ISSN 3109-7812
https://doi.org/10.61401/sabi.v2i3.525

Volume 2 Number 3, 2026
Studi Akuntansi dan Bisnis Indonesia (SABI)
STIE KRAKATAU, Indonesia

Liquidity, Leverage, and Profitability Effects on Firm Value in Pharmaceutical Healthcare Sector (2021–2024)

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ARTICLE INFO

Received: 13 May 2026;
Revised: 10 June 2026;
Revised: 19 June 2026;
Accepted: 15 July 2026;
Volume 2, Number 3
2026, pp 147-161
https://doi.org/10.61401/sabi.v2i3.525

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ABSTRACT

Purpose: This study analyzes the effect of liquidity, leverage, and profitability on firm value in pharmaceutical and healthcare sub-sector companies listed on the Indonesia Stock Exchange (IDX) during 2021–2024, motivated by declining firm value and inconsistent prior findings.

Methodology: A quantitative causal design is used with secondary data from annual reports of 13 companies, resulting in 52 observations. The sample is selected using purposive sampling. Data are analyzed using panel data regression with the Random Effect Model (REM) in STATA 14.

Results: Liquidity has no significant effect on firm value (p=0.415), leverage has a significant negative effect (p=0.028), and profitability is not significant (p=0.150). However, all variables jointly affect firm value.

Conclusions: Leverage is the only significant determinant of firm value, while liquidity and profitability are not significant individually. Firms should manage capital structure more effectively to enhance investor confidence and firm value.

Contribution: This study contributes empirically by providing evidence from the underexplored pharmaceutical and healthcare sector in Indonesia and clarifying inconsistent findings on liquidity, leverage, and profitability effects on firm value. It also enriches capital structure literature using panel data analysis.

Limitations: This study is limited to 13 firms over a four-year period (2021–2024), which restricts generalizability. It only uses three financial variables and excludes macroeconomic and non-financial factors that may also influence firm value.

Keywords: Firm Value, Leverage, Liquidity, Panel Data, Profitability

How to Cite: Andini, R. D., Solikah, M., & Faisol. (2026). Liquidity, Leverage, and Profitability Effects on Firm Value in Pharmaceutical Healthcare Sector (2021–2024). *Studi Akuntansi dan Bisnis Indonesia (SABI)*, 2(3), 147-161.

1. Introduction

In the current era of globalization, the business world is experiencing rapid growth driven by technological advancement, open markets, and international economic mobility. Every company faces significant challenges in surviving within an increasingly competitive environment (Agustini, Vannesa, Musarrofa, Hasanah, & Natasya, 2023). Companies are not only required to produce high-quality products but also to manage their resources effectively and efficiently in order to achieve their goals. One of the objectives of management is to increase firm value (Sari & Sudarsi, 2024). Firm value reflects how well management manages assets and resources to generate returns for shareholders (Primadani & Sudana, 2025). A high firm valuation indicates that investors have strong confidence in the company's future profit potential.

Companies listed on the Indonesia Stock Exchange (IDX) have a significant responsibility to maintain their financial performance and stability in the public eye. Good financial performance can send positive signals to the capital market and increase investor confidence (Wowor, Morasa, & Rondonuwu, 2021). One of the sectors that plays an important role in driving national economic development and social progress is the pharmaceutical and healthcare sector (Dewi, 2022). The pharmaceutical industry focuses on research, innovation, production, and distribution of medicines and health-related products, while the healthcare sector focuses on public services aimed at improving quality of life and welfare. Therefore, both play a vital role in maintaining public health. In addition, the pharmaceutical and healthcare sectors also make significant contributions to the national economy, such as increasing exports, investing in healthcare services, and creating employment opportunities (Kurniawan & Gustini, 2025).

Based on various previous studies, changes in firm value are influenced by several factors, including liquidity, leverage, and profitability (Rahmawati, Suharti, & Supramono, 2021). Liquidity shows the extent to which a company can meet its short-term obligations using short-term assets. Good liquidity conditions indicate that the company's financial position is relatively strong. However, excessively high liquidity may indicate that assets are not being optimally managed to generate income (Julianti, Helmi, & Mulatsih, 2024; Chynthiawati, & Jonnardi, 2022). Leverage, on the other hand, is an indicator that reflects the level of debt used in financing a company's capital structure. Properly managed leverage has the potential to increase firm value by providing additional capital needed to support expansion and business development. Conversely, excessive debt usage can increase financial risk and potentially reduce firm value (Santoso & Junaeni, 2022).

Meanwhile, profitability is one of the most attractive factors for investors. Profitability describes a company's ability to generate profit from available resources. A higher level of profitability indicates better financial conditions and efficiency in managing assets and capital to generate returns and increase economic value (Kurniasari & Laily, 2022). In addition, profitability also reflects the level of management success in carrying out operational activities and allocating resources productively. Therefore, companies that demonstrate strong profit performance generally gain higher investor confidence, as they are considered to have promising future growth opportunities and stable performance (Mardiansyah, Oktaviani, Anjeli, & Herawati, 2025).

In recent years, the pharmaceutical and healthcare industry in Indonesia has faced various challenges. As reported by www.cnbcindonesia.com, dependency on imported raw materials of

around 90% makes the industry vulnerable to exchange rate fluctuations and global supply chain disruptions, leading to increased production costs for medicines and medical devices. This ultimately raises healthcare costs in hospitals and medical facilities. This situation not only pressures company financial conditions but also affects investor perceptions regarding the industry's stability and sustainable growth potential. Furthermore, according to www.health.detik.com, medical service costs in Indonesia have increased by approximately 9%–11% annually, driven by rising medical labor costs, healthcare technology expenses, and facility operations. This condition forces companies to operate more efficiently, while also potentially reducing public purchasing power and weakening demand for healthcare services.

On the other hand, according to reports from www.reuters.com, the contaminated syrup incident in 2022 further worsened the industry situation by reducing public trust, increasing product recall costs, legal burdens, and stricter regulatory pressure, which ultimately led to declining sales and pharmaceutical company performance. Overall, during the 2021–2024 period, data from pharmaceutical companies listed on the Indonesia Stock Exchange (IDX) shows fluctuations in firm value, where some companies experienced increases driven by revenue and profit growth, while many others experienced declines due to rising production costs, high raw material prices, and increasingly intense industry competition.

Figure 1. Firm value development chart 2021–2024

Based on Figure 1 , the development of firm value in the pharmaceutical sector during the 2021–2024 period shows a fluctuating trend with a general downward tendency. In 2021, firm value stood at 2.66, then increased in 2022 to 2.99, reflecting rising investor confidence. However, after that, it declined in 2023 to 2.41 and continued to decrease to 2.24 in 2024, which represents the lowest value during the observation period. Overall, although there was an increase at the beginning of the period, the trend indicates a decline in firm value, suggesting a weakening of company performance or market perception of the pharmaceutical industry's prospects. This condition therefore requires further analysis to identify the underlying influencing factors.

Based on the findings of previous studies, several research results indicate that financial factors such as liquidity and profitability influence firm value. Mardiansyah et al. (2025) emphasize that high liquidity and profitability can increase firm value because they reflect strong financial conditions and enhance investor confidence regarding the company's future prospects. This is in line with Kurniawan and Gustini (2025), who state that liquidity serves as an indicator of financial

security, and Santoso and Junaeni (2022), who find that profitability has a strong influence on firm value, as investors tend to focus on the company's ability to generate profits.

However, other studies present contradictory findings, where some research shows that liquidity does not have a significant effect on firm value. Sari and Sudarsi (2024) found that liquidity does not always improve investor perception of a company, while Ardhana and Ratnawati (2024) explains that high liquidity does not necessarily reflect efficient asset utilization and therefore does not directly contribute to increasing firm value. Similar results are also reported by Prayogo and Triyonowati (2023), who indicate that liquidity has no substantial effect on firm value. Thus, there is inconsistency in previous findings regarding the factors influencing firm value, indicating the need for further research to clarify the relationships among these variables.

Based on the phenomenon of declining firm value performance and the inconsistency of prior research results, there remains a research gap that needs to be further investigated, particularly regarding the influence of liquidity, leverage, and profitability on firm value. According to signaling theory, financial information such as debt-paying ability, capital structure, and profitability serves as signals sent by companies to investors to assess their current condition and future prospects. Positive signals from strong financial performance can enhance investor confidence and ultimately increase firm value. Therefore, this study develops a model incorporating these three variables as determinants of firm value in the pharmaceutical and healthcare sub-sector using panel data regression analysis with STATA software as an effort to address the issue of declining firm value. The novelty of this study lies in its focus on the pharmaceutical and healthcare sector, which is still relatively under-researched, as well as the use of panel data regression, which combines cross-sectional and time-series data, unlike previous studies that generally used multiple linear regression. Accordingly, this study is titled “The Effect of Liquidity, Leverage, and Profitability on Firm Value in Pharmaceutical and Healthcare Sub-Sector Companies Listed on the IDX for the 2021–2024 Period,” which is expected to provide broader insights and serve as a reference for management and investors in future decision-making.

2. Literature Review and Hypothesis/es Development

2.1 Firm Value

Firm value reflects investors' assessment of a company's performance and future prospects, which is generally reflected in stock prices in the capital market as a result of expectations regarding the company's ability to generate sustainable profits (Indrayani, Tukiran, & Utami, 2025). Firm value is not only determined by current earnings but also by the company's ability to maintain business growth, manage an optimal capital structure, and implement consistent and transparent dividend policies (Saadah & Mildawati, 2023). In addition, firm value serves as a key indicator in investment decisions because it reflects the balance between risk and profitability, where firms with high value are considered to have strong stability and promising growth prospects (Putri & Rahyuda, 2020). Overall, firm value is influenced by various factors such as profitability, capital structure, and liquidity; therefore, companies that manage these aspects effectively tend to have higher firm value and become more attractive to investors (Halim & Sihono, 2025).

2.2 Liquidity

Liquidity is the ability of a company to meet its short-term obligations using short-term assets such as cash, other liquid assets, receivables, and inventory (Mar & Setiyono, 2024). It also reflects a

company's capacity to repay short-term liabilities on time, where higher liquidity indicates stronger financial stability (Julianti, Helmi, & Mulatsih, 2024). Layin & Saadah (2023) state that liquidity has a positive and significant effect on firm value because it serves as an important indicator of financial stability and attractiveness to investors. From the perspective of signalling theory, liquidity acts as a signal to investors regarding a company's financial condition (Nugroho, Faizatun, & Putriana, 2026). High liquidity sends a positive signal indicating financial health and the ability to meet obligations, while low liquidity sends a negative signal indicating potential financial distress (Zaki & Saiman, 2021). Therefore, liquidity is an important factor considered in investment decisions (Husnah & Setiadi, 2020).

2.3 Leverage

Leverage is a financial measure that indicates the extent to which a company uses debt to finance its operations and investments; thus, it reflects the capital structure and the company's dependence on external funding sources Rahmawati et al., 2021. It also shows the proportion of debt in the company's capital structure as a primary source of financing Julianti et al., 2024. According to Ardhana & Ratnawati (2024), leverage is used to assess how much of a company's assets are financed by debt, where higher debt levels indicate higher financial risk, while lower leverage indicates lower dependence on external financing. This is consistent with Kurniasari & Laily (2022), who found that leverage influences firm value as an important indicator of financial performance. From the trade-off theory perspective, firms balance debt and equity to maximize firm value, where optimal debt usage provides tax benefits and increases profitability, but excessive debt increases financial risk and sends a negative signal to investors. Therefore, leverage is a key factor in determining firm value.

2.4 Profitability

Profitability is the company's ability to generate profit over a certain period and is commonly used as a key indicator of firm performance (Tere & Kusumowati, 2025). According to Jalaludin, Jalaludin, Sucipto, and Rosalinda (2024), profitability reflects the company's effectiveness in generating profits through the optimal utilization of assets, sales, and capital, thereby indicating resource efficiency. Similarly, Evi Faiz, Sabarudin, and Ilham (2025) states that profitability reflects the company's ability to generate earnings from operational activities through efficient asset utilization. Sasongko and Santoso (2022) found that profitability has a positive and significant effect on firm value. From a signalling theory perspective, high profitability sends a positive signal to investors, reflecting strong financial performance and promising growth prospects, while low profitability sends a negative signal indicating inefficiency in generating profits (Nurrahman, Hidayat, Janah, & Kelvin, 2024). Therefore, profitability is an important determinant of firm value.

2.5 Research Hypotheses

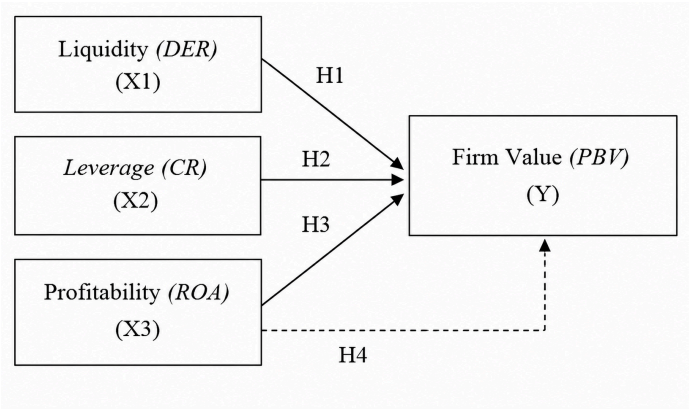

Figure 2. Conceptual framework

Based on Figure 2, the hypotheses of this study are as follows:

H_1: Liquidity has a partial effect on Firm Value in pharmaceutical and healthcare sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the 2021–2024 period

H_2: Leverage has a partial effect on Firm Value in pharmaceutical and healthcare sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the 2021–2024 period

H_3: Profitability has a partial effect on Firm Value in pharmaceutical and healthcare sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the 2021–2024 period

H_4: Liquidity, Leverage, and Profitability simultaneously affect Firm Value in pharmaceutical and healthcare sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the 2021–2024 period

3. Methodology

This study uses a quantitative approach with a causal research design aimed at examining the effect of liquidity, leverage, and profitability on firm value in the pharmaceutical and healthcare sub-sector companies listed on the Indonesia Stock Exchange (IDX) during the 2021–2024 period. The data used are secondary data obtained from annual reports of companies accessed through the official IDX website. The population in this study consists of 32 pharmaceutical and healthcare sub-sector companies listed on the IDX, while the sampling technique uses purposive sampling based on specific criteria, resulting in 13 companies with a total of 52 observations.

The dependent variable in this study is firm value measured using Price to Book Value (PBV), while the independent variables consist of liquidity measured using Current Ratio (CR), leverage measured using Debt to Equity Ratio (DER), and profitability measured using Return on Assets (ROA). Data analysis was conducted using panel data regression with the assistance of STATA version 14, combining cross-sectional and time-series data. Model selection was carried out using the Chow test, Hausman test, and Lagrange Multiplier test to determine the best model among the common effect model, fixed effect model, and random effect model. Furthermore, classical assumption tests were conducted, including normality, multicollinearity, heteroscedasticity, autocorrelation, and cross-sectional dependence tests to ensure the validity of the regression model. Hypothesis testing was carried out using partial (t-test) and simultaneous (F-test), supported by the coefficient of determination (R^2) to measure the explanatory power of the independent variables.

Thus, this method provides a comprehensive and measurable empirical analysis of the effect of financial variables on firm value (Ghozali, 2021).

4. Results and Discussion

4.1 Model Estimation

4.1.1 Chow Test

```
. xtreg NILAIPERUSAHAAN LIKUIDITAS LEVERAGE PROFITABILITAS,fe

Fixed-effects (within) regression               Number of obs      =        52
Group variable: perusahaan                      Number of groups   =        13

R-sq:                                           Obs per group:
     within  = 0.0413                                         min =         4
     between = 0.0539                                         avg =       4.0
     overall = 0.0494                                         max =         4

                                                F(3,36)            =      0.52
corr(u_i, Xb)  = 0.0966                         Prob > F           =    0.6735

------------------------------------------------------------------------------
NILAIPERUSAH~N |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
---------------+--------------------------------------------------------------
    LIKUIDITAS |  -.1899185   .1747238    -1.09   0.284    -.5442748    .1644379
      LEVERAGE |  -.7497502   .8169628    -0.92   0.365    -2.406628    .9071273
PROFITABILITAS |   .5239129   .8519349     0.61   0.542    -1.203891    2.251717
         _cons |   3.568598   .7317282     4.88   0.000     2.084584    5.052611
---------------+--------------------------------------------------------------
       sigma_u |  1.7711777
       sigma_e |   .75555188
           rho |   .8460438   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(12, 36) = 17.90                     Prob > F = 0.0000
```

Figure 3. Result Chow test

Figure 3 shows the Prob > F value is 0.000 < 0.05, so H_0 is rejected and H_1 is accepted. This indicates that the appropriate model to use is the fixed effect model.

4.1.2 Lagrange Multiplier Test

```
Breusch and Pagan Lagrangian multiplier test for random effects

        NILAIPERUSAHAAN[perusahaan,t] = Xb + u[perusahaan] + e[perusahaan,t]

        Estimated results:
                             |       Var     sd = sqrt(Var)
                     ---------+-----------------------------
                     NILAIPE~N|     3.500688       1.871013
                             e|     .5708586       .7555519
                             u|     2.507236       1.583426

        Test:   Var(u) = 0
                                     chibar2(01) =     42.50
                                  Prob > chibar2 =    0.0000
```

Figure 4. Lagrange multiplier test results

Figure 4 shows a Prob > chibar2 value of 0.0000 < 0.05, so *H0* is rejected and *H1* is accepted. This suggests that the Random Effect Model is more appropriate compared to the common effect model.

4.1.3 Hausman Test

```
                 ---- Coefficients ----
                 |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                 |       fe           re         Difference          S.E.
-----------------+------------------------------------------------------------
      LIKUIDITAS |   -.1899185    -.1422944       -.0476241        .0627018
        LEVERAGE |   -.7497502    -1.170104        .4203539        .4347395
PROFITABIL~S     |    .5239129     .9600892       -.4361763        .3032304
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
        B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =          4.28
                Prob>chi2 =        0.2324
```

Figure 5. Hausman test results

Figure 5 show a Prob > chi2 value of 0.2324 > 0.05, so *H0* is accepted and *H1* is rejected. Therefore, the most suitable model is the random effect model.

4.2 Panel Data Regression

```
. xtreg NILAIPERUSAHAAN LIKUIDITAS LEVERAGE PROFITABILITAS,re robust

Random-effects GIS regression                   Number of obs     =        52
Group variable: perusahaan                      Number of groups  =        13

R-sq:                                           Obs per group:
     within  = 0.0318                                         min =         4
     between = 0.1720                                         avg =       4.0
     overall = 0.1458                                         max =         4

                                                Wald chi2(3)      =      8.33
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0396

                              (Std. Err. adjusted for 13 clusters in perusahaan)
------------------------------------------------------------------------------
             |               Robust
NILAIPERUSA~N|      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   LIKUIDITAS |  -.1422944   .174558    -0.82   0.415    -.4844219    .1998331
    LEVERAGE |  -1.170104   .5309724   -2.20   0.028    -2.210791   -.1294173
PROFITABILL~S |   .9600892   .6671443    1.44   0.150    -.3474896    2.267668
        _cons |   3.556445   1.069291    3.33   0.001     1.460673    5.652218
-------------+----------------------------------------------------------------
     sigma_u |  1.5834255
     sigma_e |  .75555188
         rho |  .81454158   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Figure 6. Random effect model results

Based on Figure 6, the following equation is obtained:

$$FirmValue = 3.556445 - 0.1422944Liquidity - 1.170104Leverage + 0.9600892Profitability + \varepsilon \quad (1)$$

Formula (1) shows the constant value of 3.556445 indicates that when liquidity, leverage, and profitability are assumed to be constant or zero, firm value is estimated at 3.556445. Liquidity has a negative coefficient of 0.1422944, indicating that an increase in liquidity tends to decrease firm value. Likewise, leverage shows a negative coefficient of -1.170104, indicating that higher leverage reduces firm value. In contrast, profitability has a positive coefficient of 0.9600892, meaning that higher profitability increases firm value. Overall, profitability has a positive relationship with firm value, while liquidity and leverage have negative relationships, assuming other variables remain constant.

4.3 Classical Assumption Tests

4.3.1 Normality Test

```
. sktest res

                    Skewness/Kurtosis tests for Normality
                                                              ------ joint ------
    Variable |   Obs  Pr(Skewness)  Pr(Kurtosis)  adj chi2(2)  Prob>chi2
-------------+-------------------------------------------------------------
         res |    52       0.7305        0.0424         4.34     0.1141
```

Figure 7. Normality test

Figure 7 shows a Prob > chi2 value of 0.114 > 0.05, indicating that the residuals are normally distributed and the normality assumption is satisfied.

4.3.2 Multicollinearity Test

```
. vif,uncentered

    Variable |       VIF       1/VIF
-------------+----------------------
PROFITABIL~S |      1.96    0.510430
  LIKUIDITAS |      1.61    0.622228
    LEVERAGE |      1.58    0.631775
-------------+----------------------
    Mean VIF |      1.72
```

Figure 8. Multicollinearity test result

Figure 8 show that all independent variables are below 10: profitability (1.96), liquidity (1.61), and leverage (1.58), with an average VIF of 1.72. This indicates no multicollinearity problem in the model.

4.3.3 Autocorrelation Test

```
. xtserial NILAIPERUSAHAAN LIKUIDITAS LEVERAGE PROFITABILITAS

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     29.562
           Prob > F =      0.0002
```

Figure 9. Autocorrelation test result

Figure 9 show Prob > F=0.0002 < 0.05, indicating autocorrelation in the model. To address this issue, the Random Effect Model with robust standard errors in STATA 14 was applied to correct for autocorrelation.

4.3.4 Heteroscedasticity Test

```
. xtreg NILAIPERUSAHAAN LIKUIDITAS LEVERAGE PROFITABILITAS,re robust

Random-effects GLS regression                   Number of obs     =        52
Group variable: perusahaan                      Number of groups  =        13

R-sq:                                           Obs per group:
     within  = 0.0318                                         min =         4
     between = 0.1720                                         avg =       4.0
     overall = 0.1458                                         max =         4

                                                Wald chi2(3)      =      8.33
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0396

                               (Std. Err. adjusted for 13 clusters in perusahaan)
------------------------------------------------------------------------------
             |               Robust
NILAIPERUSA~N|      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   LIKUIDITAS |  -.1422944   .174558    -0.82   0.415    -.4844219    .1998331
     LEVERAGE |  -1.170104   .5309724   -2.20   0.028    -2.210791   -.1294173
PROFITABILI~S |   .9600892   .6671443    1.44   0.150    -.3474896    2.267668
        _cons |   3.556445   1.069291    3.33   0.001     1.460673    5.652218
-------------+----------------------------------------------------------------
      sigma_u |  1.5834255
      sigma_e |   .75555188
          rho |   .81454158   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Figure 10. Heteroscedasticity test result

Figure 10 show a Prob > chi2 value of 0.0396. This value is lower than 0.05, indicating that the null hypothesis is rejected. This means that the model suffers from heteroscedasticity. Therefore, to address this issue, the robust standard error model is applied, so that the regression estimation results become more valid and reliable.

4.3.5 Cross-Sectional Dependence Test

```
. xtcsd,pesaran abs

Pesaran's test of cross sectional independence =     1.401, Pr = 0.1613

Average absolute value of the off-diagonal elements =     0.504
```

Figure 11. Cross-sectional dependence test

Figure 11 show a probability value of 0.504, which is greater than 0.05. This indicates that there is no correlation or dependence across cross-sectional units in the model. Therefore, the panel data model used in this study is free from cross-sectional dependence issues, allowing for more consistent and efficient regression estimates.

4.3.6 Coefficient of Determination (R^2) Test

```
. xtreg NILAI PERUSAHAAN LIKUIDITAS LEVERAGE PROFITABILITAS,re robust

Random-effects GLS regression                   Number of obs      =        52
Group variable: perusahaan                      Number of groups   =        13

R-sq:                                           Obs per group:
     within  = 0.0318                                         min =         4
     between = 0.1720                                         avg =       4.0
     overall = 0.1458                                         max =         4

corr(u_i, X)   = 0 (assumed)                    Wald chi2(3)       =      8.33
                                                Prob > chi2        =    0.0396

                                (Std. Err. adjusted for 13 clusters in perusahaan)
------------------------------------------------------------------------------
NILAIPERUSA~N |      Coef.   Robust Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
   LIKUIDITAS |  -.1422944   .174558    -0.82   0.415    -.4844219    .1998331
    LEVERAGE  |  -1.170104   .5309724   -2.20   0.028    -2.210791   -.1294173
PROFITABILI~S |   .9600892   .6671443    1.44   0.150    -.3474896    2.267668
        _cons |   3.556445   1.069291    3.33   0.001     1.460673    5.652218
--------------+---------------------------------------------------------------
      sigma_u |  1.5834255
      sigma_e |   .75555188
          rho |   .81454158   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Figure 12. Coefficient of determination (R^2) test

Figure 12 show an R^2 value of 0.1458 or 14.58%. This indicates that the independent variables in this study liquidity, leverage, and profitability explain only 14.58% of the variation in the dependent variable, namely firm value. The remaining 85.42% is explained by other factors not included in this study, such as firm size, capital structure, dividend policy, firm growth, and other external factors. This coefficient indicates that the model has relatively low explanatory power in explaining the relationship between the independent variables and firm value.

4.4 Hypothesis Testing

4.4.1 Partial Test (t-test)

```
. xtreg NILAI PERUSAHAAN LIKUIDITAS LEVERAGE PROFITABILITAS, re robust

Random-effects GLS regression                   Number of obs      =        52
Group variable: perusahaan                      Number of groups   =        13

R-sq:                                           Obs per group:
     within  = 0.0318                                         min =         4
     between = 0.1720                                         avg =       4.0
     overall = 0.1458                                         max =         4

                                                Wald chi2(3)       =      8.33
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0396

                                (Std. Err. adjusted for 13 clusters in perusahaan)
------------------------------------------------------------------------------
NILAIPERUSA~N |      Coef.   Robust Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
   LIKUIDITAS |  -.1422944   .174558    -0.82   0.415    -.4844219    .1998331
    LEVERAGE  |  -1.170104   .5309724   -2.20   0.028    -2.210791   -.1294173
PROFITABILI~S |   .9600892   .6671443    1.44   0.150    -.3474896    2.267668
        _cons |   3.556445   1.069291    3.33   0.001     1.460673    5.652218
--------------+---------------------------------------------------------------
      sigma_u |  1.5834255
      sigma_e |   .75555188
          rho |   .81454158   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Figure 13. Partial test (t-test)

Figure 13 shows liquidity has a p-value of 0.415 (> 0.05), indicating that it has no significant effect on firm value. Meanwhile, leverage has a p-value of 0.028 (< 0.05), indicating a significant effect on firm value. Profitability has a p-value of 0.150 (> 0.05), indicating no significant effect on firm value. Thus, among the three variables tested, only leverage has a significant effect on firm value in pharmaceutical and healthcare sub-sector companies listed on the Indonesia Stock Exchange (IDX) during the 2021–2024 period.

4.4.2 Simultaneous Test (F-test)

```
. xtreg NILAI PERUSAHAAN LIKUIDITAS LEVERAGE PROFITABILITAS, re robust

Random-effects GLS regression                   Number of obs     =        52
Group variable: perusahaan                      Number of groups  =        13

R-sq:                                           Obs per group:
     within  = 0.0318                                         min =         4
     between = 0.1720                                         avg =       4.0
     overall = 0.1458                                         max =         4

                                                Wald chi2(3)      =      8.33
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0396

                                 (Std. Err. adjusted for 13 clusters in perusahaan)
------------------------------------------------------------------------------
             |               Robust
NILAI PERUSA~N |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   LIKUIDITAS |  -.1422944   .1745578    -0.82   0.415    -.4844219    .1998331
    LEVERAGE |  -1.170104   .5309724    -2.20   0.028    -2.210791   -.1294173
PROFITABILITAS |   .9600892   .6671443     1.44   0.150    -.3474896    2.267668
       _cons |   3.556445   1.069291     3.33   0.001     1.460673    5.652218
-------------+----------------------------------------------------------------
     sigma_u |  1.5834255
     sigma_e |  .75555188
         rho |  .81454158   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Figure 14. Simultaneous test (F-test)

Figure 14 shows the Prob > F value is 0.0396, which is lower than 0.05. This indicates that *H0* is rejected and *Ha* is accepted. Therefore, it can be concluded that liquidity, leverage, and profitability simultaneously have a significant effect on firm value.

4.5 Discussion

4.5.1 Effect of Liquidity on Firm Value

The t-test results show a P > |z| value of 0.415, which is higher than the 0.05 significance level. This indicates that liquidity does not have a significant effect on firm value. Liquidity is a measure of a company's ability to meet its short-term obligations using short-term assets. An adequate level of liquidity reflects the company's ability to maintain smooth operations and financial stability. This definition is supported by Kurniasari & Laily (2022), who state that liquidity indicates the extent to which a company is able to fulfill its short-term liabilities using its available short-term assets.

In theory, high liquidity is often associated with greater investor confidence, as it indicates that the company is capable of meeting its short-term obligations. However, this study finds that liquidity does not significantly affect firm value. This suggests that investors do not only consider a company's ability to meet short-term obligations, but also pay attention to other factors such as profitability, growth opportunities, and the efficiency of asset and capital management. In addition, excessively high liquidity may indicate that current assets are not being used optimally, resulting in no added value for the company. This finding is consistent with Sudana (2025), who also found that liquidity has no significant effect on firm value. Therefore, liquidity cannot be considered a primary factor in investor valuation decisions.

4.5.2 Effect of Leverage on Firm Value

The t-test results show a P > |z| value of 0.028, which is lower than 0.05, indicating that leverage has a significant partial effect on firm value. Leverage, measured as the debt-to-equity ratio, is an

important indicator used to assess the level of debt financing in a company. It reflects the company's capital structure and financial obligations. This definition is supported by Ardhana & Ratnawati (2024), who state that leverage indicates how much of a company's assets are financed by debt. High leverage indicates greater dependence on debt financing. However, appropriate use of debt can help companies expand operations and increase profitability, thereby enhancing firm value. Nevertheless, this study finds a negative coefficient (-1.170104), indicating that higher leverage reduces firm value. Theoretically, proper debt management can provide additional funding to support operations, business expansion, and performance improvement, which may increase investor confidence. However, excessive debt increases financial risk, including higher interest payments and potential difficulties in meeting obligations. Therefore, companies must manage debt carefully to ensure that benefits exceed risks. This finding is consistent with Alamsyah (2024), who states that leverage has a significant effect on firm value.

4.5.3 Effect of Profitability on Firm Value

The t-test results show a P > |z| value of 0.150, which is greater than 0.05, indicating that profitability does not have a significant partial effect on firm value. Profitability is a key performance indicator used to assess how effectively a company generates profit from its operations. It reflects how well a company utilizes its capital and assets to generate earnings. According to Juliani (2021), profitability represents a company's ability to efficiently manage resources to generate profits. However, higher profitability does not always lead to higher firm value, as investor assessment is also influenced by other factors.

Theoretically, high profitability reflects a company's efficiency in generating income and is generally perceived positively by investors, as it signals strong performance and potential returns. However, this study shows that profitability does not significantly affect firm value. This indicates that investors consider not only profit levels but also other aspects such as economic conditions, risk, capital structure, and future growth prospects. In addition, high profits do not necessarily increase firm value if investors perceive that such performance is not sustainable in the long term. This finding is consistent with Sudana (2025), who also found that profitability has no significant effect on firm value.

4.5.4 Simultaneous Effect of Liquidity, Leverage, and Profitability on Firm Value

Liquidity, leverage, and profitability are financial indicators commonly used by investors in fundamental analysis to assess firm value. Liquidity measures a company's ability to meet short-term obligations using current assets. Leverage reflects the extent to which a company uses debt to finance its operations, while profitability indicates how effectively a company generates profit from its operations. These three indicators provide an overview of a company's financial condition, risk level, and ability to generate returns, which are important considerations for investors in making investment decisions.

Theoretically, companies with strong liquidity, well-managed debt, and high profitability tend to gain greater investor confidence. Adequate liquidity indicates the ability to meet short-term obligations, proper debt management reflects efficient capital structure, and high profitability demonstrates strong earning capability. Together, these elements create a positive perception of the company's prospects and may increase firm value. This study shows that liquidity, leverage, and profitability collectively have a significant effect on firm value. This confirms that changes in these

variables simultaneously influence firm value. In investment decisions, investors do not rely on a single financial indicator but evaluate the company as a whole. Therefore, effective management of liquidity, leverage, and profitability can strengthen investor confidence and ultimately contribute to increasing firm value.

5. Conclusions

5.1 Conclusion

This study aims to examine the effect of liquidity, leverage, and profitability on firm value in pharmaceutical and healthcare sub-sector companies listed on the Indonesia Stock Exchange (IDX) during the 2021–2024 period. Based on the empirical results using panel data regression with the Random Effect Model, it is concluded that liquidity does not have a significant effect on firm value, leverage has a significant negative effect on firm value, and profitability does not have a significant effect on firm value. However, simultaneously, liquidity, leverage, and profitability jointly have a significant effect on firm value. These findings indicate that firm value in the pharmaceutical and healthcare sector is influenced by a combination of financial factors rather than a single dominant variable. Among the variables tested, leverage is the most influential factor in determining firm value, highlighting the importance of optimal capital structure management in enhancing investor confidence and maintaining firm stability.

5.2 Research Limitations

This study has several limitations. First, the sample is limited to 13 pharmaceutical and healthcare companies over a four-year period (2021–2024), which may limit the generalizability of the findings. Second, this study only focuses on three financial variables, namely liquidity, leverage, and profitability, while excluding other potential determinants of firm value such as firm size, dividend policy, sales growth, macroeconomic conditions, and corporate governance factors. Third, the study uses secondary data from annual reports, which may not fully capture real-time changes in firm performance and market conditions. Finally, the model's explanatory power is relatively low, indicating that a large portion of firm value variation is explained by other unobserved factors.

5.3 Suggestions and Directions for Future Research

Future research is recommended to expand the scope of the study by increasing the number of sample companies and extending the observation period to improve the robustness and generalizability of the results. In addition, future studies should consider incorporating additional variables such as firm size, dividend policy, capital structure composition, sales growth, macroeconomic indicators, and corporate governance mechanisms to provide a more comprehensive explanation of firm value determinants. Moreover, future research may apply alternative analytical methods such as dynamic panel data models or structural equation modeling (SEM) to capture more complex relationships between variables. It is also recommended to compare different industrial sectors to identify whether the relationships between liquidity, leverage, profitability, and firm value vary across industries. These improvements are expected to provide deeper insights and stronger empirical evidence regarding firm value determinants in emerging markets.

Acknowledgement

The researcher would like to express sincere gratitude to all parties who have provided support, assistance, and prayers throughout the process of completing this research. Appreciation is extended

to the supervisor who has provided guidance, direction, and valuable suggestions, enabling this study to be completed successfully. In addition, the researcher also thanks the university for providing facilities and learning opportunities. The researcher is deeply grateful to the family for their continuous moral and material support, as well as to friends who have assisted and provided encouragement during the preparation of this study. May all the help and kindness given be rewarded abundantly by God Almighty.

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