Determinants of Investment Decisions in Chemical and Pharmaceutical Sectors Companies

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Abstract – This research aims to analyze the determinants of investment decisions, including leverage, cash flow, managerial ownership, and dividend policy. The object of this research is companies in the chemical and pharmaceutical sectors listed on the Indonesia Stock Exchange during the 2019–2023 period. Leverage is measured using the debt-to-assets ratio, cash flow is calculated using the working capital turnover ratio, managerial ownership is measured by the ratio of shares owned by management to the total outstanding shares, and dividend policy is measured using the dividend payout ratio. This research employs a purposive sampling method with 55 observation samples. The analysis is conducted using panel data regression with E-Views 13 software. The results show that leverage and cash flow have a significant positive effect on investment decisions. Meanwhile, managerial ownership and dividend policy has no significant impact on investment decisions

Keywords: Investment decisions, Leverage, Cash Flow, Managerial Ownership, Dividend Policy

I. INTRODUCTION

The establishment of a company aims to maximize shareholder wealth, where optimal investment decisions play a key role as a mechanism to achieve this fundamental goal. According to E. F. Hartono & Wahyuni (2017), investment in the capital market refers to the allocation of funds to long-term assets with the expectation of gaining future profits. Investors require various information about a company's performance through financial statements before committing their capital (Nurasik et al., 2023) Investment activity is carried out by investors to earn profits or a high rate of return (Halim & Hanafi, 2024). The success in obtaining high returns depends on how accurately a company makes strategic investment decisions.

Investment decisions reflect a company's choice in allocating funds to certain assets with the expectation of earning profits in the future, while considering the accompanying level of risk (Putra et al., 2021). Investors, in making investment decisions, must consider the appropriate type of investment—whether in financial assets, real assets, or a combination of both (Widnyana et al., 2021). Investment decisions serve as an indicator of a company's

viability, as the absence of new investments suggests the company has no positive outlook (Musliq & Biduri, 2022). Therefore, the investment decision-making process needs to take into account various determining factors.

Consistent with the pecking order theory proposed by Myers, companies prefer internal funding for investment to avoid agency costs, and only resort to debt when internal funds are (Hasanah & Sutjahyani, 2021). External funding becomes a rational choice when internal financing capacity is lacking (Senjani, 2015). Leverage comprises debt, equity, and preferred stock used to finance a company's operations, assets, and financial growth (Goel et al., 2015). Hermuningsih et al. (2020) state that companies may hold a small amount of cash and use borrowed funds to finance corporate investments, thus the relationship between debt policy and investment is positive.

The positive relationship between leverage and investment decisions indicates that an increase in company debt levels can potentially expand investment capacity. This phenomenon aligns with agency theory, which suggests that leverage acts as a disciplining mechanism that pushes management to allocate funds to more productive investment projects, thereby ultimately increasing corporate profitability (Herdianti & Husaini, 2018). Nurasik et al. (2023) argue that leverage ratios are among the metrics investors consider when making investment decisions. This is related to the risk of default and the supervision imposed by creditors. Management may face pressure from creditors in the event of default, prompting more cautious investment decisions.

Research on the influence of leverage on investment decisions has been conducted by several scholars. Studies by Aningsih et al. (2024), Sa'adatunnisa (2022), Perwitasari (2021), and Siringo-Ringo & Sumaizar (2020) show that leverage has a significant positive effect on investment decisions. However, other studies by Zebua et al. (2023) and Yunita & Yuniningsih (2020) report different findings, indicating that leverage has a significant negative effect on investment decisions.

Investment decisions are also influenced by a company's cash flow. Cash flow information helps assess the company's ability to generate future net cash inflows and evaluate management's stewardship of the entity's economic resources (IAI, 2019). Purwanti et al. (2015) state that investors often use cash flow as a tool to analyze investments because it provides an overview of the company's ability to generate cash. In developing companies, there is a positive correlation between investment intensity and the amount of operating cash flow, where increased cash availability enhances business investment capacity. Therefore, changes in investment volume are significantly affected by fluctuations in cash flow (Perwitasari, 2021)

Research by Likista & Sulistianingsih (2023) and Rokhmawati (2019) show that cash flow has a significant positive effect on investment. These findings align with the pecking order theory, in which companies prioritize internal funds to finance investments. On the other hand, studies by Perwitasari (2021), Subiyanto (2019), and Senjani (2015) suggest that cash flow has a significant negative effect on investment.

Investment decisions may also be influenced by ownership structure. Managerial ownership refers to shares owned by executive managers, including directors and the board of commissioners (Supradnya and Ulupui, 2016). Kruce (2022) defines managerial ownership as

a situation in which company executives hold a proportion of shares, creating a dual role as both operational managers and shareholders. Agency theory posits that managers are given authority by shareholders to make decisions, meaning management holds full rights over all corporate decisions (Jensen & Meckling, 1976). Herdianti & Husaini (2018) argue that managerial ownership aims to ensure top management makes decisions aligned with shareholder objectives, which is to enhance company value.

In terms of investment decisions, managerial ownership plays a crucial role as it encourages managers to make wiser decisions focused on the company's long-term profitability. Prudence is critical, given that management holds two roles: as company managers and shareholders (Kruce, 2022). As such, they must carefully consider the risks and potential benefits to ensure that the investments made yield optimal results while safeguarding their own interests as shareholders (Herdianti & Husaini, 2018). Overall, managerial ownership influences corporate investment decisions, with management tending to be more cautious in selecting long-term profitable investments and minimizing risk (Hasanuddin, 2021).

Research by Misrah (2023), Herdianti & Husaini (2018), and Nasrum & Akal (2015) found that managerial ownership has a significant positive effect on investment decisions. This significant effect suggests that managers are considered more capable of managing corporate assets effectively when they own shares in the company. Consequently, managerial share ownership encourages them to improve performance, which positively impacts the company and meets shareholder expectations (Devi & Faisal, 2021). However, other research by Wahyuni et al. (2015) indicates that managerial ownership has a significant negative effect on investment decisions.

In addition to the aforementioned variables, dividend policy is also one of the factors influencing investment decisions. Mulyawan (2015) states that dividend policy refers to decisions related to the distribution of corporate profits to shareholders in the form of dividends or retaining them as retained earnings for reinvestment in the future. Dividend policy is a crucial decision determining how profits are distributed to shareholders (Samrotun, 2015), while investment decisions focus on allocating funds to profitable projects (Aningsih et al., 2024). The relationship between the two is of interest because dividend distribution often competes with the funding needs of investments. Modigliani and Miller (MM) argue that dividend policy does not affect a company's value (Samrotun, 2015). However, in practice, high dividend payments can limit funds available for investment and increase dependence on external financing (Putra et al., 2021). Therefore, profits are not always fully distributed as dividends; part is often allocated for reinvestment (Hasanuddin, 2021). Financial management theory explains that when a large portion of profits is allocated to dividend distribution, it reduces the internal funds available for investment, and vice versa (Yuniningsih, Pratama, et al., 2019)

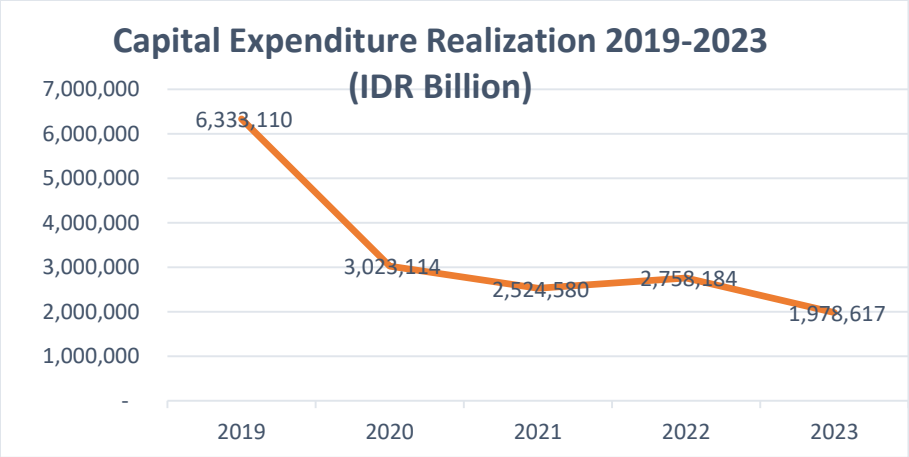
A study by Eliyanti (2019) concludes that dividend policy has a significant positive effect on investment decisions. This suggests that the level of dividend payments affects investment decisions. Meanwhile, research by Hasanah & Sutjahyani (2021) and Putra et al. (2021) indicate that dividend policy has a significant negative impact on investment decisions.

One of the sectors considered promising and therefore attracting investors is the chemical and pharmaceutical sector. The chemical, pharmaceutical, and textile industries (IKFT)

continuously strive to contribute significantly to national economic growth. In the first quarter of 2023, the IKFT sector's contribution to the national GDP reached 3.88 percent (Emittennews.com, 2023). Additionally, the COVID-19 pandemic had a significant impact on the growth of the chemical and pharmaceutical industries, particularly due to the increased demand for products related to pandemic response.

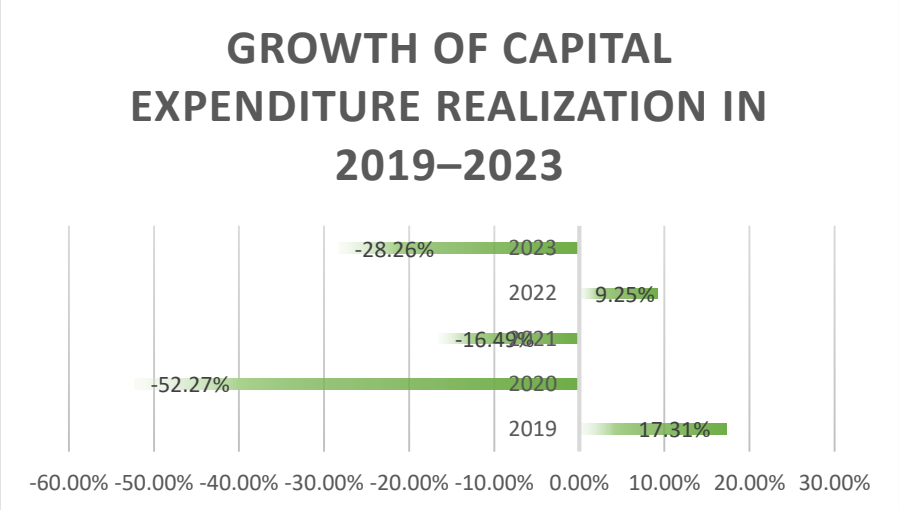
Data from the Central Statistics Agency (BPS) shows that in 2021, the chemical, pharmaceutical, and traditional medicine sector grew by 9.61 percent, which was higher than the national economic growth of only 3.69 percent. This growth was driven by public demand for medicines and health products to boost immunity, as well as mass vaccinations conducted worldwide (Indonesia.go.id, 2022). Nevertheless, corporate investment decisions in this sector do not always reflect the growth opportunities. Some companies opted to withhold investment or even cut capital expenditures, despite wide open external market opportunities. This is evident in the continued decline in capital expenditure investment realization among chemical and pharmaceutical companies listed on the Indonesia Stock Exchange.

Figure 1 Capital Expenditure Realization of Chemical and Pharmaceutical Sector Companies in 2019–2023



Source: Proceeds data by researcher (2025)

Figure 2 Growth of Capital Expenditure Realization in 2019–2023



Source: Proceeds data by researcher (2025)

Although the chemical and pharmaceutical sectors showed positive growth potential during and after the COVID-19 pandemic, marked by rising demand for health products and vaccines, capital expenditure investment realization has shown a declining trend over the past five years. Data indicates that investment dropped significantly from IDR 6.333 trillion in 2019 to only IDR 1.978 trillion in 2023, despite a brief increase in 2022. This phenomenon indicates a discrepancy between the growing market potential and companies' investment decisions, raising questions about the factors influencing investment decisions in this sector.

There are phenomena and differences or inconsistencies in the results of previous studies, so that they cannot prove the effect of leverage, cash flow, managerial ownership, and dividend policy on investment decisions. Therefore, the researcher is interested in conducting further similar research. The purpose of this study was to analyze the effect of leverage, cash flow, managerial ownership, and dividend policy on investment decisions in chemical and pharmaceutical sector companies listed on the IDX in 2019-2023.

II. LITERATURE REVIEW

Agency Theory

Agency theory arises from the separation of ownership between management and shareholders (owners). This theory was popularized by Jensen and Meckling in 1976. The foundation of the theory is the relationship between the owner (principal) and management (agent). Agency Theory, according to Fahmi (2015:19), refers to a condition within a company where management, as the executor and referred to as the agent, and the capital owner, as the principal, establish a cooperation contract known as a *"nexus of contract."* This cooperation contract contains agreements stating that the company's management must strive to maximize satisfaction for the owner, such as by generating high profits.

Pecking Order Theory

Pecking Order Theory, according to Gitman et al. (2015:571), is a financing hierarchy that begins with retained earnings as the primary source of funds, followed by debt financing, and finally, if still needed, external equity financing. The pecking order theory bases cash needs decisions on the level of risk the company is willing to take. Therefore, companies should finance investments first with retained earnings, then with safer forms of debt, followed by riskier debt, and ultimately with equity. Furthermore, the pecking order theory emphasizes that companies do not have a target cash level; instead, cash serves as a buffer between retained earnings and investment needs (Sudarno, 2022:48).

Leverage

Rodoni & Ali (2014:123) define leverage as a company's ability to meet its obligations, as indicated by the portion of equity used to pay off debt. Similarly, Brigham & Houston (2019:436) describe leverage as the ratio between total debt and total equity, which reflects the company's ability to use its equity to repay all of its debts. This study uses the debt to asset ratio as the basis for measuring leverage. Debt to Assets ratio is one of the ratios used to measure a company's ability to secure its debts with the total assets it owns (Sudarno, 2022:71).

Cash Flow

Cash flow is defined as the inflows and outflows of cash and cash equivalents (IAI, 2023). According to Sartono (2015:23), The amount of cash flow from operating activities is an indicator that determines whether a company's operations can generate sufficient cash flow to maintain operational capacity and make new investments without relying on external funding sources. Therefore, in this study, cash flow is measured through operating cash flow. Operating cash flow is calculated by adding net operating income after taxes with depreciation (Ross et al., 2015:36). Furthermore, this study uses the ratio of operating cash flow to capital expenditure. According to Hery (2015:106 & 125), There are seven types of cash flow ratios used as tools for cash flow analysis. One of these is the capital expenditure ratio, which is considered useful for estimating the operating cash flow available for investment spending. This capital expenditure ratio is formulated by comparing operating cash flow to the company's capital expenditures.

Managerial Ownership

Managerial ownership refers to a situation in which managers hold shares in the company or, in other words, the managers also serve as shareholders of the company (Robertus & Gunawan, 2016:75). Sudarno (2022:119) define managerial ownership as the percentage of share ownership by management members who actively participate in decision-making. Furthermore, Rustan (2023:12) state that managerial ownership can be measured by dividing the proportion of shares owned by company management actively involved in decision-making by the total number of shares outstanding.

Dividend Policy

Sartono (2015:282) defines dividend policy as the decision regarding whether the company's profits at the end of the year will be distributed to shareholders in the form of dividends or retained to increase capital for future investment financing. Dividend policy is measured using the dividend payout ratio (DPR). Gitman et al. (2015:611) states that the DPR is a strategy within company operations that must be undertaken to make dividend decisions. The dividend payout ratio is calculated by dividing the company's cash dividend per share by its earnings per share (EPS).

Investment Decisions

Investment decisions, also referred to as capital budgeting decisions, involve choosing to invest in either tangible or intangible assets (Brealey et al., 2015:212). According to Halim & Hanafi (2024:114), investment decisions are made to determine whether a proposed investment meets predetermined feasibility criteria from a financial perspective. Investment decisions represent the initial step in determining the total assets required by a company, making them one of the most critical decisions a company must make (J. Hartono, 2016:153). An indicator that can be used to measure investment decisions is capital expenditure. According to Hery (2015:135), capital expenditure refers to the costs incurred to acquire fixed assets, improve the operational efficiency and productive capacity of fixed assets, and extend the useful life of those assets. Capital expenditure can be measured using the capital expenditure to book value of assets ratio, which is part of the investment opportunity set (Sudarno, 2022:99).

Previous Research

Perwitasari (2021), in her study titled "The Effect of Cash Flow, Leverage, and Financial Constraint on Investment in Indonesia for Consumer-Goods Companies Listed on the Indonesia Stock Exchange, 2014–2018," concluded that cash flow and leverage each have a significant negative influence on investment. The sample comprised 23 consumer-goods firms.

Musliq & Biduri (2022) found that leverage significantly and positively affects investment decisions. Their study, "Key Financial Factors Influencing Investment: Profitability, Liquidity, Leverage, Size, and Stock Price," analyzed 13 food-and-beverage companies listed on the IDX during 2016–2019.

Sari & Leon (2020) In "The Influence of Investment-Cash-Flow Sensitivity and Financially Constrained on Investment," reported that cash flow exerts a significant positive effect on investment decisions, using manufacturing firms listed on the IDX from 2011 to 2015. Consistent with those findings, Likista & Sulistianingsih (2023) showed that cash flow also has a significant positive influence on investment. Their work, "The Effect of Cash Flow, Cash Holding, and Profitability on Investment in Financially Constrained Food and Beverage Industry Companies Listed on the IDX," employed a sample of 13 companies over the 2014–2021 period.

Hasanah & Sutjahyani (2021) examined pharmaceutical manufacturing firms listed on the IDX for 2015–2019. Their study, "The Effect of Profitability, Leverage, and Dividend Policy on Investment Decisions," found that leverage has a significant positive effect, whereas dividend policy has a significant negative effect on investment decisions. Similarly, Kurniawan & Merina (2023), in "Analysis of the Effect of Leverage, Profitability, and Dividend Policy on Investment Decisions in Mining Companies Listed on the IDX, 2020–2021," determined that both leverage and dividend policy have significant positive impacts on investment decisions, using 28 mining firms. Different results are shown by Putra et al. (2021), who concluded that dividend policy has a significant negative effect on investment decisions in their study, "Factors Affecting Investment Decisions in Property and Real Estate Companies Listed on the IDX," covering the period from 2016 to 2019.

Wahyuni et al. (2015), in "The Effect of Managerial Ownership, Institutional Ownership, Financial Leverage, and Profitability on Investment Decisions of Manufacturing Companies in Indonesia," found managerial ownership to have a significant negative influence on investment decisions, based on 197 manufacturing firms listed on the IDX from 2009 to 2013. By contrast, Misrah (2023), in "Managerial Ownership Structure on Investment Decisions and Firm Value," concluded that managerial ownership has a significant positive effect on investment decisions.

Research Hypothesis and Framework

Leverage and Investment Decisions

According to the Pecking Order Theory (POT), companies tend to prioritize internal financing because it is less costly and does not require additional disclosure of information (Guizani, 2020). However, when internal funds are limited, highly leveraged firms are more likely to opt for equity financing to reduce the risk of bankruptcy, especially when investment needs increase. Conversely, firms with low leverage tend to utilize debt, considering its lower

cost compared to equity and the benefit of tax shields (Yıldırım & Çelik, 2021). Nevertheless, high leverage encourages management to be more cautious in managing funds, ensuring that investments are made in profitable projects to reduce the company's financial risk (Wahyuni et al., 2015). The possibility of debt arising in a company can result from investment activities; thus, the leverage ratio is closely related to investment decisions (Perwitasari, 2021). Several studies have shown that leverage has a significant positive influence on investment, including research by Aningsih et al. (2024), Sa'adatunnisa (2022), and Siringo-ringo & Sumaizar (2020).

H1: Leverage has a significant positive influence on investment decisions

Cash Flow and Investment Decisions

Agency theory and information asymmetry reveal that external financing incurs additional costs compared to internal financing, making internal cash flow the primary source to support investment (Sari & Leon, 2020). Furthermore, according to the pecking order theory and free cash flow theory, cash flow has a positive effect on investment because companies tend to prioritize the use of internal funds to avoid high costs and difficulties in obtaining external financing (Moshirian et al., 2017). According to Riaz et al. (2016), cash flow is often used as a proxy for internal financing, which plays a crucial role in corporate capital decision-making. By converting positive cash flow into liquidity, companies can use it as a source of internal funding. Several studies, such as those conducted by Rokhmawati (2019), Sari & Leon (2020), and Likista & Sulistianingsih (2021), show that cash flow has a significant positive effect on investment decisions.

H2: Cash flow has a significant positive influence on investment decisions

Managerial Ownership and Investment Decisions

Agency problems arise when managerial ownership in a company does not reach 100 percent, causing managers to prioritize personal interests over maximizing firm value (Hasanuddin, 2021). This opportunistic behavior may lead to decisions that benefit managers personally, such as higher salaries or enhanced status, but are detrimental to stakeholders. Agency theory suggests that this risk can be minimized when managers also act as owners of the company, as their interests will align with the overall goal of increasing firm value (Misrah, 2023). This is consistent with studies by Herdianti & Husaini (2018) and Misrah (2023), which found that managerial ownership has a significant positive effect on investment decisions.

H3: Managerial ownership has a significant positive influence on investment decisions

Dividend Policy and Investment Decisions

Dividend policy and investment are interrelated, as dividend payment decisions affect the availability of internal funds for investment (Rosa & Mukhibad, 2022). Companies with high investment opportunities tend to adjust the amount of dividends distributed to shareholders, since a portion of retained earnings is needed to support future investments (Yuniningsih, Taufiq, et al., 2019). According to Hasanuddin (2021), dividend payments reduce retained earnings and internal equity, which can impact a company's ability to finance investments internally. This is in line with the study by Putra et al. (2021), which found that dividend policy

has a significant negative effect on investment decisions. This means that the greater the dividends paid, the smaller the retained earnings will be.

H4: Dividend policy has a significant negative influence on investment decisions

H5: Leverage, cash flow, managerial ownerships, and dividend policy simultaneously affect investment decisions

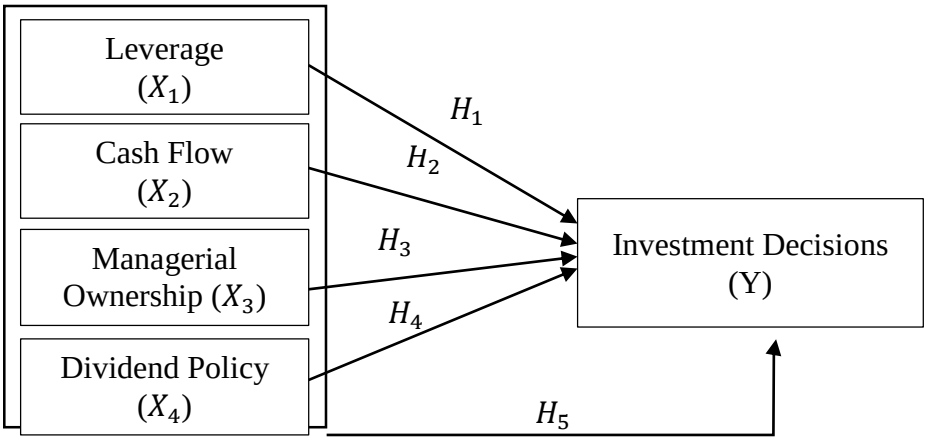


Figure 3 Research Framework

III. METHODS

The type of research used by the author is the associative method. The associative method is the formulation of a research problem between the relationship of two or more variables (Siyoto & Sodik, 2015). In this study, using a quantitative analysis with inferential statistical approach. This study uses data analysis methods in the form of panel data regression, which is a combination of time series and cross-section.

The dependent variable in this study is the Investment Decisions (ID) for chemical and pharmaceutical sector companies listed on the IDX for the period 2019 to 2023. Meanwhile, the independent variables are Debt to Assets Ratio (DAR), Cash Flow Ratio (CFR), Managerial Ownership (MO), and Dividend Payout Ratio (DPR). This research originates from secondary data, namely the annual financial reports of chemical and pharmaceutical sector companies for the 2019-2023 period published by the Indonesia Stock Exchange. Processing and analysis of the data used in this study were computerized using the Eviews version 13 program.

Sampling in this study uses a purposive sampling method. In this study, the population consists of 11 pharmaceutical sub-sector companies and 12 chemical sub-sector companies; however, only 11 (eleven) companies met the criteria to be sampled in this study. The following is the sample selection process.

Table 1. Sample Selection Process

No	Criteria	Quantity
1	Pharmaceutical and chemical sector companies listed on the Indonesia Stock Exchange (IDX)	23
2	Pharmaceutical and chemical sector companies that not published annual financial reports	-1

3	Companies that not distributed dividends for five consecutive years	-6
4	Companies with no managerial ownership data available for five consecutive years	-5
	Companies that meet the criteria	11

Source: Researcher (2025)

The following are the names of chemical and pharmaceutical companies that will be sampled in this study:

Table 2. Research Sample

No	Company Name	Code
1	PT Kalbe Farma Tbk	KLBF
2	PT Phapros Tbk	PEHA
3	PT Sido Muncul Tbk	SIDO
4	PT Tempo Scan Pasific Tbk	TSPC
5	PT Samator Indo Gas Tbk	AGII
6	PT Budi Starch & Sweetener Tbk	BUDI
7	PT Duta Pertiwi Nusantara Tbk	DPNS
8	PT Intanwijaya Internasional Tbk	INCI
9	PT Emdeki Utama Tbk	MDKI
10	PT Chandra Asri Pacific Tbk	TPIA
11	PT Unggul Indah Cahaya Tbk	UNIC

Source: Researcher (2025)

IV. RESULTS AND DISCUSSION

Descriptive Statistics

The results of the descriptive analysis of the research variables are presented below.

Table 3. Descriptive Statistics

Value	DAR	CFR	MO	DPR	ID
Mean	0.299977	2.890217	0.058339	0.439955	0.009147
Median	0.190044	1.741036	0.002400	0.398103	0.008213
Maximum	0.613302	13.76780	0.363710	1.000637	0.117986
Minimum	0.044034	-2.637619	0.000011	0.047085	-0.160644
Std. Dev.	0.188767	3.202140	0.100315	0.259556	0.035760

Source: Processed data (2025)

Based on Table 3, the debt to asset ratio (DAR) of the analyzed companies shows a minimum value of 0.044, recorded by PT Duta Pertiwi Nusantara Tbk in 2023, and a maximum value of 0.613, recorded by PT Phapros Tbk in 2020. The average DAR during the research period is 0.299977 with a standard deviation of 0.188767, indicating relatively low data variability.

The company's cash flow ratio (CFR) values indicate considerable variation, with a minimum value of -2.638 recorded by PT Intanwijaya Internasional Tbk in 2021 and a maximum value of 13.768 recorded by PT Duta Pertiwi Nusantara Tbk in 2019. The average cash flow ratio during the research period is 2.890217, with a standard deviation of 3.202140, indicating that the cash flow ratio data is highly variable.

The managerial ownership (MO) of the analyzed companies shows a minimum value of 0.000011, recorded by PT Aneka Gas Industri Tbk, and a maximum value of 0.363710, recorded by PT Intanwijaya Internasional Tbk, both occurring in 2023. The average MO during the research period is 0.058339 with a standard deviation of 0.100315, indicating a relatively high variation in the data.

The results of the dividend payout ratio (DPR) show a minimum value of 0.047085 recorded by PT Aneka Gas Industri Tbk and a maximum value of 1.000637 recorded by PT Sido Muncul Tbk, occurring in 2021 and 2020, respectively. The average DPR during the research period is 0.439955 with a standard deviation of 0.259556.

The analysis of Table 3 shows that the firms' investment decision values vary considerably, with a minimum of –0.160644 for PT Duta Pertiwi Nusantara Tbk and a maximum of 0.117986 for PT Chandra Asri Pacific Tbk. The lowest value occurred in 2023, while the highest was recorded in 2022. The negative minimum reflects a year-to-year decline in the company's fixed assets. The average investment-decision (ID) value is 0.009147 with a standard deviation of 0.035760, indicating that the data are clustered around the mean even though the overall variation is fairly large.

Model Selection Test

The test in selecting the panel data estimation method was carried out with 3 (three) tests, namely the Chow test, the Hausman test, and the Lagrange Multiplier (LM) test. The purpose of this test is to choose the most appropriate approach among the common effect, fixed effect, and random effect models. After testing, the most appropriate model is the fixed effect. The results of the fixed effect model can be seen as follows.

Table 4. Fixed Effect Model (FEM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.114338	0.054748	-2.088454	0.0432
DAR	0.474600	0.148827	3.188943	0.0028
CFR	0.004628	0.001747	2.648614	0.0115
MO	-0.215568	0.344472	-0.625791	0.5350
DPR	-0.044738	0.025310	-1.767632	0.0848
R-squared	0.549607	Mean dependent var		0.009147
Adjusted R-squared	0.391970	S.D. dependent var		0.035760
S.E. of regression	0.027884	Akaike info criterion		-4.094502
Sum squared resid	0.031101	Schwarz criterion		-3.547048
Log likelihood	127.5988	Hannan-Quinn criter.		-3.882797
F-statistic	3.486529	Durbin-Watson stat		2.085416
Prob(F-statistic)	0.000962			

Source: Processed data (2025)

Classic Assumption Test

The classical assumption test consists of the normality test, multicollinearity test, and heteroscedasticity test. The following are the results of each test:

1. The results of the normality test in this study are that the data is normally distributed or, in other words, the data has no significant differences.
2. From the results of the multicollinearity test, it is known that all independent variables Debt to Asset Ratio, Cash Flow Ratio, Managerial Ownership, and Dividend Payout Ratio, are not affected by multicollinearity problems.
3. The results of the heteroscedasticity test using the Harvey test method show that in the model there are no symptoms of heteroscedasticity.

Hypothesis Test

This research tests the hypothesis regarding the influence of the variables Debt to Asset Ratio, Cash Flow Ratio, Managerial Ownership, and Dividend Payout Ratio on investment decisions. The test was carried out using the t-test to see the partial influence of each independent variable. The t-test results show that the DAR and CFR variables have a significant positive effect on investment decisions, while the MO and DPR variables do not have a significant effect. The statistical probability value F in Table 4 is 0.000962 <0.05. This shows that there is a significant influence of the independent variables (DAR, CFR, MO, and DPR) simultaneously on the Investment Decisions.

Next, the coefficient of determination test (adjusted R2) is used to measure how much ability DAR, CFR, MO, and DPR have in explaining variations in investment decisions. The results show that 39.20% of the variation in investment decisions is explained by these four variables, while the remaining 60.80% is influenced by other variables outside this research model.

Interpretation of the Results

The following is an interpretation regarding the influence of Debt to Asset Ratio, Cash Flow Ratio, Managerial Ownership, and Dividend Payout Ratio on investment decisions of chemical and pharmaceutical companies listed on the IDX for the 2019-2023 period based on Table 4.

$$ID = -0.114 + 0.475*DAR + 0.005*CFR – 0.216*MO - 0.045*DPR$$

Effect of Leverage on Investment Decisions

The debt to asset ratio probability value is 0.0028 < α value = 0.05 with a positive coefficient value of 0.474600. These results indicate that DAR has a significant positive effect on the investment decision. The first hypothesis of this study is accepted. This finding is consistent with previous research by Musliq & Biduri (2022) and Hasanah & Sutjahyani (2021).

According to the Pecking Order Theory, the debt to asset ratio reflects the proportion of a company's assets financed by liabilities. In financial management practice, funding sources are generally categorized into two main types: internal (retained earnings) and external (debt or equity) (Aningsih et al., 2024). The typical pecking order of financing preferences begins with retained earnings and depreciation, followed by debt, and lastly, equity issuance (Brealey et al., 2023).

Debt usage is often driven by the tax-saving benefits (*tax shield*) that arise from interest expenses. Internal financing is subject to taxation through operational income, while interest on debt is tax-deductible, reducing the company's taxable income and increasing post-tax cash

flows. These cash flows can then be used to fund profitable investment projects (Hermuningsih et al., 2020).

Therefore, it can be concluded that leverage has a positive effect on investment decisions because it increases a company's capacity to finance profitable projects without relying entirely on internal capital. By utilizing debt, companies can take advantage of financial leverage to enhance their return on equity (ROE), as long as the return on investment exceeds the cost of debt (Hamid et al., 2015). Furthermore, according to Santoso et al. (2023), leverage allows companies to diversify their investment portfolios and seize greater expansion opportunities. However, companies must also consider the financial risks associated with excessive debt usage, such as high interest expenses and potential liquidity problems. Hence, optimal leverage management can play a crucial role in driving more aggressive and strategic investment decision.

The results of this study differ from those of Zebua et al. (2023) and Yunita & Yuniningsih (2020), who found that leverage has a significant but negative effect on investment decisions. This is attributed to interest rates on debt being higher than the returns on investment. With high leverage, companies may be less effective in making investment decisions as they tend to focus more on debt repayment rather than fully engaging in investment activities.

Effect of Cash Flow on Investment Decisions

The cash flow ratio probability value is 0.0115 < α value = 0.05 with a positive coefficient value of 0.004628. This result indicates the second hypothesis in this study is accepted, stating that the cash flow ratio has a significant positive effect on investment decisions. This finding supports the results of previous studies by Rokhmawati (2019), Sari & Leon (2020), and Likista & Sulistianingsih (2023).

The findings of this study reveal a positive influence of cash flow on investment decisions, which contrasts with the results of studies by Perwitasari (2021) and Subiyanto (2019), who found a negative relationship. This phenomenon can be explained by managerial behavior that tends not to automatically allocate excess liquidity to investment activities, even when the company holds a strong cash position.

A high level of internal cash flow provides significant financial flexibility for the company, allowing the allocation of capital for the acquisition of productive assets, financing high-value expansion projects, and converting cash flow into corporate liquidity. This supports the pecking order theory and aligns with previous studies that explain how companies prioritize internal sources to finance their investments due to the relatively lower costs compared to external financing. However, internal funding sources are generally more limited than external ones (Likista & Sulistianingsih, 2023).

According to Rinofah (2018), cash flow is also defined as readily available funds derived from profits and depreciation. Non-cash expenses or excess funds, also known as additional cash flow, arise after all investment projects with positive net present value have been undertaken. When a company's funding needs are largely met by internal sources, it indicates a stronger financial position and reduced dependence on external funding. As a result, the

financial costs associated with external funding are lowered, and the company has more internal funds to invest in accelerating its growth.

Effect of Managerial Ownership on Investment Decisions

The managerial ownership probability value is 0.5350 > α value = 0.05 with a negative coefficient value of -0.215568. The third hypothesis of this study, which posited that managerial ownership has a negative effect on investment decisions, is rejected. This result aligns with the findings of Barokah & Putra (2020) and Eliyanti (2019), who concluded that managerial ownership does not affect corporate investment decisions.

The rejection of the third hypothesis may be attributed to the low level of managerial share ownership in chemical and pharmaceutical companies, where government ownership dominates and limits the role of commissioners and directors in making strategic investment decisions. The decline in managerial performance may negatively affect the company and hinder the fulfillment of shareholder interests. Additionally, managerial shareholders may tend to disregard the interests of the company and other shareholders for personal gain (Eliyanti, 2019). Conflicts of interest between managers (agents) and owners (principals), which frequently occur, also hinder the role of managers in determining the company's investment decisions (Wahyuni et al., 2015). Furthermore, according to Komalasari & Permana (2015) the insignificant result may indicate a limited shareholder oversight mechanism over the company's investment activities, primarily due to the relatively low frequency of shareholder meetings held each year.

The regression results indicate that managerial ownership has a negative relationship with investment decisions. This is in line with the findings of Wahyuni et al. (2015), who found that managerial ownership has a negative impact on investment decisions. According to Wahyuni et al. (2015), not all managerial shareholders favor high levels of investment, as they also seek personal welfare through dividend payments. Since investments can reduce the dividends they receive, this creates an incentive for opportunistic behavior. These managerial shareholders may prioritize their own interests over those of the company and other shareholders.

However, this result contradicts the findings of Herdianti & Husaini (2018) and Misrah (2023), who stated that managerial ownership has a significant positive effect on investment decisions because managers are more capable of managing company assets when they own shares in the company. As managerial ownership increases, managers become more motivated to improve their performance, which in turn positively impacts the company and fulfills the interests of shareholders.

Effect of Dividend Policy on Investment Decisions

The dividend payout ratio probability value is 0.0848 > α value = 0.05 with a negative coefficient value of -0.044738. The fourth hypothesis of this study, that dividend policy affects investment decisions, is also rejected. This result is consistent with studies by Endiana (2016)

and Yunita & Yuniningsih (2020), which state that dividend policy does not influence investment decisions.

Dividend policy generally does not affect management's investment decisions because investment decisions should be based on project value rather than on funding or profit-distribution methods. Corporate managers evaluate investments using Net Present Value (NPV) or criteria such as Internal Rate of Return (IRR). If a project yields a return greater than the cost of capital, it should be accepted regardless of whether the company pays dividends (Hasibuan, 2020). When high-potential projects are available, the firm may retain earnings and reduce dividends; if no profitable projects exist, it can distribute higher dividends.

According to Modigliani–Miller theory (1963), in a perfect capital market—no taxes, transaction costs, asymmetric information, or agency costs—the cost of capital is unaffected by dividend policy. Whether the firm pays dividends or retains earnings, the cost of equity and debt remains the same, so investment decisions are not influenced by how profits are distributed (Ilhamsyah, 2017). If a company needs funds for investment, it can raise capital externally (e.g., by issuing equity or debt) just as easily as by retaining earnings. Hence, choosing between paying dividends and retaining earnings does not constrain the firm's ability to invest.

These findings contradict Eliyanti (2019), who reported a significant positive relationship between dividend policy and investment decisions. A high dividend policy can act as a positive signal that encourages shareholders' investment interest, based on a reward mechanism in which a higher shareholding proportion corresponds to larger future dividend payments.

The regression results indicate that dividend policy has a negative relationship with investment decisions. This finding is consistent with the study by Putra et al. (2021), which found that dividend policy has a negative impact on investment decisions. In other words, higher dividend payments (an increase in the Dividend Payout Ratio) reduce the available investment opportunities. According to Efni (2017), A higher growth rate indicates greater investment activity and a higher demand for funds. The amount of capital allocated for investment—particularly from after-tax profits or earnings available to shareholders—reduces the portion of profit that can be distributed as dividends.

IV. CONCLUSION

This research aims to analyze the determinants of investment decisions, including leverage, cash flow, managerial ownership, and dividend policy of chemical and pharmaceutical sector companies listed on the Indonesia Stock Exchange in 2019-2023. Based on the results of the research analysis that has been done, it can be concluded that leverage and cash flow have a significant positive effect on investment decisions. Conversely, managerial ownership and dividend policy have no significant effect on the investment decisions. Simultaneously, leverage, cash flow, managerial ownership, and dividend policy variables affect the investment decisions.

The recommendations for further research are to add other independent variables that are thought to affect the investment decisions. Some of these variables are company growth, firm size, and business risk. In addition, future researchers should include company external factors related to macroeconomic conditions such as Gross Domestic Product (GDP), inflation rates,

interest rates, and the rupiah exchange rate. It aims to provide an overview of other factors outside the model that affect the investment decisions. The author also recommends that future researchers use a broader research object so that the results obtained can be applied to a more general scope, such as manufacturing companies, banking, and others.

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