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Agency, signals, and the paradox of efficiency: Mediating role of investment efficiency in determining firm value in Indonesia

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Abstract: This study examines the mediating role of investment efficiency in the relationship between financial performance, business risk, institutional ownership, and board diversity on firm value in Indonesia. Grounded in agency and signaling theories, the study employs a dual-theoretical framework to analyze how internal governance mechanisms affect market valuation. Using panel data from 711 firm-year observations of non-financial firms listed on the Indonesia Stock Exchange (2016–2019), the analysis is conducted using PLS-SEM. Contrary to expectations, financial performance and investment efficiency significantly and negatively affect firm value, suggesting that conservative financial behavior may signal limited growth prospects. Business risk also has a negative impact on firm value but shows a significant partial mediation through investment efficiency. Institutional ownership positively influences investment efficiency but does not directly affect firm value. Board diversity negatively correlates with firm value and has no significant impact on investment efficiency. The findings highlight a disconnect between internal governance and market perception, particularly in emerging markets where speculative growth expectations may overshadow governance signals. This study contributes to the literature by revealing the context-dependent nature of agency mechanisms and signaling effects and emphasizes the importance of aligning internal strategies with external communication to reduce perceptual gaps.

Keywords: *Agency theory, Board diversity, Business risk, Emerging markets, Firm value, Indonesia, Institutional ownership, Investment efficiency, Signaling theory.*

1. Introduction

Firm value plays a central role in modern corporate finance as it encapsulates the market's expectations regarding a company's long-term performance, risk management, and governance quality [1, 2]. In broad terms, firm value represents the overall worth of a company as perceived by investors, and is often equated with the market value of the firm's equity, or stock price. It serves as an important indicator of how effectively a firm utilizes its resources to generate future economic benefits. In empirical research, firm value is commonly measured using market-based ratios, including the price-to-earnings (P/E) ratio, which indicates how much investors are willing to pay for one unit of the company's earnings. A higher P/E ratio typically reflects favorable investor sentiment and expectations of growth, whereas a lower ratio may signal doubts about future performance or higher perceived risk [3, 4]. Particularly in emerging markets like Indonesia where ownership is often concentrated and investor protection remains limited, firm value becomes not only a measure of intrinsic firm strength but also a reflection of how the market interprets internal corporate actions.

In the case of Indonesia, data from a sample of non-financial firms listed on the IDX show a gradual increase in average P/E ratio from 31.96 in 2016 to 37.01 in 2019, with a slight dip in 2018 as shown in Table 1. While the finansial performance measured by current rasio shows declined trend during 2016

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until 2019 as shown in Table 2. Understanding the drivers behind these valuation patterns is crucial for improving corporate governance and signaling mechanisms in emerging markets. The observed increase in average P/E ratios over the study period suggests evolving investor expectations, possibly driven by improved governance structures. This trend underscores the relevance of agency and signaling theories in understanding valuation dynamics

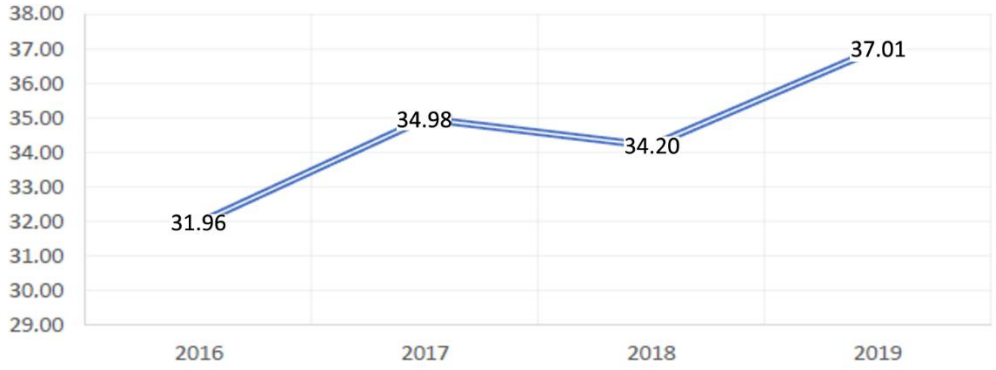

Figure 1.
Average P/E ratio of sampled non-financial firms listed on IDX (2016–2019).

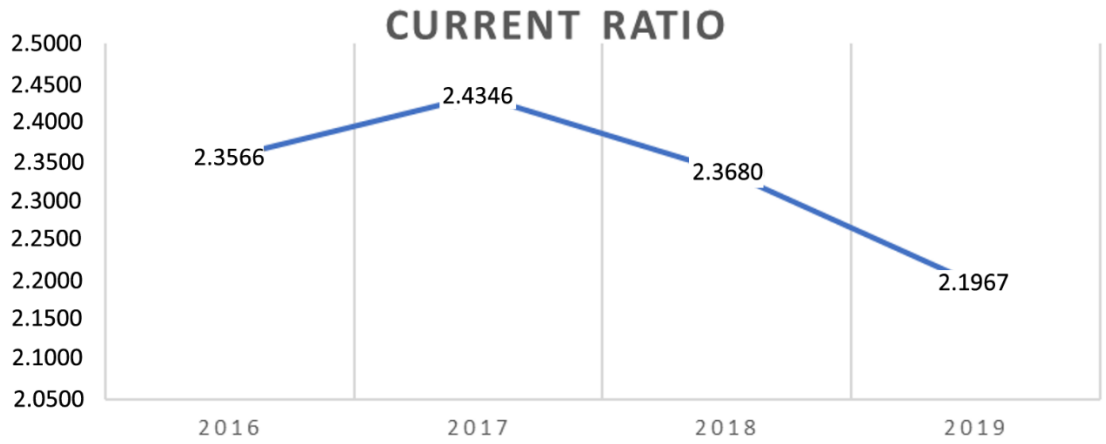

Figure 2.
Average Current ratio of sampled non-financial firms listed on IDX (2016–2019).

This study adopts a layered theoretical framework to better understand the drivers of firm value. The first layer draws on agency theory, which explains how internal governance mechanisms work to align managerial behavior with shareholder interests. When managers act as faithful agents, they are expected to produce strong financial performance, manage risk prudently, maintain credible institutional ownership, and promote diversity in board composition. These elements are not just structural but they represent managerial effort to resolve agency conflicts and optimize firm-level decision-making.

Empirical research has provided mixed but generally supportive evidence regarding the influence of these agency-related variables on firm value. Several studies have demonstrated a positive and significant relationship between financial performance typically measured by return on assets (ROA) or return on equity (ROE) and firm value, indicating that profitability enhances investor confidence and valuation [5-7]. In contrast, business risk has been found to negatively impact firm value, as higher volatility in earnings or operations increases uncertainty and discourages investment [8-10]. Some

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studies have shown that business risk positively affecting firm value, since managers that aware of the volatility in earning thus chose investment selectively hence enhacing firm value [11, 12]. Regarding institutional ownership, its monitoring role is generally viewed as enhancing firm value by mitigating agency problems and increasing market trust [13, 14]. However, some studies have noted that excessively concentrated institutional holdings may also lead to entrenchment or passive monitoring, thus weakening its positive effect [15, 16]. Similarly, board diversity, particularly in terms of gender and expertise, has been associated with better decision-making quality and improved firm performance, which in turn leads to higher firm value [17, 18]. Nonetheless, the effectiveness of board diversity may depend on contextual factors such as industry type, regulatory environment, and organizational culture.

Yet, managerial effort alone does not guarantee enhanced valuation. The second theoretical layer, signaling theory emphasizes how these managerial actions are perceived by external stakeholders. In markets characterized by information asymmetry, such as Indonesia, investors rely heavily on observable indicators to form judgments. Strong profitability, low risk exposure, institutional monitoring, and inclusive governance become credible signals of underlying firm quality [19, 20]. The way these signals are interpreted ultimately shapes how much value the market assigns to the firm.

While agency theory focuses on aligning managerial behavior with shareholder interests through governance mechanisms, these internal efforts only translate into firm value when they are effectively perceived and interpreted by the market. This highlights the role of signaling theory, which addresses how firms communicate unobservable qualities to external stakeholders in environments characterized by information asymmetry [21-23]. In emerging markets such as Indonesia, where public disclosures are often limited and investor skepticism is prevalent, observable indicators such as strong financial performance, low risk exposure, active institutional ownership, and diverse boards act as signals of managerial competence and firm quality [24, 25].

Empirical studies support the signaling effect of these variables. For instance, signaling through strong profitability has been shown to positively influence market valuation in firms operating under high information asymmetry [26]. Institutional ownership has also been found to function as a quality signal, with higher ownership levels associated with increased investor trust and firm value, especially in developing markets [27]. Moreover, board diversity particularly gender and expertise has been empirically shown to enhance firm credibility and signal innovation and inclusivity, both of which are positively valued by the market [28]. However, these signals are not always interpreted uniformly across firms and industries. Their effectiveness may be contingent on contextual factors such as disclosure regimes, media coverage, investor sophistication, and cultural norms. Thus, firm value becomes not only a function of what managers do, but also how clearly and credibly those actions are communicated and received by the market.

Although internal governance variables and signaling mechanisms have been shown to influence firm value, these relationships are not always direct or immediate. One key channel through which managerial actions can impact valuation is investment efficiency the firm's ability to allocate capital to projects with positive net present value and avoid both under- and over-investment. From an agency perspective, inefficient investment often reflects unresolved conflicts of interest, such as managerial empire-building or excessive risk aversion [29]. From a signaling perspective, efficient investment behavior reinforces the credibility of the firm's strategic direction, serving as a signal of competent management and long-term viability. Recent studies suggest that investment efficiency mediates the relationship between governance mechanisms and firm value [30, 31]. However, the mediating role of investment efficiency remains underexplored in emerging market settings, particularly in relation to how investors interpret it as a signal of quality. To date, few studies have simultaneously examined the mediating role of investment efficiency within an agency-signaling framework, especially using panel data from Indonesia or comparable emerging economies. This study proposes that investment efficiency serves as a bridging mechanism, translating internal managerial quality into external investor valuation. By investigating this mediating effect, the research offers a more complete understanding of how firm value is shaped in environments characterized by agency conflicts and information asymmetry.

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Accordingly, this study aims to examine the direct and indirect effects of financial performance, business risk, institutional ownership, and board diversity on firm value, with investment efficiency as a mediating variable. By integrating agency and signaling theories within the context of non-financial firms listed on the Indonesia Stock Exchange (IDX) from 2016 to 2019, this research addresses the theoretical and empirical gap concerning how internal managerial actions are translated into firm valuation. The study contributes to the literature by: (1) providing empirical validation for the mediating role of investment efficiency in value creation, (2) advancing a dual-theory framework that connects internal governance with external market interpretation, and (3) offering region-specific insights for corporate governance reform and policy development in emerging capital markets.

2. Literature Review and Hypothesis Development

2.1. Firm Value

Firm value represents the market's assessment of a company's ability to generate future earnings and sustain long-term growth. It serves as a fundamental indicator in corporate finance, reflecting the effectiveness of managerial decisions, operational efficiency, and the firm's overall financial health [32]. A higher firm value typically signifies strong investor confidence and is often associated with superior corporate governance and strategic management practices [33].

In empirical research, firm value is commonly measured using market-based indicators such as the Price-to-Earnings (P/E) ratio, Price-to-Book Value (PBV), and Tobin's Q. Among these, the P/E ratio is widely utilized due to its simplicity and direct relation to investor sentiment. It is calculated by dividing the market price per share by the earnings per share (EPS), providing insight into how much investors are willing to pay for each unit of earnings. A higher P/E ratio often reflects optimism about a company's future prospects, while a lower ratio may indicate concerns over earnings stability or growth potential.

The P/E ratio is not only a tool for valuation but also serves as a signal to the market regarding a firm's performance and expectations. It encapsulates various factors, including profitability, risk, and growth opportunities, making it a comprehensive measure of firm value. However, it's important to note that the P/E ratio should be interpreted within the context of industry norms and economic conditions, as it can be influenced by external factors beyond a firm's control.

In the context of emerging markets like Indonesia, where information asymmetry and concentrated ownership structures are prevalent, the P/E ratio becomes even more significant [34, 35]. It reflects not only the firm's financial performance but also the market's perception of its governance quality and risk management practices.

Given the multifaceted nature of firm value and its implications for stakeholders, it is crucial to explore the determinants that influence it. This includes examining internal factors such as financial performance, business risk, institutional ownership, and board diversity, as well as how these elements interact with investment efficiency to impact overall firm valuation.

2.2. Financial Performance and firm Value

Financial performance is a central indicator of a firm's operational success and managerial effectiveness. It reflects the extent to which a company utilizes its resources to generate earnings, maintain liquidity, and sustain operational cash flow. Within the framework of agency theory, strong financial performance indicates that managers are fulfilling their fiduciary responsibilities by maximizing shareholder wealth and reducing inefficiencies [36]. Good financial performance serves as evidence that managers are acting in line with the interests of shareholders, which fosters investor trust and leads to enhanced firm value.

From a signaling theory perspective, financial performance also serves as a credible signal to external stakeholders. In environments with high information asymmetry such as Indonesia, investors rely heavily on observable financial indicators as proxies for internal quality. High and consistent

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financial outcomes are interpreted as signs of effective leadership, operational efficiency, and long-term sustainability [26].

In this study, financial performance is modeled as a formative construct, represented by three indicators: Current Ratio (CR) to reflect liquidity; Return on Assets (ROA) to capture profitability; and Operating Cash Flow (OCF) to assess the firm's ability to generate cash from core operations. These indicators collectively represent the firm's financial health and are commonly used in both academic research and practical investment analysis.

Empirical evidence consistently supports the positive influence of financial performance on firm value. Avdalovic and Milenković [37] found that ROA had a significant positive effect on stock prices in the Belgrade Stock Exchange, while Pudji [38] demonstrated that P/E, net profit margin, and earnings per share had significant positive effects on firm value in LQ45 firms listed in Indonesia. These studies reinforce the argument that profitability and financial soundness are key drivers of valuation across diverse market settings.

Further, Du, et al. [39] argue that higher liquidity leads to improved investor perception and increased firm value. Ni, et al. [40] emphasize that cash flow is a better predictor of future performance than earnings, making it a critical determinant of firm value. Husna and Satria [41] add that higher profitability not only signals efficient management but also results in higher stock prices, which in turn enhances firm value.

H_1: Financial performance positively affects firm value.

2.3. Business Risk and Firm Value

Business risk refers to the uncertainty inherent in a firm's operating activities, particularly its ability to generate stable and predictable operating income in the future. It originates from factors such as revenue volatility, high fixed operating costs, and sensitivity to market fluctuations. Unlike financial risk, which arises from a firm's capital structure, business risk stems directly from core business operations. When operating leverage is high, even small declines in sales can lead to significant reductions in pre-tax profits [42]. As such, business risk reflects the firm's exposure to performance shocks and operational inflexibility.

Within the framework of agency theory, business risk can be viewed as a consequence of managerial decisions that may not always align with shareholder interests. Excessive risk-taking or risk aversion can both lead to suboptimal outcomes if managers act to protect their positions rather than maximize firm value. From a signaling theory perspective, business risk also serves as a signal to the market: firms that effectively disclose and manage their operational risk send a message of transparency and control, whereas poorly managed or hidden risks may deter investors [43].

In this study, business risk is measured using the Degree of Operating Leverage (DOL), which captures the sensitivity of a firm's operating income to changes in sales. A higher DOL indicates greater earnings volatility resulting from a higher proportion of fixed operating costs. Firms with high DOL are considered more exposed to operational risk, as a small decline in sales can disproportionately reduce earnings before interest and taxes (EBIT). Therefore, DOL serves as a forward-looking indicator of risk stemming from cost structure and revenue stability.

Empirical findings on the relationship between business risk and firm value are mixed. On the one hand, Efni [44] found a positive effect of risk on firm value in the Indonesian property and real estate sector, suggesting that investors may view moderate risk as a sign of strategic aggressiveness. On the other hand, Wiagustini and Pertamawati [45] reported that the standard deviation of EBIT, another proxy for risk, negatively affects firm value as measured by the P/E ratio.

These inconsistent findings underscore the need for further examination, particularly in emerging markets where investor behavior and governance structures vary. Drawing on the perspective of Kahl, et al. [46] this study adopts the view that firms with high operating risk are more likely to engage in cautious financial and operational planning to mitigate earnings volatility. Managers in such firms tend to exercise prudence in capital expenditure, cash retention, and financing decisions, which can increase

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investor confidence. Accordingly, a higher DOL may reflect disciplined managerial behavior and operational scalability, thus contributing positively to firm value in specific market contexts.

H_2. Business risk positively affects firm value.

2.4. Institutional Ownership and Firm Value

Institutional ownership refers to the proportion of a company's equity held by institutional investors such as pension funds, banks, insurance companies, and mutual funds. Within the agency theory framework, institutional investors are considered to play a vital role in monitoring managerial actions and reducing agency costs [47]. When institutions hold a significant portion of shares, they are assumed to have both the incentive and the capacity to supervise managerial behavior more effectively than dispersed individual shareholders. The separation between ownership and control, when accompanied by strong institutional oversight, is expected to align managerial decisions with shareholder interests and thus enhance firm value.

Some scholars argue that concentrated ownership such as institutional blockholders can reduce agency costs by curbing managerial opportunism [48]. However, other scholars caution that concentrated ownership can create a second type of agency problem, where dominant shareholders expropriate value at the expense of minority shareholders [49]. This duality makes the impact of institutional ownership on firm value context-dependent.

The literature reveals four competing views regarding the relationship between institutional ownership and firm value: (1) Active monitoring hypothesis suggests that institutional investors serve as effective monitors, positively influencing firm performance and value [50]; (2) Passive monitoring hypothesis posits that some institutions are reluctant to intervene in management affairs, thus weakening their governance role [51]; (3) Exploitation hypothesis indicates that institutional investors may collude with management or act in self-interest, harming minority shareholders [52]; (4) A nonlinear or inverted U-shaped relationship has also been proposed, suggesting that institutional ownership initially improves firm value up to a point, after which it begins to decline due to entrenchment or over-concentration [53].

Despite these divergent findings, the active monitoring hypothesis remains dominant in emerging market contexts where external governance mechanisms are weaker. In this study, institutional ownership is operationalized as institutional holdings exceeding 20% of total equity consistent with thresholds used in prior studies to define blockholder influence. It is hypothesized that higher institutional ownership improves firm value by strengthening oversight, mitigating agency problems, and enhancing decision quality.

H_3. Institutional ownership positively affects firm value.

2.5. Board Diversity and Firm Value

Board diversity refers to the variety of demographic and professional attributes among members of a company's board of directors and commissioners. Within the framework of agency theory, diversity plays a critical role in enhancing board effectiveness by providing broader perspectives and reducing the risk of groupthink. The separation of ownership and control, as highlighted by Fama and Jensen [47] underscores the importance of board structure in monitoring managerial actions. A heterogeneous board composition is believed to strengthen oversight and offer a richer mix of experiences, ideas, and business knowledge in strategic decision-making [54].

Board diversity may also function as a signal to investors regarding the firm's commitment to inclusive governance and accountability. A diverse board can project a positive image and convey adherence to good corporate governance practices, which may enhance market trust and, ultimately, firm value [55, 56]. In the Indonesian context, where the two-tier board system is applied, board diversity in this study is defined as a composite of diversity across both the board of commissioners and board of directors.

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This study measures board diversity as the average composite score of multiple diversity dimensions, including gender, nationality, age, educational background, tenure, and the presence of independent members, consistent with the approach taken by Ozdemir [57].

Empirical findings regarding the effect of board diversity on firm value are mixed. Darmadi [55] found that gender diversity was negatively related to firm performance, while age diversity had a positive impact and nationality diversity had no significant effect. Hassan and Marimuthu [58] studying Malaysian firms, reported similar results: age diversity improved firm value (measured by ROA, ROE, and Tobin's Q), whereas gender and nationality diversity did not. In Spain, Fernández-Temprano and Tejerina-Gaite [56] found that age diversity was positively associated with firm value among both insider and outsider directors, while educational background diversity had a negative impact and gender diversity remained insignificant.

Further, Rashid [50] showed that board characteristics (e.g., size and independence) significantly mediated the relationship between ownership structure and firm performance, especially in the context of foreign ownership. Meanwhile, Ozdemir [57] highlighted that board diversity positively influenced firm performance in U.S. tourism firms, and that this effect was stronger when institutional ownership was low suggesting a complementary role between ownership structure and board composition.

Although previous studies report varied results, most suggest that certain forms of diversity particularly age, experience, and independence can enhance board function and signal governance quality. Therefore, this study hypothesizes a positive relationship between board diversity and firm value.

2.6. Investment Efficiency and Firm Value

Investment efficiency refers to a firm's ability to allocate capital to value-enhancing projects while avoiding both overinvestment and underinvestment. Within the framework of agency theory, inefficient investment may result from managerial self-interest, such as empire-building or excessive caution, especially when incentives are misaligned with shareholder value [59]. Efficient investment decisions are those that reflect discipline, strategic foresight, and proper resource allocation which help minimize agency costs.

From the perspective of signaling theory, investment efficiency serves as an external signal of managerial competence. In markets with high information asymmetry, investors interpret efficient investment behavior as an indication of sound governance and financial discipline. This perception can enhance investor confidence and ultimately increase firm value [31].

In this study, investment efficiency is measured using the model developed by Biddle, et al. [31] which estimates expected investment based on firm fundamentals such as growth opportunities, size, and profitability. The absolute deviation between actual and expected investment reflects inefficiency whether over- or under-investment. A smaller deviation indicates greater efficiency in capital allocation.

Empirical studies support the positive association between investment efficiency and firm value. Soumaya [60] examined investment decisions in French firms and found that both internal and external growth-related investments positively affect shareholder value. Moreover, cash flow and debt were found to be positively related to firm value, consistent with the Pecking Order Theory, where firms prioritize internal funds over external equity when making investment decisions.

In the Indonesian context, Efni [44] used four proxies for investment decisions, market-to-book ratio, capital expenditure to book value of assets, current assets to total assets, and market-to-book value of equity and found consistent positive effects on firm value measured by both Tobin's Q and Price-to-Earnings Ratio.

These findings suggest that firms capable of making disciplined and efficient investment decisions, particularly in environments with constrained information flow are likely to be rewarded with higher valuation by the market.

H_5: Investment efficiency positively affects firm value.

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2.7. The Mediating Role of Investment Efficiency

While prior studies have largely examined the direct effects of governance-related variables on firm value, recent research highlights the importance of investment efficiency as a mediating mechanism. Within the framework of agency theory, efficient investment serves as evidence of managerial discipline and alignment with shareholder interests, while from a signaling perspective, it conveys to the market that a firm is strategically competent in allocating resources. By functioning as an intermediary channel, investment efficiency may help explain how internal firm characteristics are translated into external market valuation.

2.7.1. Financial Performance, Investment Efficiency, and Firm Value

Strong financial performance provides firms with greater internal resources, particularly in the form of retained earnings and operational cash flow. This financial flexibility enhances the firm's ability to invest in positive-NPV projects without relying on external financing, thus reducing underinvestment risk. According to the Pecking Order Theory, firms with better internal cash flows are more likely to fund investments internally—leading to more timely and potentially more efficient capital allocation [61].

From an agency theory perspective, when managers are able to deliver strong financial results, they are incentivized and better equipped to make efficient investment decisions that benefit shareholders. Additionally, efficient firms tend to have clearer financial reporting and greater internal accountability, which help mitigate the risk of value-destroying investments [31].

Empirical studies reinforce this view. Soumaya [60] found that in French firms, internal cash flow significantly influenced investment decisions and had a positive impact on firm value. Likewise, Efni [44] demonstrated that cash flow and profitability are positively related to firm value through investment choices. These findings suggest that financial performance enables and enhances investment efficiency, which in turn improves firm valuation.

Accordingly, the following hypotheses are proposed:

H_6. Financial performance positively affects investment efficiency.

H_7. Investment efficiency mediates the relationship between financial performance and firm value.

2.7.2. Business Risk, Investment Efficiency, and Firm Value

Business risk particularly when arising from high operating leverage can influence managerial decision-making related to investment. Firms that recognize their exposure to volatile earnings often respond by exercising greater caution in investment planning. According to Kahl, et al. [46] companies with high operational risk tend to adopt more conservative financial policies and carefully select investment projects to ensure they can withstand potential revenue fluctuations.

From the agency theory perspective, this behavior may represent an effort by managers to reduce risk of value destruction and align more closely with shareholder interests. Rather than deterring investment, elevated business risk when acknowledged and managed may encourage more deliberate and efficient capital allocation to mitigate exposure. In turn, this efficiency can Although business risk is typically seen as detrimental, firms that actively respond to risk by enhancing investment efficiency may benefit in terms of valuation. This mediating role has been observed in studies such as Efni [44] who found that risk-related behavior influenced firm value indirectly through investment decisions.

H_8. Business risk positively affects investment efficiency.

H_9. Investment efficiency mediates the relationship between business risk and firm value.

2.7.3. Institutional Ownership, Investment Efficiency, and Firm Value

Institutional investors often possess the expertise and influence necessary to discipline management and improve strategic decision-making. According to agency theory, the presence of institutional ownership introduces a powerful monitoring mechanism that can deter inefficient investments and promote greater financial discipline [47].

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Institutions with a significant ownership stake are likely to demand clearer investment justifications and stronger expected returns. Their influence may reduce managerial opportunism in capital budgeting decisions, thus fostering more efficient investment behavior. This in turn may contribute to increased firm value by ensuring that capital is allocated to projects with greater potential for value creation.

Empirical research supports this notion. Rashid [50] found that institutional ownership is associated with stronger governance and enhanced investment quality. Their presence may improve resource allocation and long-term planning, especially in environments with weak external governance.

H_{10} Institutional ownership positively affects investment efficiency.

H_{11} Investment efficiency mediates the relationship between institutional ownership and firm value.

2.7.4. Board Diversity, Investment Efficiency, and Firm Value

Board diversity introduces a range of perspectives, experiences, and analytical approaches that can enrich the firm's strategic decisions, including investment choices. Diverse boards are more likely to challenge management assumptions, evaluate investment proposals more rigorously, and consider broader risk and opportunity factors. These qualities are particularly important in complex capital allocation decisions.

From an agency perspective, diversity improves board effectiveness in its monitoring function, thereby reducing the likelihood of over- or underinvestment. From a signaling perspective, diverse boards may also signal stronger governance and thoughtful decision-making to the market enhancing investor confidence in the firm's investment efficiency and its value.

Several studies support this pathway. Ozdemir [57] showed that board diversity improves firm performance and that this effect is partially mediated by internal decision quality, including investment efficiency. Fernández-Temprano and Tejerina-Gaite [56] also suggest that diversity enhances the board's ability to guide and monitor long-term financial decisions.

H_{12} Board diversity positively affects investment efficiency.

H_{13} Investment efficiency mediates the relationship between board diversity and firm value.

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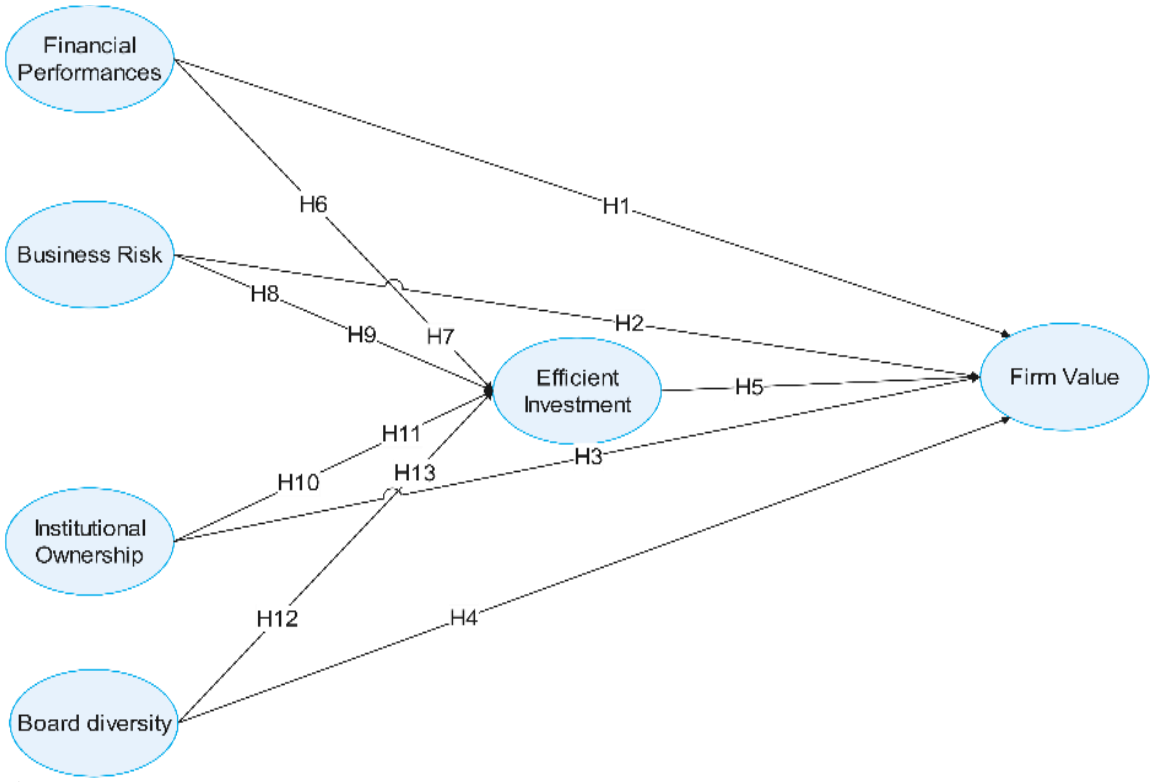

Figure 3.
Research Model.

3. Research Methodology

3.1. Research Design

This study adopts a positivist paradigm with a quantitative approach aimed at examining the mediating role of investment efficiency in the relationship between financial performance, business risk, institutional ownership, and board diversity on firm value in Indonesia. The object of analysis consists of all non-financial companies listed on the Indonesia Stock Exchange (IDX) during the period of 2016 to 2019. The study utilizes audited financial statements and annual reports, obtained through the official website of the IDX. All data were analyzed using WarpPLS version 7.00, employing the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique.

3.2. Population and Sample

The population for this study includes all non-financial firms listed on the IDX from 2016 to 2019, amounting to 2,014 firm-year observations. To ensure data relevance and consistency, the year 2020 was excluded due to the abnormal market conditions caused by the COVID-19 pandemic. The year 2016 was chosen as the starting point, as it marked the implementation of OJK Regulation No. 21/POJK.04/2015 on Good Corporate Governance for Public Companies.

A purposive sampling technique was employed to select firms based on four main criteria as shown in Table 1.

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Table 1.
Purposive Sampling Criteria and Sample Size.

Criteria	2016	2017	2018	2019	Total Observation
Non-Financial Firms	440	474	525	575	2014
Institutional ownership under 20 Percent	(160)	(160)	(158)	(150)	(628)
Does not disclose board diversity information	(55)	(50)	(35)	(29)	(169)
Using Reporting currency other than IDR	(46)	(48)	(50)	(48)	(192)
Reporting loss on the year of observation	(53)	(63)	(68)	(130)	(314)
Final Sample	126	153	214	218	711

After applying these criteria, a final sample of 711 firm-year observations was obtained. Exclusions were made due to lack of institutional ownership above the required threshold (628 observations), missing board information (169 observations), use of foreign currencies (192 observations), and reporting of losses (314 observations).

3.3. Variable Measurement

The study involves one endogenous variable (firm value), four exogenous variables (financial performance, business risk, institutional ownership, and board diversity), and one mediating variable (investment efficiency).

Firm value is measured using the Price-to-Earnings Ratio, calculated by dividing the market price per share by the company's earnings per share. Financial performance is treated as a latent construct and measured using three indicators: current ratio, return on assets (ROA), and operating cash flow (OCF). Business risk is represented by the Degree of Operating Leverage (DOL), calculated as the percentage change in EBIT relative to the percentage change in sales. Institutional ownership refers to the percentage of shares held by financial institutions exceeding 20% of total shares outstanding. Board diversity is assessed using a composite index that includes diversity in gender, nationality, age, educational background, tenure, and the presence of independent directors and commissioners.

Investment efficiency is calculated following the model developed by Biddle, et al. [31] where the deviation of actual investment from expected investment (based on sales growth) indicates over- or under-investment. The absolute value of this residual, multiplied by -1, represents the firm's investment efficiency: the smaller the deviation, the more efficient the investment.

3.4. Analytical Technique

The study applies Structural Equation Modeling using Partial Least Squares (PLS-SEM) with WarpPLS version 7. This method is appropriate for handling latent variables with formative indicators, does not require normally distributed data, and is suitable for small to medium-sized samples. The analysis includes both the measurement model (outer model) and the structural model (inner model). Goodness-of-fit indices such as APC, ARS, AVIF, and GoF were used to evaluate model performance.

The hypotheses were tested using bootstrapping techniques, focusing on the significance of both direct and indirect effects. The mediation analysis distinguishes between full mediation (where the direct effect is insignificant but the indirect effect is significant) and partial mediation (where both direct and indirect effects are significant). Partial mediation is further categorized as complementary (same direction) or competitive (opposite direction), following the classification proposed by Hair, et al. [62].

To assess the robustness of the model, additional tests were conducted by introducing firm size (log of total assets) as a control variable.

4. Results

4.1. Descriptive Statistics

Descriptive analysis was conducted on 627 firm-year observations after the removal of outliers from the initial 711 data points. The sample covers non-financial firms listed on the Indonesia Stock Exchange (IDX) from 2016 to 2019. Table 2 summarizes the statistical properties of all study variables.

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Table 2.
Descriptive statistic.

	N	Minimum	Maximum	Mean	Std. Deviation
CR	627	0.2825	9.6215	2.299952	1.7832788
ROA	627	0.0003	1.0527	0.106787	0.1053030
CFOP	627	-0.2331	0.5488	0.074951	0.0972569
DOL	627	-6.7091	7.4660	0.429773	1.5146433
Instown	627	0.2074	0.9999	0.561999	0.1934683
Bodiv	627	0.0000	1.0000	0.392003	0.2030691
Abs Efin 2	627	-23.3475	-0.0229	-4.222054	5.1151095
PER	627	10.25	97.05	30.9440	12.00732
Valid N (listwise)	627				

The average P/E ratio (PER) as a proxy for firm value was 30.94, with a standard deviation of 12.01, ranging from a minimum of 10.25 to a maximum of 97.05. Financial performance, measured through Return on Assets (ROA), Operating Cash Flow (CFOP), and Current Ratio (CR), recorded an average ROA of 10.7%, an average CFOP of 7.5%, and an average CR of 2.30. Business risk, proxied by the Degree of Operating Leverage (DOL), showed considerable variability with a mean of 0.43 and standard deviation of 1.51, indicating heterogeneity in operational exposure across firms.

Institutional ownership levels ranged from 20.7% to 99.9%, with a mean of 56.2%, satisfying the threshold used to define blockholder presence. Board diversity scores ranged from 0 to 1, with a mean of 0.392, reflecting moderate heterogeneity in board composition. Investment efficiency, calculated as the inverse of the absolute residual from the Biddle, et al. [31] investment model, had an average of −4.22, suggesting a tendency toward over- or under-investment among the sampled firms.

4.2. Model Evaluation

4.2.1. Measurement Model (Outer Model)

The convergent validity of constructs was tested through factor loadings. ROA and CFOP demonstrated strong loadings on the financial performance latent variable (>0.84), while the CR indicator was excluded due to a loading below the 0.30 threshold. All other single-indicator constructs including DOL, institutional ownership, board diversity index, investment efficiency, and PER exhibited perfect loadings (1.000), fulfilling the requirement for convergent validityas shown on Figure 4

	FIN	RISK	INSTOWN	BODIV	INEFF	COMVAL	Type (as defined)	SE	P value
CFOP	(0.865)	-0.003	0.003	-0.001	-0.089	-0.104	Formative	0.036	<0.001
ROA	(0.865)	0.003	-0.003	0.001	0.089	0.104	Formative	0.036	<0.001
DOL	0.000	(1.000)	0.000	0.000	0.000	0.000	Formative	0.036	<0.001
Instown	0.000	0.000	(1.000)	0.000	0.000	0.000	Formative	0.036	<0.001
Bodiv	0.000	0.000	0.000	(1.000)	0.000	0.000	Formative	0.036	<0.001
Abs_Efin_2	0.000	0.000	0.000	0.000	(1.000)	0.000	Formative	0.036	<0.001
PER	0.000	0.000	0.000	0.000	0.000	(1.000)	Formative	0.036	<0.001

Figure 4.
Convergent validity test.
Note: Loadings are unrotated cross-loading are oblique-rotated. SEs and *P* values are for loading. *P* values < 0.05 are desirable for reflective indicators.

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Discriminant validity was confirmed using the Fornell–Larcker criterion, where each construct's square root of the AVE exceeded its correlations with other constructs. Composite reliability values exceeded the 0.70 benchmark, and Cronbach's alpha values were above 0.60 for all variables, indicating internal consistency reliability as shown in Figure 5.

Correlations among l.vs. with sq. rts. of AVEs

	FIN	RISK	INSTOWN	BODIV	INEFF	COMVAL
FIN	(0.865)	0.085	0.150	0.134	0.092	-0.244
RISK	0.085	(1.000)	-0.069	0.069	-0.108	-0.043
INSTOWN	0.150	-0.069	(1.000)	0.030	0.112	-0.130
BODIV	0.134	0.069	0.030	(1.000)	-0.006	-0.074
INEFF	0.092	-0.108	0.112	-0.006	(1.000)	-0.373
COMVAL	-0.244	-0.043	-0.130	-0.074	-0.373	(1.000)

Figure 5.
Square Roots AVE.
Note: Square roots of average variances extracted (AVEs) shown on diagonal.

4.2.2. Structural Model (Inner Model)

Model fit indicators showed acceptable values across all criteria. The Average Path Coefficient (APC) was 0.155 ($p < 0.001$), and Average R-squared (ARS) was 0.245 ($p < 0.001$). The GoF index was 0.478, indicating a large effect size. Both multicollinearity indices, AVIF (1.021) and AFVIF (1.286) were well below the maximum acceptable threshold of 5.0. Furthermore, all supplementary indices (SPR, RSCR, SSR, and NLBCDR) achieved ideal or acceptable values, confirming overall model adequacy.

The R^2 values indicated that the structural model explained 26.0% of the variance in firm value (COMVAL) and 4.3% in investment efficiency (EFIN). While the explained variance in investment efficiency was modest, the Q^2 values of 0.054 and 0.255 for EFIN and COMVAL, respectively, were greater than zero, indicating predictive relevance.

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4.3. Hypothesis Testing

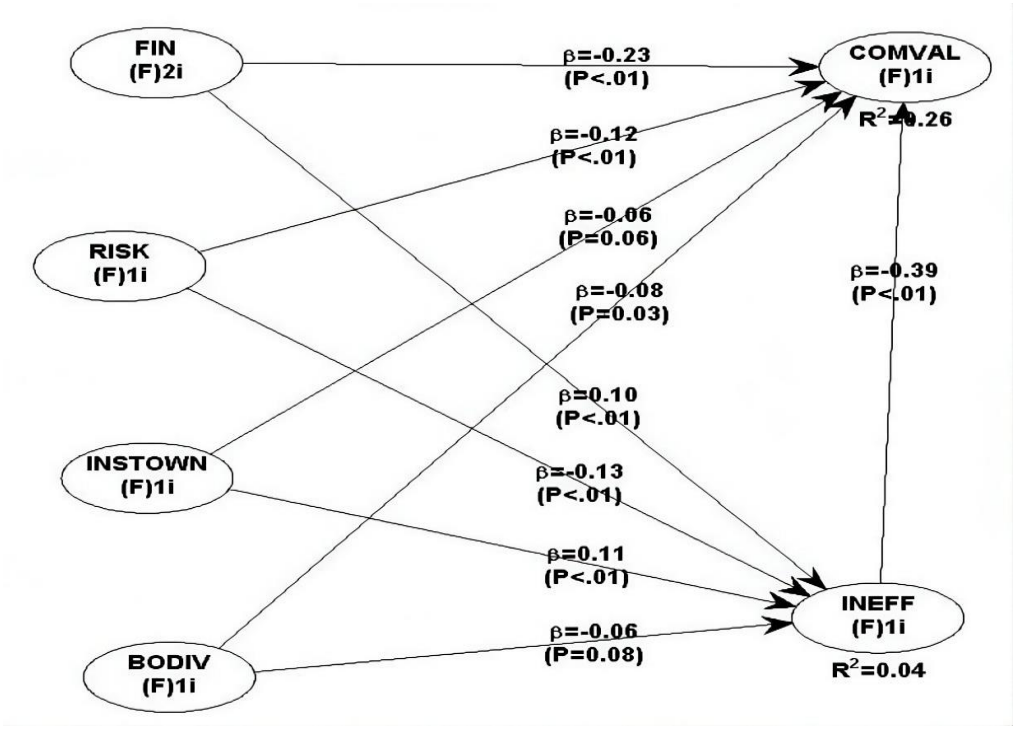

Figure 6.
Result of Hypothesis Testing.

The structural model analysis revealed several significant relationships. Financial performance, which was expected to have a positive impact on firm value (H1), was found to exert a negative and significant influence ($\beta = -0.231$, $p < 0.001$), thus contradicting the hypothesis and leading to its rejection. On the other hand, financial performance positively affected investment efficiency (H6), with a path coefficient of $\beta = 0.102$ and a p-value of 0.005, supporting the hypothesis.

Business risk also showed unexpected patterns. Contrary to H2, it negatively and significantly influenced firm value ($\beta = -0.125$, $p < 0.001$), leading to the rejection of the hypothesis. Similarly, H8, which proposed a positive effect of business risk on investment efficiency, was not supported, as the relationship was negative and significant ($\beta = -0.127$, $p < 0.001$).

Regarding institutional ownership, the direct effect on firm value (H3) was not statistically significant ($\beta = -0.063$, $p = 0.057$), indicating no direct impact. However, institutional ownership positively influenced investment efficiency (H10), with a significant path coefficient of $\beta = 0.110$ ($p = 0.003$), thereby supporting the hypothesis.

Board diversity was found to negatively affect firm value (H4) with a statistically significant coefficient ($\beta = -0.076$, $p = 0.028$), leading to the rejection of the expected positive relationship. Furthermore, board diversity did not have a significant influence on investment efficiency (H12), as evidenced by the non-significant path coefficient ($\beta = -0.055$, $p = 0.082$).

Investment efficiency itself had a negative and significant effect on firm value (H5), with a path coefficient of $\beta = -0.388$ and a p-value less than 0.001, thus rejecting the hypothesis that efficient investment would enhance firm valuation.

The mediation analysis further revealed that investment efficiency did not mediate the relationship between financial performance and firm value (H7, $\beta = -0.039$, $p = 0.081$), nor did it mediate the effects

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of institutional ownership (H11, β = –0.043, p = 0.065) or board diversity (H13, β = 0.022, p = 0.222) on firm value. However, a significant mediating effect was found in the case of business risk (H9), where investment efficiency mediated the relationship between business risk and firm value (β = 0.049, p = 0.040).

5. Discussion

This study provides novel insights into how agency and signaling mechanisms interact in shaping firm value within the context of emerging markets. Contrary to conventional theoretical expectations, financial performance measured by return on assets (ROA) and operating cash flow was found to have a significant negative effect on firm value, as measured by the Price-to-Earnings Ratio (PER). This finding diverges from the premise of agency theory, which posits that stronger financial outcomes should increase firm valuation by signaling managerial effectiveness [63]. A possible explanation is that investors perceive high ROA and cash flows as indicators of firm maturity and declining growth prospects, particularly in markets where valuation is often driven by future expectations rather than current performance

In contrast, financial performance positively influences investment efficiency. Firms with stronger internal resources are better equipped to allocate capital toward value-adding projects without relying on costly external financing [60]. This supports the pecking order theory, which suggests that internally generated funds are the preferred source of investment capital. Efficient capital allocation is seen as a discipline reinforced by sound financial health and managerial prudence.

Business risk, proxied by the Degree of Operating Leverage (DOL), was found to exert a negative influence on both firm value and investment efficiency. Firms with high DOL are more sensitive to sales fluctuations, making their earnings more volatile and discouraging long-term investment. Such volatility diminishes investor confidence, leading to lower PERs [42]. From an agency perspective, managers facing high operational leverage may either become excessively cautious or engage in inefficient investment behavior to preserve short-term earnings. Conversely, low-risk firms tend to exercise better investment discipline. However, even this conservative behavior can be perceived by investors as growth-averse.

Interestingly, investment efficiency partially mediates the relationship between business risk and firm value but in a competitive manner. While low operational risk tends to improve investment efficiency, the resulting conservative investment posture may conflict with market preferences for firms demonstrating bold expansion [47]. As a result, the signal investors receive from efficient investment in low-risk firms may be interpreted negatively, reducing overall firm value.

Institutional ownership did not have a statistically significant effect on firm value, but it showed a positive influence on investment efficiency. This suggests that institutional investors in Indonesia may function more effectively as internal monitors rather than active market influencers. Their oversight improves capital discipline [64] but does not necessarily enhance perceived firm value, potentially reflecting a passive monitoring orientation [51].

Board diversity, often praised for enhancing governance, was found to have a negative effect on firm value and no significant effect on investment efficiency. While heterogeneous boards may introduce broader perspectives, they may also create decision-making friction, delays, and conflicting agendas [65]. Investors may interpret these frictions as signs of inefficiency or lack of strategic clarity, thus lowering firm valuation. The absence of a significant link between board diversity and investment efficiency further suggests that structural heterogeneity does not automatically translate into better investment outcomes.

Another surprising result is that investment efficiency itself negatively influences firm value. Rather than being rewarded, efficient firms may be penalized by the market, particularly when investors perceive efficiency as a signal of low-risk, low-growth strategy [66]. In markets characterized by high information asymmetry, such as Indonesia, investors may favor aggressive growth and visible expansion

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over optimization. Mature, highly efficient firms may be perceived as having limited upside, resulting in lower valuation multiples.

Of the mediation pathways tested, only the indirect effect of business risk on firm value through investment efficiency was statistically significant. This highlights a unique mechanism in which low business risk prompts managers to behave conservatively in investment decisions [67] but such caution may not align with investor expectations, ultimately lowering firm value. In contrast, no mediating effect was found for investment efficiency in the relationships involving financial performance, institutional ownership, or board diversity.

Firm size, introduced as a control variable, exhibited a significant negative relationship with firm value. Larger firms are typically seen as having reached maturity, with lower future growth potential, resulting in lower PERs compared to smaller, high-growth firms. This finding is consistent with investor behavior in emerging markets, where speculative growth stories often dominate valuation narratives.

Collectively, these findings challenge oversimplified assumptions in corporate governance literature. They suggest that in environments marked by high information asymmetry and speculative investor behavior, prudent internal management may not always translate into higher valuation. Signals of discipline and efficiency are not uniformly appreciated; rather, they are subject to interpretation based on prevailing market sentiment and growth expectations.

6. Conclusion

This study concludes that stronger financial performance, lower business risk, and higher investment efficiency do not always lead to higher firm valuation—particularly in emerging markets where investor sentiment favors potential over prudence. Financially sound firms may be penalized in terms of lower P/E ratios due to their perceived lack of future growth prospects.

While financial performance and institutional ownership contribute positively to investment efficiency, only business risk exhibited a significant mediating path through efficiency toward firm value. This mediation was competitive in nature, indicating that efficient investment behavior could suppress positive investor perceptions of low-risk operations.

Board diversity, often assumed to be beneficial for governance, was found to have an adverse effect on firm value and no significant role in improving investment decisions. Similarly, investment efficiency, rather than being rewarded, was negatively associated with firm value—underscoring the divergence between internal managerial intent and external market perception.

Ultimately, the study reinforces the notion that corporate signals are interpreted through a contextual lens. In markets characterized by asymmetrical information, conservative internal behavior may be misinterpreted as a lack of ambition. The findings encourage further inquiry into how governance attributes and efficiency measures can be better aligned with investor expectations in diverse capital market settings.

7. Implications and Limitations

The findings of this study have important theoretical and practical implications, while also being subject to certain limitations that offer direction for future research. From a theoretical standpoint, this research contributes to the development of agency theory by highlighting the mediating role of investment efficiency in shaping firm value. Unlike traditional assumptions where efficiency is presumed to be inherently value-enhancing, the results demonstrate that such efficiency can send ambiguous or even negative signals to the market. This suggests a more complex interaction between managerial discipline and investor perception. Furthermore, the study enriches signaling theory by revealing that in contexts like Indonesia—where information asymmetry and speculative behavior are prevalent—signals of risk aversion or conservative capital allocation are not necessarily interpreted as indicators of firm strength or future performance.

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Practically, the findings offer guidance for both corporate managers and policymakers. For managers, the evidence implies that internal performance metrics and capital efficiency alone may not translate into favorable market valuation. Instead, strategic communication and explicit signaling of long-term growth strategies may be necessary to align managerial actions with investor expectations. This is particularly relevant in markets where perception often overrides fundamentals. For regulators and capital market authorities, the study emphasizes the importance of enhancing disclosure standards. Specifically, greater transparency around investment policies and decision-making rationale could help bridge the interpretive gap between firms and the market, thereby reducing the impact of information asymmetry.

Despite these contributions, the study is not without limitations. It focuses exclusively on non-financial firms listed on the Indonesia Stock Exchange during the period 2016 to 2019, thereby excluding potential structural changes caused by the COVID-19 pandemic and omitting financial-sector dynamics that may behave differently under similar governance mechanisms. The use of the Price-to-Earnings Ratio (PER) as a proxy for firm value limits the analysis to profitable firms, potentially overlooking value drivers in early-stage or turnaround companies. Additionally, investment efficiency was measured using the absolute deviation from expected investment, which does not distinguish between over- and under-investment—each of which may have different implications. Lastly, board diversity was represented by a composite index. While this allows for comprehensive measurement, it may dilute the specific influence of individual diversity dimensions such as gender, tenure, or educational background.

These limitations provide opportunities for refinement and extension in future research. Studies that disaggregate investment inefficiency or explore alternative proxies for firm value and governance diversity may yield deeper insights into the mechanisms uncovered here.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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References

[1] I. G. Adiputra and A. Hermawan, "The effect of corporate social responsibility, firm size, dividend policy and liquidity on firm value: Evidence from manufacturing companies in Indonesia," *International Journal of Innovation, Creativity and Change*, vol. 11, no. 6, pp. 325-338, 2020.

[2] M. Amalia and E. Supriyanto, *The influence of profitability and leverage on company value with corporate social responsibility as a mediating variable, in The AI Revolution: Driving Business Innovation and Research: B. Awwad, Ed.* Cham: Springer Nature Switzerland, 2024.

[3] B. Jitmaneeroj, "A latent variable analysis of corporate social responsibility and firm value," *Managerial Finance*, vol. 44, no. 4, pp. 478-494, 2018.

[4] E. Melina and E. Endri, "Investment decisions and firm value: The moderating role of profitability," *International Journal of Economics and Financial Issues*, vol. 15, no. 1, pp. 1-8, 2024. https://doi.org/10.32479/ijefi.17338

[5] A. Gill and N. Mathur, "Factors that influence financial leverage of Canadian saccos," *Journal of Applied Finance & Banking*, vol. 1, no. 2, pp. 19-37, 2011.

[6] C. G. Ntim, "Corporate governance, affirmative action and firm value in post-apartheid South Africa: A simultaneous equation approach," *African Development Review*, vol. 25, no. 2, pp. 148-172, 2013.

[7] N. Asni and D. Agustia, "The mediating role of financial performance in the relationship between green innovation and firm value: Evidence from ASEAN countries," *European Journal of Innovation Management*, vol. 25, no. 5, pp. 1328-1347, 2021. https://doi.org/10.1108/ejim-11-2020-0459
[8] P. G. Liargovas and K. S. Skandalis, "Factors affecting firms' financial performance: The case of Greece," *Global Business and Management Research: An International Journal*, vol. 2, no. 2/3, pp. 19–37, 2010.
[9] M. Salim and R. Yadav, "Capital structure and firm performance: Evidence from Malaysian listed companies," *Procedia - Social and Behavioral Sciences*, vol. 65, pp. 156-166, 2012. https://doi.org/10.1016/j.sbspro.2012.11.105
[10] H. Yousefi, K. Yung, and M. Najand, "From low resource slack to inflexibility: The share price effect of operational efficiency," *International Review of Financial Analysis*, vol. 90, p. 102927, 2023. https://doi.org/10.1016/j.irfa.2023.102927
[11] E. Savitri, T. A. Gumanti, and N. Yulinda, "Enterprise risk-based management disclosures and firm value of Indonesian finance companies," *Problems and Perspectives in Management*, vol. 18, no. 4, pp. 414-422, 2020. http://dx.doi.org/10.21511/ppm.18(4).2020.33
[12] Q. Huang and M. Xiong, "Does managerial ability increase or decrease firm value?," *Applied Economics Letters*, vol. 30, no. 13, pp. 1717-1722, 2023. https://doi.org/10.1080/13504851.2022.2081658
[13] R. Chung, M. Firth, and J.-B. Kim, "Institutional monitoring and opportunistic earnings management," *Journal of Corporate Finance*, vol. 8, no. 1, pp. 29-48, 2002. https://doi.org/10.1016/S0929-1199(01)00039-6
[14] E. Bajo, E. Croci, and N. Marinelli, "Institutional investor networks and firm value," *Journal of Business Research*, vol. 112, pp. 65-80, 2020. https://doi.org/10.1016/j.jbusres.2020.02.041
[15] S. Rastogi, K. Singh, and J. Kanoujiya, "Firm's value and ESG: The moderating role of ownership concentration and corporate disclosures," *Asian Review of Accounting*, vol. 32, no. 1, pp. 70-90, 2023. https://doi.org/10.1108/ara-10-2022-0266
[16] S. Döring, W. Drobetz, S. El Ghoul, O. Guedhami, and H. Schröder, "Institutional investment horizons and firm valuation around the world," *Journal of International Business Studies*, vol. 52, no. 2, pp. 212-244, 2021. https://doi.org/10.1057/s41267-020-00351-9
[17] D. A. Carter, B. J. Simkins, and W. G. Simpson, "Corporate governance, board diversity, and firm value," *Financial Review*, vol. 38, no. 1, pp. 33-53, 2003. https://doi.org/10.1111/1540-6288.00034
[18] Y. Liu, Z. Wei, and F. Xie, "Do women directors improve firm performance in China?," *Journal of Corporate Finance*, vol. 28, pp. 169-184, 2014. https://doi.org/10.1016/j.jcorpfin.2013.11.016
[19] F. Rezaei and M. Firoozi, "Investigate the relation between liquidity risk and information asymmetry and excess returns," *Advanced Environmental Biology*, vol. 8, no. 19, pp. 186–196, n.d.
[20] Y. Fang and Z. Shao, "The influence of Social Security Fund stock investment on stock market volatility risk: Evidence from China," *Modern Economic Science*, vol. 44, no. 4, p. 59, 2022.
[21] M. Spence, "Job market signaling*," *The Quarterly Journal of Economics*, vol. 87, no. 3, pp. 355-374, 1973. https://doi.org/10.2307/1882010
[22] M. A. Rutherford, A. K. Buchholtz, and J. A. Brown, "Examining the relationships between monitoring and incentives in corporate governance," *Journal of Management Studies*, vol. 44, no. 3, pp. 414-430, 2007. https://doi.org/10.1111/j.1467-6486.2007.00683.x
[23] C. Cardi, C. Mazzoli, and S. Severini, "Friend or foe? The effect of corporate governance on intellectual capital disclosure in IPOs," *International Journal of Disclosure and Governance*, vol. 15, no. 1, pp. 1-12, 2018. https://doi.org/10.1057/s41310-018-0031-5
[24] B. Sudiyatno, E. Puspitasari, T. Suwarti, and M. M. Asyif, "Determinants of firm value and profitability: Evidence from Indonesia," *Journal of Asian Finance, Economics and Business*, vol. 7, no. 11, pp. 769–778, 2020. https://doi.org/10.13106/jafeb.2020.vol7.no11.769
[25] C. Sinuraya and S. Mayangsari, "The effect of earnings smoothing and earnings informativeness on firm value with managerial ability as a moderating variable," *International Journal of Economics and Financial Issues*, vol. 14, no. 2, pp. 178-185, 2024. https://doi.org/10.32479/ijefi.15746
[26] B. L. Connelly, S. T. Certo, R. D. Ireland, and C. R. Reutzel, "Signaling theory: A review and assessment," *Journal of Management*, vol. 37, no. 1, pp. 39-67, 2011. https://doi.org/10.1177/0149206310388419
[27] Y. Dou, O.-K. Hope, W. B. Thomas, and Y. Zou, "Blockholder exit threats and financial reporting quality," *Contemporary Accounting Research*, vol. 35, no. 2, pp. 1004-1028, 2018. https://doi.org/10.1111/1911-3846.12404
[28] G. Bernile, V. Bhagwat, and S. Yonker, "Board diversity, firm risk, and corporate policies," *Journal of Financial Economics*, vol. 127, no. 3, pp. 588-612, 2018. https://doi.org/10.1016/j.jfineco.2017.12.009
[29] S. Richardson, "Over-investment of free cash flow," *Review of Accounting Studies*, vol. 11, no. 2, pp. 159-189, 2006.
[30] S. Chen, Z. Sun, S. Tang, and D. Wu, "Government intervention and investment efficiency: Evidence from China," *Journal of Corporate Finance*, vol. 17, no. 2, pp. 259-271, 2011. https://doi.org/10.1016/j.jcorpfin.2010.08.004
[31] G. C. Biddle, G. Hilary, and R. S. Verdi, "How does financial reporting quality relate to investment efficiency?," *Journal of Accounting and Economics*, vol. 48, no. 2, pp. 112-131, 2009. https://doi.org/10.1016/j.jacceco.2009.09.001

[32] M. Indriastuti, A. Chariri, and F. Fuad, "Enhancing firm value: The role of enterprise risk management, intellectual capital, and corporate social responsibility," *Contaduría y Administración*, vol. 70, no. 1, p. Article 1, 2024. https://doi.org/10.22201/fca.24488410e.2025.5185
[33] H. Tang, L. Xiong, and R. Peng, "The mediating role of investor confidence on ESG performance and firm value: Evidence from Chinese listed firms," *Finance Research Letters*, vol. 61, p. 104988, 2024. https://doi.org/10.1016/j.frl.2024.104988
[34] N. Susilowati, S. Ridloah, R. Lestari, and A. Herdiana, "How do three financial analysis pillars and investment policies define the firm value in the basic industry and chemical sector?," *Academic Strategic Management Journal*, vol. 20, no. 3, pp. 1–12, 2021.
[35] M. Neldi, H. Hady, Elfiswandi, and Lusiana, "The determinants of price earning ratio: Evidence from Indonesia," *International Journal of Professional Business Review*, vol. 8, no. 8, p. Article e03373, 2023.
[36] M. C. Jensen and W. H. Meckling, "Theory of the firm: Managerial behavior, agency costs and ownership structure," *Journal of Financial Economics*, vol. 3, no. 4, pp. 305-360, 1976. https://doi.org/10.1016/0304-405X(76)90026-X
[37] S. M. Avdalovic and I. Milenković, "Impact of company performances on the stock price: An empirical analysis on select companies in Serbia," *Ekonomika Poljoprivrede*, vol. 64, no. 2, pp. 561-570, 2017. https://doi.org/10.5937/ekoPolj1702561M
[38] A. Pudji, "The influence of fundamental factors and systematic risk to stock prices on companies listed in the Indonesian stock exchange. University of Malta Open Access Repository," 2017. https://www.um.edu.mt/library/oar/handle/123456789/32620
[39] J. Du, F. Wu, and X. Liang, "Corporate liquidity and firm value: Evidence from China's listed firms," *SHS Web of Conferences*, vol. 24, p. Article 01013, 2016. https://doi.org/10.1051/shsconf/20162401013
[40] Y. Ni, P. Huang, P. Chiang, and Y. Liao, "Cash flow statements and firm value: Evidence from Taiwan," *The Quarterly Review of Economics and Finance*, vol. 71, pp. 280-290, 2019. https://doi.org/10.1016/j.qref.2018.09.004
[41] A. Husna and I. Satria, "Effects of return on asset, debt to asset ratio, current ratio, firm size, and dividend payout ratio on firm value," *International Journal of Economics and Financial Issues*, vol. 9, no. 5, pp. 50-54, 2019. https://doi.org/10.32479/ijefi.8595
[42] E. Brigham and P. Daves, *Intermediate financial management*. Boston, MA: Cengage Learning, 2019.
[43] H. D. Park and P. C. Patel, "How does ambiguity influence IPO underpricing? The role of the signalling environment," *Journal of Management Studies*, vol. 52, no. 6, pp. 796-818, 2015. https://doi.org/10.1111/joms.12132
[44] Y. Efni, "The mediating effect of investment decisions and financing decisions on the effect of corporate risk and dividend policy against corporate value," *Journal of Advanced Research in Law and Economics*, vol. 8, no. 23, pp. 40-51, 2017.
[45] N. L. P. Wiagustini and N. P. Pertamawati, "The influence of business risk and firm size on capital structure and firm value: Evidence from pharmaceutical companies listed on the Indonesia stock exchange," *Matrik: Journal of Management, Business Strategy, and Entrepreneurship*, vol. 9, no. 2, pp. 112-122, 2015.
[46] M. Kahl, J. Lunn, and M. Nilsson, "Operating leverage and corporate financial policies," *AFA 2012 Chicago Meeting Paper*, p. 53, 2019. https://doi.org/10.2139/ssrn.1787184
[47] E. F. Fama and M. C. Jensen, "Separation of ownership and control," *Journal of Law and Economics*, p. 32, 1998. https://doi.org/10.2139/ssrn.94034
[48] J. S. Ang, R. A. Cole, and J. W. Lin, "Agency costs and ownership structure," *The Journal of Finance*, vol. 55, no. 1, pp. 81-106, 2000.
[49] B. Villalonga and R. Amit, "How do family ownership, control and management affect firm value?," *Journal of Financial Economics*, vol. 80, no. 2, pp. 385-417, 2006. https://doi.org/10.1016/j.jfineco.2004.12.005
[50] M. M. Rashid, "Ownership structure and firm performance: The mediating role of board characteristics," *Corporate Governance*, vol. 20, no. 4, pp. 719-737, 2020. https://doi.org/10.1108/cg-02-2019-0056
[51] N. Ngamtampong and A. Sukprasert, "Evaluating the impact of ESG performance on firm value: The moderating role of ownership type in Thailand," *Asian Review of Accounting*, 2025. https://doi.org/10.1108/ara-07-2024-0246
[52] S. R. M. Musallam, H. Fauzi, and N. Nagu, "Family, institutional investors ownerships and corporate performance: The case of Indonesia," *Social Responsibility Journal*, vol. 15, no. 1, pp. 1-10, 2018. https://doi.org/10.1108/srj-08-2017-0155
[53] A. A. Daryaei and Y. Fattahi, "The asymmetric impact of institutional ownership on firm performance: Panel smooth transition regression model," *Corporate Governance: The International Journal of Business in Society*, vol. 20, no. 7, pp. 1191–1203, 2020. https://doi.org/10.1108/CG-06-2020-0254
[54] P. Agyemang-Mintah and H. Schadewitz, "Gender diversity and firm value: Evidence from UK financial institutions," *International Journal of Accounting and Information Management*, vol. 27, no. 1, pp. 2-26, 2019. https://doi.org/10.1108/ijaim-06-2017-0073
[55] S. Darmadi, "Board diversity and firm performance: The Indonesian evidence," *Corporate Ownership & Control*, vol. 8, no. 2, pp. 524–539, 2010.
[56] M. A. Fernández-Temprano and F. Tejerina-Gaite, "Types of director, board diversity and firm performance," *Corporate Governance*, vol. 20, no. 2, pp. 324-342, 2020. https://doi.org/10.1108/cg-03-2019-0096

[57] O. Ozdemir, "Board diversity and firm performance in the U.S. tourism sector: The effect of institutional ownership," *International Journal of Hospitality Management*, vol. 91, p. 102693, 2020. https://doi.org/10.1016/j.ijhm.2020.102693

[58] R. Hassan and M. Marimuthu, "Corporate governance, board diversity, and firm value: Examining large companies using panel data approach," *Economics Bulletin*, vol. 36, no. 3, pp. 1737–1750, 2016.

[59] M. C. Jensen, "Agency costs of free cash flow, corporate finance, and takeovers," *The American Economic Review*, vol. 76, no. 2, pp. 323-329, 1986.

[60] H. Soumaya, "Investment decision and value creation," *Corporate Ownership & Control*, vol. 12, no. 2-2, pp. 303-307, 2015. https://doi.org/10.22495/cocv12i2c2p4

[61] S. C. Myers and N. S. Majluf, "Corporate financing and investment decisions when firms have information that investors do not have," *Journal of Financial Economics*, vol. 13, no. 2, pp. 187-221, 1984. https://doi.org/10.1016/0304-405X(84)90023-0

[62] J. F. Hair, G. T. M. Hult, C. M. Ringle, M. Sarstedt, N. P. Danks, and S. Ray, *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook. In Classroom Companion: Business*, 1st ed. Cham: Springer, 2021.

[63] I. V. Panjaitan and D. Supriyati, "The effect of profitability and leverage on firm value with firm size as a moderating variable," *Research of Finance and Banking*, vol. 1, no. 1, pp. 34-46, 2023. https://doi.org/10.58777/rfb.v1i1.34

[64] Y. Bai, L. He, and T. Zhang, "Common institutional ownership and investment efficiency: Empirical evidence from China," *Borsa Istanbul Review*, vol. 23, no. 5, pp. 1067-1077, 2023. https://doi.org/10.1016/j.bir.2023.05.006

[65] M. A. Harjoto, I. Laksmana, and Y.-w. Yang, "Board diversity and corporate investment oversight," *Journal of Business Research*, vol. 90, pp. 40-47, 2018. https://doi.org/10.1016/j.jbusres.2018.04.033

[66] D. Liu, L. Wang, J. Yan, and H. Wan, "R&D manipulation and SEO pricing in the Chinese capital market: The information effect of inefficient investment," *Research in International Business and Finance*, vol. 65, p. 101946, 2023. https://doi.org/10.1016/j.ribaf.2023.101946

[67] A. Houcine, "Does accounting conservatism affect firm investment efficiency in an emerging market? Evidence from Tunisian context," *African Journal of Accounting, Auditing and Finance*, vol. 2, no. 3, pp. 209-232, 2013. https://doi.org/10.1504/ajaaf.2013.057630

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