitability.

H_1: Working capital has a positive and significant effect on profitability.

Relationship Between Liquidity and Profitability

Liquidity reflects a company's ability to meet short-term obligations, shaping its financial health and operational sustainability. Since liquidity affects operational continuity, it indirectly influences profitability by ensuring financial stability. Research by Nadeak & Pratiwi (2019) and Winarno (2020) demonstrated a positive and significant relationship between liquidity and profitability. Furthermore, Falim et al. (2023) emphasized that liquidity simultaneously impacts profitability in a statistically significant manner.

H_2: Liquidity has a positive and significant effect on profitability.

Relationship Between Solvency and Profitability

Solvency measures a company's ability to meet long-term liabilities, providing insight into financial resilience. A high solvency ratio indicates sufficient capital to absorb asset losses, thereby affecting profitability. Empirical findings by Hamid (2023) revealed a statistically significant relationship between solvency and profitability, while Anifowose et al. (2020) confirmed a positive correlation. Similar conclusions were drawn by Nadeak & Pratiwi (2019) and Bintara (2020), who highlighted the significant impact of solvency on profitability.

H_3: Solvency has a positive and significant effect on profitability.

Relationship Between Activity and Profitability

Activity ratios assess asset utilization efficiency by measuring the proportion of sales relative to total assets, indicating operational effectiveness. Efficient asset management enhances profitability through optimized revenue generation. Research by Endri et al. (2020) found that pharmaceutical companies efficiently leverage their assets. Additionally, Tocqiun (2019) and Matondang et al. (2022) established that higher activity levels significantly enhance profitability.

H_4: Activity has a positive and significant effect on profitability.

RESEARCH METHOD

This study adopts a quantitative approach by analyzing secondary numerical data from audited financial reports of pharmaceutical companies listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023. The dependent variable, profitability, is measured using

Return on Assets (ROA), while the independent variables include working capital, liquidity, solvency, and activity, each representing key aspects of a firm's financial performance. Companies were selected using purposive sampling based on criteria such as consistent listing, complete financial reports, and positive equity, ensuring data validity and minimizing selection bias. Data were obtained through documentation by accessing official IDX databases. Panel data regression was employed, with model selection determined through Chow, Hausman, and Lagrange Multiplier tests, and the chosen model is explained based on statistical criteria. Classical assumption tests were conducted to ensure the model met conditions of normality, no multicollinearity, homoscedasticity, and no autocorrelation. Hypothesis testing included the F-test (simultaneous effects), t-test (individual significance), and R^2 (explanatory power), while missing data and outliers were addressed through data cleaning techniques to maintain result accuracy.

RESULTS AND DISCUSSION

Population and Sample

The population in this study includes all pharmaceutical companies listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023, obtained from the official IDX website at www.idx.co.id.

Table 1.
Sample Selection Criteria

No	Criteria	Number of Companies
1	Pharmaceutical companies listed on IDX during the 2019-2023 research period	10
2	Pharmaceutical companies that did not report financial statements for the 2019-2023 period	0
3	Pharmaceutical companies with negative net income during the 2019-2023 period	(2)
4	Independent variables negatively affecting the dependent variable	(1)
5	Selected sample companies	7
6	Total sample (7 × 5)	35

Source: Processed data by researcher, 2024

Based on the sampling criteria, 7 companies met the requirements. The selected period is 5 years (2019-2023), resulting in a total of 35 samples. Below is the list of pharmaceutical companies that qualified as research samples, along with their company codes.

Table 2.
Sample List

No	Company Name	Code
1	Darya-Varia Laboratoria Tbk	DVLA
2	Kalbe Farma Tbk	KLBF
3	Merck Tbk	MERCK
4	Millennium Pharmacon International Tbk	SDPC
5	PT Industri Jamu Dan Farmasi Sido Muncul Tbk	SIDO
6	PT Soho Global Health Tbk	SOHO
7	Tempo Scan Pacific Tbk	TSPC

Source: Processed data by researcher, 2024

Sample Description

Profitability

Table 3.
Profitability Variable Data

No	Company Code	Profitability Data				
		2019	2020	2021	2022	2023
1.	DVLA	0,1198	0,0694	0,0824	0,0707	0,0668
2.	KLBF	0,1240	0,1270	0,1250	0,1290	0,1036
3.	MERCK	0,0840	0,0827	0,1228	0,1742	0,1900
4.	SDPC	0,0058	0,0033	0,0070	0,0166	0,0130
5.	SIDO	0,2273	0,2415	0,3117	0,2735	0,2438
6.	SOHO	0,0035	0,0394	0,0138	0,0833	0,0782
7.	TSPC	0,0679	0,0927	0,0907	0,0937	0,1090

Based on the data from the 7 pharmaceutical companies listed on IDX from 2019 to 2023, the highest profitability proxy was recorded by PT Industri Jamu dan Farmasi Sido Muncul Tbk (SIDO) in 2021, at 0.3117, while the lowest was by Millennium Pharmacon International Tbk (SDPC) in 2020, at 0.0033.

Working Capital

Table 4.
Working Capital Variable Data

No	Company Code	Working Capital Data				
		2019	2020	2021	2022	2023
1.	DVLA	2,1564	2,1669	2,0405	1,9853	2,0188
2.	KLBF	2,6180	2,3349	2,1565	2,3563	2,4024
3.	MERCK	1,8344	1,5916	2,1938	2,0208	1,6209
4.	SDPC	18,9100	21,0422	23,4023	21,9355	20,9367
5.	SIDO	2,3463	2,2355	2,3634	2,3382	2,2221
6.	SOHO	9,2803	3,8320	4,1942	3,6921	4,1956
7.	TSPC	3,1600	2,7888	2,5864	2,6698	2,7478

Based on data from the seven pharmaceutical companies listed on IDX from 2019 to 2023, the highest working capital proxy was recorded by Millennium Pharmacon International Tbk (SDPC) in 2021, at 23.4023, while the lowest was by Merck Tbk (MERCK) in 2020, at 1.5916.

Liquidity

Table 5.
Liquidity Variable Data

No	Company Code	Liquidity Data				
		2019	2020	2021	2022	2023
1.	DVLA	2,9133	2,5191	2,5654	3,0020	2,8572
2.	KLBF	4,3547	4,1160	4,4452	3,7712	4,9081
3.	MERCK	2,5085	2,5471	2,7149	3,3278	5,7441
4.	SDPC	1,1492	1,1391	1,1355	1,1311	1,1248
5.	SIDO	4,1975	3,6641	4,1311	4,0555	4,4737
6.	SOHO	1,2966	1,8949	2,0200	2,0398	1,8938
7.	TSPC	2,7808	2,9587	3,2919	2,4833	2,6948

Based on the data, the highest liquidity proxy was recorded by Merck Tbk (MERCK) in 2023, at 5.7441, while the lowest was by Millennium Pharmacon International Tbk (SDPC) in 2023, at 1.1248.

Solvency

Table 6.
Solvency Variable Data

No	Company Code	Solvency Data				
		2019	2020	2021	2022	2023
1.	DVLA	0,4011	0,4980	0,5107	0,4314	0,4541
2.	KLBF	0,2131	0,2346	0,2069	0,2328	0,1703
3.	MERCK	0,5169	0,5178	0,5003	0,3703	0,2035
4.	SDPC	4,2279	4,0822	4,0907	4,4131	4,9042
5.	SIDO	0,1517	0,1949	0,1722	0,1643	0,1491
6.	SOHO	1,4879	0,8949	0,8213	0,8433	0,9786
7.	TSPC	0,4458	0,4277	0,4027	0,5004	0,4030

Based on the data, the highest solvency proxy was recorded by Millennium Pharmacon International Tbk (SDPC) in 2023, at 4.9042, while the lowest was by PT Industri Jamu Dan Farmasi Sido Muncul Tbk (SIDO) in 2023, at 0.1491.

Activity

Table 7.
Activity Variable Data

No	Company Code	Activity Data				
		2019	2020	2021	2022	2023
1.	DVLA	0,9907	0,9210	0,9113	0,9542	0,9259
2.	KLBF	1,1169	1,0243	1,0232	1,0621	1,1253
3.	MERCK	0,8264	0,7053	1,0372	1,0838	1,0038
4.	SDPC	2,2154	2,2695	2,4775	2,2839	2,0513
5.	SIDO	0,8691	0,8664	0,9882	0,9471	0,9165
6.	SOHO	1,5443	1,4745	1,7594	1,6292	1,7269
7.	TSPC	1,3130	1,2047	1,1649	1,0817	1,1594

Based on the data, the highest activity proxy was recorded by Millennium Pharmacon International Tbk (SDPC) in 2021, at 2.4775, while the lowest was by Merck Tbk (MERCK) in 2020, at 0.7053.

Data Analysis Technique

This study focuses on pharmaceutical companies listed on the Indonesia Stock Exchange (IDX). There are 11 pharmaceutical companies registered on the IDX, but only 7 companies meet the research criteria and are included as samples. This study analyzes the

effect of Working Capital, Liquidity, Solvency, and Activity on the Profitability of pharmaceutical companies listed on the IDX over the observation period 2019-2023.

Descriptive Statistics

This study employs panel data analysis, with Profitability as the dependent variable and Working Capital, Liquidity, Solvency, and Activity as the independent variables. The descriptive statistics for each variable are presented in the following table:

Table 8
Descriptive Statistics Test

	X1	X2	X3	X4	Y
Mean	5,382	2,910	1,006	1,276	0,105
Max	23,40	5,744	4,904	2,478	0,312
Min	1,592	1,125	0,149	0,705	0,003
Std Dev.	6,722	1,204	1.415	0,479	0,080
Obs	35	35	35	35	35

Source: Eviews Output

The Working Capital (X1) variable, proxied by Working Capital Turnover (WCT), has a minimum value of 1.592 times and a maximum value of 23.40 times. The average WCT across 7 companies is 5.382 times. The standard deviation of WCT is 6.722 times (above the average), meaning WCT has a high level of data variation.

The Liquidity (X2) variable, proxied by the Current Ratio (CR), has a minimum value of 112.5% and a maximum value of 574.4%. The average CR across 7 companies is 291.0%. The standard deviation of CR is 120.4% (below the average), indicating that CR has a low level of data variation.

The Solvency (X3) variable, proxied by the Debt to Equity Ratio (DER), has a minimum value of 14.9% and a maximum value of 490.4%. The average DER across 7 companies is 100.6%. The standard deviation of DER is 141.5% (above the average), indicating a high level of variation.

The Activity (X4) variable, proxied by the Total Asset Turnover (TATO), has a minimum value of 70.5% and a maximum value of 247.8%. The average TATO across 7 companies is 127.6%. The standard deviation of TATO is 47.9% (below the average), indicating a low level of variation.

The Profitability (Y) variable, proxied by Return On Assets (ROA), has a minimum value of 0.3% and a maximum value of 31.2%. The average ROA across 7 companies is 10.5%. The standard deviation of ROA is 8% (below the average), meaning ROA has a low level of data variation.

Panel Data Estimation Model

Common Effect Model (CEM) Test

Table 9
Common Effect Model (CEM) Test

Variable	Coefficient	t-Statistic	Prob.
C	0,064	0,892	0,379
X1	0,010	1,112	0,275
X2	0,039	3,186	0,003
X3	-0,036	-0,865	0,394
X4	-0,069	-1,477	0,150
R-squared		0,640	
Adjusted R-squared		0,591	
F-Statistic		13,302	
Prob (F-statistic)		0,000	

Source: Eviews Output

The CEM test results indicate that the Working Capital (X1), Solvency (X3), and Activity (X4) variables do not significantly affect company profitability since their probability values are >0.05. Only the Liquidity (X2) variable significantly influences company profitability, as its probability value is 0.003 < 0.05.

The R^2 value is 0.591, meaning that the independent variables influence the dependent variable by 59.1%. The Prob(F-statistic) value is 0.000, which is <0.05.

Fixed Effect Model (FEM) Test

Table 10
Fixed Effect Model (FEM) Test

Variable	Coefficient	t-Statistic	Prob.
C	-0,109	-1,042	0,308
X1	-0,009	-1,619	0,119
X2	0,020	2,261	0,033
X3	0,041	1,027	0,315
X4	0,121	1,967	0,061
Effects Specification			

Cross-section fixed (dummy variables)	
R-squared	0,933
Adjusted R-squared	0,906
F-statistic	33,606
Prob(F-statistic)	0,000

Source: Eviews Output

The FEM test results indicate that the Working Capital (X1), Solvency (X3), and Activity (X4) variables do not significantly affect company profitability since their probability values are >0.05. Only the Liquidity (X2) variable significantly influences company profitability, as its probability value is 0.033 < 0.05.

The R^2 value is 0.906, meaning that the independent variables influence the dependent variable by 90.6%. The Prob(F-statistic) value is 0.000, which is <0.05.

Random Effect Model (REM) Test

Table 11
Random Effect Model (REM) Test

Variable	Coefficient	t-Statistic	Prob.
C	0,014	0,256	0,800
X1	-0,005	-1,050	0,302
X2	0,024	2,767	0,010
X3	-0,002	-0,073	0,942
X4	0,042	1,010	0,320
Weighted Statistic			
R-squared		0,361	
Adjusted R-squared		0,275	
F-statistic		4,229	
Prob(F-statistic)		0,008	

Source: Eviews Output

The REM test results indicate that the Working Capital (X1), Solvency (X3), and Activity (X4) variables do not significantly affect company profitability since their probability values are > 0.05. Only the Liquidity (X2) variable significantly influences company profitability, as its probability value is 0.010 < 0.05.

The R^2 value is 0.275, meaning that the independent variables influence the dependent variable by 27.5%. The Prob(F-statistic) value is 0.008, which is <0.05.

Panel Data Estimation Model

Chow Test

Table 12.

Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	17,636	(6,24)	0,000
Cross-section Chi-Square	59,083	6	0,000

Source: Eviews Output

The Chow test results indicate that the Cross-section Chi-Square profitability value is 0.000 < 0.05, meaning the Fixed Effect Model (FEM) is more appropriate than the Common Effect Model (CEM). Therefore, H_0 is rejected, and H_1 is accepted, confirming that the FEM model should be used.

Hausman Test

Table 13
Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5,326	4	0,255

Source: Eviews Output

Based on the Hausman test results, the cross-section random probability value is 0.255 > 0.05, indicating that H_0 (Random Effect Model) is accepted, and H_1 (Fixed Effect Model) is rejected. This means that the Random Effect Model (REM) is the appropriate model for this study.

Lagrange Multiplier Test

Table 14
Lagrange Multiplier Test

		Test Hypothesis	
	Cross-section	Time	Both
Breusch-Pangan	25,530	1,173	26,702
	(0,000)	(0,279)	(0,000)

Source: Eviews Output

Based on the Lagrange Multiplier test results, the Breusch-Pagan probability value is 0.000 < 0.05, indicating that H_0 (Random Effect Model - REM) is accepted, and H_1 (Common

Effect Model - CEM) is rejected. Thus, among the three panel data estimation model tests, the Random Effect Model (REM) is the most appropriate choice.

Classical Assumption Test

Normality Test

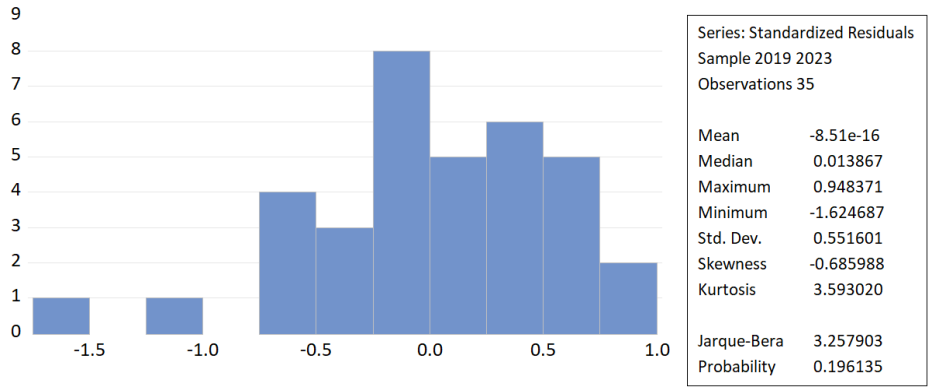

Figure 1.
Normality Test

From the normality results in the image above, it can be seen that the Jarque-Berra Probability value is 0.196 (p > 0.05) Diyah Kristiana, (2021) so it can be concluded that the residuals have normally distributed data.

Multicollinearity Test

Table 15.
Multicollinearity Test

	X1	X2	X3	X4
X1	1,000	-0,679	0,985	0,907
X2	-0,679	1,000	-0,728	-0,723
X3	0,985	-0,728	1,000	0,895
X4	0,907	-0,723	0,895	1,000

Source: Eviews Output

Based on the test of the correlation coefficient value above, each variable has a correlation coefficient value <1 (Alghifari, 2021), so it can be concluded that the model does not have multicollinearity problems between independent variables.

Heteroscedasticity Test

Table 16.
Heteroscedasticity Test

Variable	Coefficient	t-Statistic	Prob.

C	0,007	0,146	0,885
X1	-0,001	-0,328	0,745
X2	0,001	0,184	0,855
X3	-0,008	-0,387	0,701
X4	0,036	1,017	0,317

Source: Eviews Output

Based on the heteroscedasticity test using the Glejser test, the probability values for all independent variables used in this study are as follows: Working Capital (X1) = 0.745, Liquidity (X2) = 0.855, Solvency (X3) = 0.701, and Activity (X4) = 0.317. Since all probability values are greater than 0.05, it can be concluded that the regression model does not suffer from heteroscedasticity.

Autocorrelation Test

Table 17.
Autocorrelation Test

Weighted Statistics	
Durbin-Watson stat	1,533932

Source: Eviews Output

The Durbin-Watson test was used to measure autocorrelation, yielding a value of 1.533932. The criterion for no autocorrelation is a Durbin-Watson value between -2 and +2 (Putra & Silvera, 2020). Since the test result falls within this range (-2 < 1.533932 < 2), it can be concluded that there is no autocorrelation issue.

Hypothesis Testing

F-Test

Table 18.
F-Test

R-squared	0,361
Adjusted R-squared	0,275
F-statistic	4,229
Prob(F-statistic)	0,008

Source: Eviews Output

The hypothesis states that H0 indicates no significant simultaneous effect of Working Capital, Liquidity, Solvency, and Activity on Profitability, while H1 suggests a significant effect. Based on the table, the calculated F-value is 4.229, with an F-table value of 2.645 (df1 = 4, df2 = 30). Since the calculated F-value is greater than the F-table value and the F-statistic

probability is 0.008 (<0.05), H0 is rejected. This confirms that Working Capital, Liquidity, Solvency, and Activity variables collectively have a significant effect on Profitability.

t-Test

Table 19.
t-Test Results

Variable	Coefficient	t-Statistic	Prob.
C	0,014	0,256	0,800
X1	-0,005	-1,050	0,302
X2	0,024	2,767	0,010
X3	-0,002	-0,073	0,943
X4	0,042	1,010	0,320

Source: Eviews Output

The panel data regression analysis results indicate that Working Capital, Solvency, and Activity do not significantly affect Profitability, with probability values of 0.302, 0.943, and 0.320, respectively, all exceeding 0.05. Meanwhile, Liquidity has a significant effect on Profitability, with a probability value of 0.010, which is lower than 0.05.

Coefficient of Determination (R^2)

Table 20.
Coefficient of Determination (R^2)

R-squared	0,361
Adjusted R-squared	0,275
F-statistic	4,229
Prob(F-statistic)	0,008

Source: Eviews Output

Table 20 shows that the R^2 value is 0.275, indicating that the independent variables (Working Capital, Liquidity, Solvency, and Activity) explain 27.5% of the variation in the dependent variable (Profitability). The remaining 72.5% is influenced by other factors outside the regression model.

Panel Data Regression Equation

$$Y = 0{,}0144 – 0{,}0054*X1 + 0{,}0235*X2 – 0{,}00178*X3 + 0.0419*X4$$

The panel data regression analysis results indicate that the constant value of 0.0144 suggests that without the influence of Working Capital, Liquidity, Solvency, and Activity, Profitability will increase by 1.44%. Working Capital has a beta coefficient of -0.0054, meaning that a 1% increase will reduce Profitability by 0.54%, and vice versa. Liquidity has

a coefficient of 0.0235, meaning that a 1% increase will raise Profitability by 2.35%. Solvency, with a coefficient of -0.00178, indicates that a 1% increase will decrease Profitability by 0.178%. Meanwhile, Activity has a coefficient of 0.0419, implying that a 1% increase will enhance Profitability by 4.19%.

Effect of Working Capital on Profitability

The hypothesis stating that working capital (WCT) positively and significantly affects profitability is rejected. Empirical results demonstrate that working capital has a negative and statistically insignificant impact on ROA. From the 35 data points observed, 17.14% reveal an inverse relationship between working capital turnover and profitability, indicating operational inefficiencies. A deeper examination of the financial statements shows that the firms have relatively low net sales and modest working capital, suggesting sluggish capital turnover. These findings are aligned with Septiano et al. (2022), who also reported that WCT does not significantly influence profitability.

In the context of the pharmaceutical industry in Indonesia, these inefficiencies may stem from high R&D expenses, prolonged production cycles, or regulatory barriers that delay product approvals, all of which may hinder efficient working capital utilization. Consequently, even with sufficient short-term assets, the inability to convert these into sales limits their contribution to profitability.

Effect of Liquidity on Profitability

Conversely, the hypothesis that liquidity (CR) positively and significantly influences profitability is accepted. The statistical analysis confirms that liquidity has a robust positive effect on ROA, underlining the firm's capability to meet short-term obligations efficiently. The firm's balance sheets show that current assets consistently exceed current liabilities, enabling smoother operations and improved investor confidence. These findings support the results of Trisnayanti & Wiagustini (2022), who similarly observed a significant positive relationship between liquidity and profitability.

One possible reason for liquidity being the only significant variable is that, in this capital-intensive sector, maintaining ample current assets (especially inventory and cash) is critical for ensuring production continuity and market responsiveness. While other variables

like working capital and solvency relate more to strategic management, liquidity directly influences operational stability, which in turn supports profitability.

Effect of Solvency on Profitability

The hypothesis that solvency (DER) significantly improves profitability is rejected. The analysis reveals a negative and insignificant relationship, indicating that higher leverage does not translate into greater profits. Specifically, 14.29% of the sample show a decline in ROA when DER increases. This could be attributed to the firms' inability to effectively use debt for growth or operational improvements. Financial reports suggest that assets are often inadequate to offset long-term liabilities, further stressing the company's balance sheet.

In the pharmaceutical industry, high solvency ratios may reflect increased financial risk due to heavy borrowing without proportional revenue gains—particularly when market demand is regulated or unpredictable.

Effect of Activity on Profitability

The hypothesis suggesting that activity (TATO) significantly boosts profitability is also rejected. While the relationship is positive, it remains statistically insignificant. This implies that asset utilization has not been optimal. The imbalance between total sales and total assets in the financial data suggests that companies are not leveraging their asset base effectively to drive revenue. These results are consistent with Angelina et al. (2020), who also found no significant relationship between TATO and ROA.

Several factors could contribute to this underperformance, including underutilization of manufacturing facilities, inefficient inventory turnover, or delays in product distribution. These are common challenges in the pharmaceutical sector, where production and distribution cycles are longer than in many other industries.

CONCLUSION

This study reveals that working capital does not significantly affect profitability; however, when its impact is observed, the direction tends to be negative. Liquidity, on the other hand, has a significant and positive influence on profitability, suggesting that pharmaceutical firms with better liquidity positions are more capable of meeting short-term obligations and sustaining profitable operations. Solvency shows a negative, albeit

insignificant, impact on profitability, indicating that higher debt levels might pose risks to profit generation, even though the effect lacks statistical strength. Meanwhile, activity ratios exhibit a positive but non-significant relationship with profitability, implying that improved operational efficiency could enhance profits, although the evidence is not conclusive.

These findings may reflect the unique nature of the pharmaceutical industry, where high liquidity is essential to support ongoing research and development, regulatory compliance, and long production cycles. The negative influence of solvency, despite its insignificance, aligns with prior studies suggesting that excessive reliance on debt may constrain profitability due to interest burden and financial risk. The insignificant effect of working capital might indicate inefficiencies in current asset management, a pattern also noted in previous empirical research within the manufacturing and pharmaceutical sectors.

Pharmaceutical companies are advised to focus on maintaining adequate liquidity levels through efficient working capital strategies to support solvency and overall financial health. Monitoring activity ratios remains essential, as improving operational efficiency may eventually translate into stronger profitability. Moreover, investing in technology and innovation can further enhance competitiveness and operational effectiveness.

For future research, exploring additional variables such as firm size, R&D intensity, or market dynamics is recommended, and adopting alternative methodological approaches. Expanding the sample size and employing different proxies for profitability and financial performance may yield more robust and generalizable conclusions.

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