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**Moderating Effect of Board Gender Diversity on Institutional
Investor and Agency Cost**

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Abstract: This study examines the influence of institutional investors on agency costs and investigates board gender diversity's moderating role in this relationship among Indonesian listed companies from 2018-2022. Using a sample of 550 firm-year observations, we find that institutional investors significantly reduce agency costs through enhanced monitoring mechanisms. Our results demonstrate that board gender diversity strengthens institutional investors' effectiveness in mitigating agency costs, suggesting that gender-diverse boards complement institutional monitoring. Specifically, the interaction between institutional ownership and board gender diversity leads to lower agency costs, supporting recent regulatory initiatives promoting gender diversity in corporate leadership. These findings contribute to corporate governance literature by identifying how board composition influences institutional investors' monitoring effectiveness and provide practical implications for policymakers and firms seeking to optimize governance structures. Our study extends agency theory by demonstrating how gender diversity in board composition enhances monitoring quality and reduces principal-agent conflicts in emerging market contexts.

Keywords: Institutional Investors, Agency Costs, Board Gender Diversity, Corporate Governance, Emerging Markets

Introduction

The securities market has placed institutional investors as essential investors. Institutional investors have been active since the early 2000s, actively behaving in the annual general meeting of shareholders (Colpan et al., 2007). Institutional ownership is the ownership of shares by institutions in a firm (Saleh et al., 2022). Financial globalization has driven rapid growth in the number of shares held by institutional ownership (Sakawa & Watanabel, 2020). Most institutional shareholders are controlling shareholders who are believed to be

able to supervise and monitor all firm activities well. Institutional investors cooperate with applicable provisions to maintain their reputation (Irawan et al., 2017). However, agency theory (Jensen & Meckling, 1976) suggests that the relationship between agent and principal can trigger agency problems. The existence of agency problems will trigger agency costs. Agency costs are a natural consequence of shareholder payments due to maximizing utility for self-interest (Rashid, 2016). The high power of institutional investors will trigger self-interested behavior, where controlling shareholders prefer to use the company's resources to fund their businesses or related businesses (Saleh et al., 2022). These contradictory facts make it possible that other contextual variables moderate the relationship between institutional investors and agency costs. Suppose, referring to the phenomenon that occurs in Indonesia and several other countries, there are several regulations on the proportion of women on the board of directors. The issue of gender equality drives this. Therefore, the author predicts that board gender diversity can weaken the relationship between institutional investors and agency costs. Therefore, the purpose of this study is to test the influence of institutional investors on agency costs and the moderating effect of board gender diversity in the relationship between institutional investors and agency costs.

Recent empirical studies have documented substantial evidence regarding the influence of institutional investors on agency costs through various governance mechanisms. Dwaikat et al. (2023) and Chamidah and Asandimitra (2017) demonstrate that institutional ownership consistently correlates with reduced agency costs across different market contexts. Wang and Luo (2024) provide compelling evidence that institutional investors significantly decrease information asymmetry and enhance corporate governance quality, subsequently leading to lower agency costs through reduced leverage preferences. This finding is particularly noteworthy as it suggests institutional investors strategically utilize equity-based governance mechanisms over debt to mitigate agency conflicts. ElKelish (2018) further refines this understanding by identifying sectoral variations, noting stronger governance-agency cost relationships in non-financial sectors. Recent high-impact research by Khidmat et al. (2024) establishes that institutional investors' effectiveness in reducing agency costs is amplified through complementary governance mechanisms, including independent directors and optimized compensation structures. These findings are corroborated by Alshagri (2024) and Maznorbalia et al. (2023), who document institutional investors' crucial role in corporate governance enhancement, suggesting that their presence fundamentally transforms monitoring dynamics and agency cost reduction mechanisms in modern corporate structures.

Recent empirical evidence demonstrates the significant moderating role of board gender diversity in reducing agency costs through enhanced monitoring and governance mechanisms. Amin et al. (2022) document that boards with three or more female directors significantly reduce agency costs in Pakistani non-financial firms, while Ain et al. (2021) provide compelling evidence from Chinese listed firms showing female directors' effectiveness in mitigating agency costs, particularly in state-owned enterprises. Jurkus et al. (2011) extend this understanding by revealing that gender diversity's impact on agency cost reduction is more pronounced in less competitive markets and firms with weaker external governance mechanisms, suggesting gender diversity serves as a crucial internal governance mechanism. Le et al. (2022) further corroborate these findings, demonstrating that higher percentages of female board correlate with lower agency costs across organizational contexts. These empirical findings collectively suggest that board gender diversity can serve

as an effective moderating mechanism in the relationship between institutional investors and agency costs, particularly in emerging market contexts where traditional governance mechanisms may be less developed.

Despite extensive empirical research examining institutional investors' influence on agency costs (Dwaikat et al., 2023; Wang & Luo, 2024), there remains a critical theoretical and empirical gap in understanding how board gender diversity moderates this relationship, particularly within emerging market contexts where gender diversity regulations are evolving rapidly (Korphaibool et al., 2024; Navarro-García et al., 2022). This research void is particularly significant given the recent implementation of gender diversity quotas in various markets - exemplified by Indonesia's 25% female director mandate for State-Owned Enterprises in 2023 - yet limited empirical evidence exists regarding whether gender-diverse boards enhance or diminish institutional investors' effectiveness in mitigating agency costs, presenting a crucial opportunity to advance contemporary corporate governance literature and inform policy development.

This study advances several novel contributions. First, it uniquely examines board gender diversity as a moderating variable between institutional investors and agency costs in Indonesia's evolving corporate governance landscape. While previous research has studied these elements separately, their interaction, particularly in emerging markets with new gender quota regulations, remains unexplored. Second, it provides timely empirical evidence following Indonesia's 2023 mandate for 25% female directors in State-Owned Enterprises, offering insights into the early impacts of such policies. Third, it integrates agency theory with gender diversity perspectives to develop a new theoretical framework for understanding how board composition influences institutional investor behavior and agency costs.

Studying institutional investors, board gender diversity and agency costs is essential in Indonesia for several reasons related to capital market dynamics, corporate governance, and the development of gender inclusion in corporations. The first reason is that agency costs are an essential issue in corporate management in Indonesia. Many companies in Indonesia have a diversified or concentrated ownership structure consisting of a handful of people or extended families while other parties manage the company. This can trigger a conflict of interest and create agency cost problems. Second, the Indonesian government has promoted gender equality policies through regulations that encourage more women to enter executive positions. Therefore, this study is essential to determine how these policies impact corporate governance practices and performance. Third, in Indonesia, many companies still face challenges of transparency, accountability, and fairness in corporate management; therefore, in the context of corporate governance, institutional investors and the role of female directors can synergize to improve corporate governance as a whole. Therefore, this study can contribute theoretically to the development of agency theory, where gender diversity is one of the essential variables that need to be considered in corporate governance because it has a strategic role in reducing agency problems and improving corporate governance. In addition, this research contributes to strengthening regulations that encourage gender equality on the board of directors.

Literature Review

The Influence of Institutional Investors on Agency Costs

Several studies have documented the positive and negative effects of institutional investors. Several studies have analyzed the role of institutional investors in the monitoring process that impacts company performance. Sakawa & Watanabel (2020) found that institutional investors increase the company's value and effectively monitor the Japanese stakeholder-oriented system. Studies by Cao et al. (2018) found that institutional ownership positively affects investment efficiency. This suggests that institutional investors are influential in reducing information asymmetry and agency problems. Other evidence suggests that controlling shareholders can engage in tunneling that tends to exploit minority shareholders (Johnson et al., 2000).

Agency theory (Jensen & Meckling, 1976) has explored the relationship between principal and agent, where the principal has given authority to the agent to manage the firm. However, this relationship often triggers agency problems, ultimately leading to costs. The main issue of agency theory is that agents can act in their interests rather than the interests of the principal. This occurs because of a conflict of interest between the two. Agency problems can be minimized if good corporate governance is created, one of which is the optimal role of investors. Investors can maximize their role in improving corporate governance.

Moreover, institutional investors are considered to have many advantages over individual investors. Some of these advantages have been documented in several previous studies. Institutional investors can actively participate in improving firm governance. Aggarwal et al. (2011) found that institutional investors positively impact the firm's decision-making process and encourage the effectiveness of corporate governance. Institutional investors are responsible for actively monitoring management (Chung & Zhang, 2011). Institutional investors have tremendous power to influence management actions and corporate strategy because of their enormous voting power (Gillan & Starks, 2003). Institutional investors can also act as a signaling mechanism to reduce information asymmetry for minority and potential investors (Lin & Fu, 2017). The increasing share ownership by institutional investors helps reduce return volatility in Macau's casino industry (Lin et al., 2018). Institutional investors play a role in reducing tunneling and are involved in shareholder activities (Bai & Wu, 2024). Institutional ownership positively affects the company's performance (Queiri et al., 2021).

From the agency cost perspective, institutional investors can monitor and control the company's policies, which can influence board decisions, enable them to bear the cost of monitoring productively, and involve them in active ownership. The advantages of institutional investors above can reduce agency costs because institutional investors are involved in active monitoring and provide sound corporate governance guidance so that they can reduce agency costs. On this basis, the hypothesis developed in this study is:

H1: Institutional investors have a negative effect on agency costs

Moderating Effect of Board Gender Diversity on Institutional Investor and Agency Cost

Several previous studies on institutional investors and agency costs have produced contradictory results. Wang and Luo (2024) and Dwaikat et al. (2023) find institutional investors reduce agency costs through monitoring. However, Chung et al. (2020) show institutional investors in Korea act as passive, short-term investors who reduce governance quality. Similarly, Martono et al. (2023) document institutional investors prioritizing self-interest over company interests. With these inconsistent results, other contextual variables are predicted to moderate the relationship between institutional investors and agency costs. If we look at the phenomenon in Indonesia, starting in 2023, a regulation was issued regarding the proportion of female directors in State-Owned Enterprises at 25%. This rule was established because there is a belief that the existence of gender can encourage justice and promote fairness. Increasing the number of female directors must be part of the company's business strategy with characteristics of creativity and innovation to improve sustainable development (Korphaibool et al., 2024). Female Directors who already serve on boards may demonstrate particular expertise and have valuable networks and communicative strengths (Navarro-García et al., 2022).

Institutional investors have a significant role in the firm, often acting as supervisors who balance management. Their presence in corporate governance can improve the agency problem between managers and shareholders (Jensen & Meckling, 1976). The involvement of institutional investors in corporate governance will reduce the opportunistic, self-interested, and window-dressing behavior of managers and effectively direct managers to focus on long-term performance (Aggarwal et al., 2011; Eaton et al., 2014). Institutional investors have a significant impact in reducing information asymmetry and reducing agency problems (Cao et al., 2018). The role of institutional investors in reducing agency problems will automatically reduce agency costs. However, contradictory facts find that institutional investors tend to emphasize profitable short-term results such as stock buybacks, thereby reducing research and development funds that are more productive in the long term (Edmans, 2009). Chung et al. (2020) also stated that institutional investors in Korea are considered passive, short-term investors who reduce the quality of corporate governance. Another fact is that institutional investors tend to act in their own interests rather than in the interests of the Company (Martono et al., 2023). This action will increase the agency's problems and trigger agency costs.

The existence of contradictory facts from various research findings on the influence of institutional investors on agency costs makes it possible that other contextual variables moderate the relationship between institutional investors and agency costs. Regarding the current phenomenon, women's leadership gets important attention in various aspects of life, including business. Various research and studies also say that many women hold executive positions in companies and have important roles. Byron and Post (2016) state that female board representation tends to be associated with strategic decisions with various stakeholders. Miller and Triana (2009) also stated that a diverse board of directors indicates that the company is well-positioned to succeed in a diverse market and is able to provide effective advice to executives. Likewise, Navarro-García et al. (2022) stated that the diversity of the board of directors indicates that the company interacts effectively with the market to increase the company's reputation; the feminine nature of women is considered necessary to understand the business environment better. The same thing was expressed by

(Reddy & Jadhav, 2019), who found that female directors increase the perception of the board's instrumental, relational, and moral legitimacy through tangible and symbolic representation, thereby increasing board trust and growing shareholder trust in the company. The existence of study results on the influence of institutional investors on agency costs that are still inconsistent and the existence of phenomena about the uniqueness of women's leadership styles and their success in occupying executive positions in companies, this study places board gender diversity as a variable that moderates the relationship between institutional investors and agency costs. Therefore, the hypothesis developed in this study is:

H2: Board gender diversity weakens the relationship between institutional investors and agency costs.

Methods

Table 1 presents the sample selection process for this study. From an initial 971 companies listed on the Indonesia Stock Exchange (2018-2022), we excluded financial sector firms, companies without institutional ownership, and those with missing data. This process resulted in a final sample of 110 companies per year, totaling 550 firm-year observations over the five-year period. This sample size provides a balanced representation of non-financial Indonesian listed companies with institutional ownership, ensuring sufficient data for robust analysis while maintaining relevance to the study's objectives.

Table 1. Selection Sample Process

Selection Criteria	Number of Companies	Firm-Year Observations
Initial: All companies listed on Indonesia Stock Exchange (2018-2022)	971	4,855
Less: Financial sector companies	(285)	(1,425)
Less: Companies with no institutional ownership	(412)	(2,060)
Less: Companies with missing values	(164)	(820)
Final sample	110	550

Sources: Author's calculations, 2025

Table 2. Sample Tabulation Based on Company Type

Company Type	Freq.	Percent	Cum.
Basic Material	17	15.45	15.45
Consumer Cyclical	13	11.82	27.27
Consumer Non-Cyclical	20	18.18	45.45
Energy	5	4.55	50.00
Healthcare	8	7.27	57.27
Industrial	14	12.73	70.00
Infrastructure	4	3.64	73.64
Infrastructure	11	10.00	83.64
Properties	9	8.18	91.82
Technology	4	3.64	95.45
Transportation	5	4.55	100.00
Total	110	100.00	

Sources: Author's calculations, 2025

Sample data based on company type and sample tabulation per year are presented in Table 2 and Table 3. Of the 110 companies spread according to company type, the largest sample comes from non-cyclical consumer sector companies, and the smallest sample is from technology and infrastructure sector companies. Regression analysis is used to test hypothesis 1, and moderated regression analysis is used to test hypothesis 2. The number of observation data per year from 2018 to 2022 is shown in Table 3.

Table 3. Sample Tabulation Per Year

Year	Freq.	Percent	Cum.
2018	110	20.00	20.00
2019	110	20.00	40.00
2020	110	20.00	60.00
2021	110	20.00	80.00
2022	110	20.00	100.00
Total	550	100.00	

Sources: Author's calculations, 2025

This study places institutional investors as exogenous variables, Board gender diversity as a moderating variable, and agency cost as an endogenous variable. The control variables in this study consist of firm size, firm age, leverage, and political connection. Using these variables as control variables aims to increase the accuracy of the interaction between variables. The operational definition and measurement of all variables in this study are shown in Table 4.

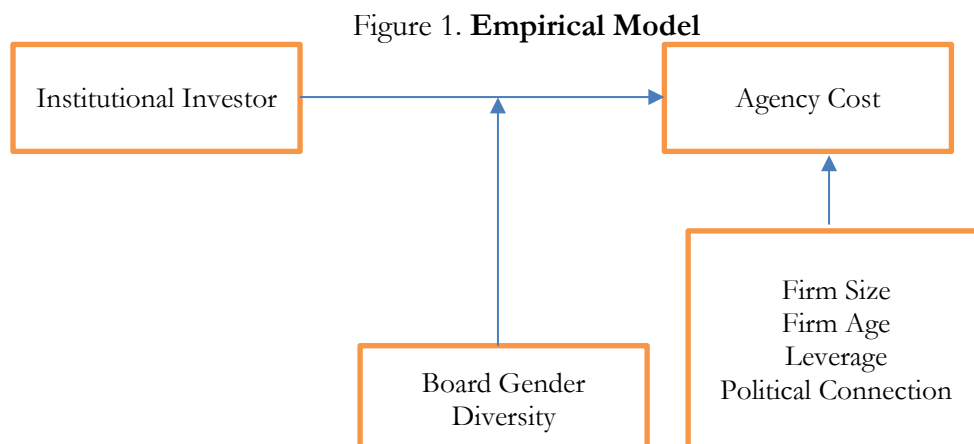
Table 4. Operational Definition of Variables and Their Measurement

No	Variable	Definition	Measurement
1	Institutional Investor	Percentage of the number of shares owned by institutional investors to the number of shares outstanding (Chada & Varadharajan, 2024)	$\frac{\text{number of shares owned by institutional}}{\text{number of outstanding shares}} \times 100\%$ (Chada & Varadharajan, 2024)
2	Gender Diversity Board	Board gender diversity is the presence or absence of female directors in a company. (Demos & Muid, 2020)	A value of 1 is given if there is a female director in the company, and 0 is given if there is no female director. (Demos & Muid, 2020)
3	Agency Cost	Costs arising from conflicts of interest between the principal and agent	$\frac{\text{Annual Sales}}{\text{Total Assets}}$ (Lee & Tulcanaza-Prieto, 2024)
4	Firm Size	<i>Firm size</i> is a measure that shows the size of a company (Hu & Sun, 2018)	$\ln \text{Total Assets}$ (Hu & Sun, 2018)

No	Variable	Definition	Measurement
5	Firm Age	Firm age is the company's age from the year of establishment to the current year. Firm Age (AGE) is measured using a ratio scale of the natural logarithm of the year of establishment minus the current year. (Gong et al., 2021)	$\ln \text{Year of establishment} - \text{Current Year}$ (Gong et al., 2021)
6	Leverage	Leverage is the amount of debt used to purchase and own company assets. (Hu & Sun, 2018)	$\frac{\text{Total debt}}{\text{Total assets}}$ (Hu & Sun, 2018)
7	Political Connection	Political connections are a company's relationship with politicians, including presidents, vice presidents, ministers, military officers, council members, and heads of local governments. (Habib et al., 2017)	Percentage of the number of Board of Commissioners and the number of Board of Directors who serve as ministers or former ministers, members of parliament, other bureaucrats in the central or regional government retired TNI or Polri, or people closely related to politicians or political parties. (Joni et al., 2020)

Sources: Author's calculations, 2025

The empirical model developed in this research, shown in Figure 1, is intended to achieve the objectives of this research.



To achieve the research objectives, the empirical model developed in this study is as follows:

$$\begin{aligned} \text{Agency Cost}_{it} = & \beta_0 + \beta_1 \text{InsInv}_{it} + \beta_2 \text{FirmSize}_{it} \\ & + \beta_2 \text{FirmSize}_{it} + \beta_3 \text{FirmAge}_{it} + \beta_4 \text{Leverage}_{it} \\ & + \beta_5 \text{Polcon}_{it} + \text{Years} + \text{Industry} + \varepsilon \dots \dots \dots (1) \end{aligned}$$

Agency cost_{it} represents costs arising from conflicts of interest between the principal and agent. InsInv_{it} represents the number of shares owned by institutional investors to the number of shares outstanding. FirmSize_{it} shows the size of a company. FirmAge_{it} shows the company's age from the year of establishment to the current year. Leverage_{it} denotes the amount of debt used to purchase and own company assets. Polcon_{it} represents a company's relationship with politicians. Years and Industry serve to control for changes over time in each industrial sector so that they are considered to be the same in the sample, and ε_{it} is the error term.

$$\begin{aligned} \text{Agency Cost} = & \beta_0 + \beta_1 \text{InsInv}_{it} + \beta_2 \text{Gender}_{it} + \beta_3 \text{InsInv}_{it} * \text{Gender}_{it} \\ & + \beta_4 \text{FirmSize}_{it} + \beta_5 \text{FirmAge}_{it} + \beta_6 \text{Leverage}_{it} \\ & + \beta_6 \text{Polcon}_{it} + \text{Years} + \text{Industry} + \varepsilon \dots \dots \dots (2) \end{aligned}$$

Agency cost_{it} represents costs arising from conflicts of interest between the principal and agent. InsInv_{it} represents the number of shares owned by institutional investors to the number of shares outstanding. Gender_{it} represents Board gender diversity is the presence or absence of female directors in a company. InsInv_{it} * Gender_{it} denotes interaction between institutional investors and gender diversity. FirmSize_{it} shows the size of a company. FirmAge_{it} shows the company's age from the year of establishment to the current year. Leverage_{it} denotes the amount of debt used to purchase and own company assets. Polcon_{it} represents a company's relationship with politicians. Years and Industry serve to control for changes over time in each industrial sector so that they are considered to be the same in the sample, and ε_{it} is the error term.

Findings

Table 5. **Descriptive Statistics**

Variable	Obs	Mean	Std. dev	Min	Max
AGENCYCOST	550	.6158	.2860356	.08	0.09375
INSTINV~P	550	.6563476	.1943129	.05	1
Firm Size	550	2,336,031	5,517,274	127,314	318,054
Leverage	550	.4001358	.1869242	.0326609	.8736142
Polcon	550	.2078182	.2414904	0	.90
FIRMAge	550	1,411,818	1,103,689	0	40

Sources: Author's calculations, 2025

Descriptive Statistics describe the observed variables' mean, standard deviation, minimum, and maximum values shows that agency cost has a mean of 0.6158 and a standard deviation of 0.286. BISI obtains the minimum value of 0.08, and ELSA obtains the maximum of 0.09375. The Institutional investor variable has a mean of 0.656 and a

standard deviation of 0.1943. The minimum value is 0.05. The lowest institutional ownership is JSMR, which operates in the infrastructure sector. The maximum value is 1. CCSI, COCO, and UCID have 100% institutional ownership. Control variable data on the sample companies' mean, standard deviation, minimum, and maximum values are as stated in Tables 5 and 6. Board gender diversity and political connections in this study are categorical variables. Female directors in the study were 285 firm years.

Table 6. **Board gender diversity frequency**

No	Category	Frequency	Percentage	Cum
1	The company has a female director	285	51.82	51.82
2	The company has no female directors	265	48.18	100.00
	Total	550	100.00	

Sources: Author's calculations, 2025

This study uses univariate analysis or Pearson correlation to test the strength and direction of the relationship between institutional investors, board gender diversity, agency costs, and all control variables. The Pearson correlation test results indicate a negative relationship between institutional investors and firm size on agency costs at a significance level of 1%.

Then, there is a positive relationship between gender diversity, political connection, and firm age with agency cost. The results of the univariate analysis are shown in Table 7. The Pearson correlation analysis presented in Table 7 elucidates critical dynamics between institutional investors, board gender diversity, and agency costs, revealing nuanced interrelations among these variables. Notably, institutional investors exhibit a significant negative correlation with agency costs (coefficient = -0.126, $p < 0.01$), underscoring their pivotal role as effective monitors that reduce the inherent conflicts of interest within firms. Similarly, firm size manifests a robust negative relationship with agency costs (coefficient = -0.255, $p < 0.01$), indicating that larger firms are likely to benefit from enhanced governance structures and resources, thereby minimizing agency-related expenses. In contrast, the positive correlations between agency costs and both gender diversity and political connections highlight a more complex narrative, where gender diversity displays a weak and statistically insignificant relationship (coefficient = 0.036, $p = 0.398$), suggesting that the mere presence of female directors does not directly translate to lower agency costs in isolation. Political connections, while marginally significant (coefficient = 0.079, $p < 0.1$), posit an intriguing contention on the influence of external ties on agency dynamics, potentially leading to increased agency costs through additional layers of stakeholder interest. Collectively, these findings raise critical questions regarding the mechanisms by which board diversity and external affiliations interact with institutional ownership in shaping governance outcomes, thus warranting further investigation through multivariate regression analysis to comprehensively capture these intricate relationships and their implications for corporate governance strategic

Regression analysis is used to test the influence of institutional investors on agency costs. This analysis is conducted in three clusters: the first cluster is a regression analysis to test the influence of institutional investors on agency costs, the second cluster tests the influence of control variables on agency costs, and the third cluster tests the influence of all variables on agency costs.

Table 7. **Pearson Correlation**

	AGENCYCOST	INSTINVESTOR	GENDER	Firm Size	Leverage	Polcon	FIRMAge
AGENCYCOST	1,000						
INSTINVESTOR	-0.126*** (0.003)	1,000					
GENDER	0.036 (0.398)	0.083* (0.053)	1,000				
Firm Size	-0.255*** (0.000)	0.137*** (0.001)	-0.048 (0.257)	1,000			
Leverage	-0.038 (0.375)	-0.101** (0.018)	0.059 (0.170)	-0.144*** (0.001)	1,000		
Polcon	0.079* (0.064)	-0.018 (0.672)	0.080* (0.062)	-0.049 (0.255)	0.053 (0.215)	1,000	
FIRMAge	0.062 (0.144)	-0.123*** (0.004)	-0.027 (0.528)	-0.018 (0.673)	-0.018 (0.665)	-0.179*** (0.000)	1,000

p-values in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Sources: Author's calculations, 2025

Table 8. Regression Analysis

	(1) AGENCY	(2) AGENCY	(3) AGENCY
INSTINVESTOR	-0.186** (-2.98)		-0.136* (-2.20)
Firm Size		-0.0135*** (-6.28)	-0.0130*** (-5.99)
Leverage		-0.120 (-1.89)	-0.132* (-2.08)
Polcon		0.0986* (1.99)	0.0952 (1.93)
FIRMAge		0.00184 (1.70)	0.00154 (1.41)
SIC	Included	Included	Included
Year	Included	Included	Included
_cons	0.738*** (17.28)	0.934*** (14.47)	1,019*** (13.58)
R2	0.0160	0.0805	0.0887
Adjusted R2	0.0142	0.0738	0.0803
N	550	550	550

p-values in parentheses

p* < 0.1, ** *p* < 0.05, * *p* < 0.01

Sources: Author's calculations, 2025

Based on the regression results presented in Table 8, several interesting findings are related to factors that influence agency costs (AGENCYCOST). Model (1) shows that institutional investors (INSTINVESTOR) have a significant negative relationship with agency costs, with a coefficient of -0.186 and a significance level of 1% ($p < 0.01$). This means that the higher the level of institutional ownership, the lower the agency costs. This indicates that the presence of institutional investors can act as an effective monitoring mechanism, thereby reducing conflicts of interest between principals and agents.

Model (2) introduces control variables such as firm size (FirmSize), leverage, political stability (Polcon), and firm age (FIRMAge). The results show that firm size significantly negatively affects agency costs, with a coefficient of -0.0135 and a significance level of 0.1% ($p < 0.001$). Larger firms tend to have lower agency costs due to economies of scale and better governance. Leverage also shows a significant negative relationship at the 5% level ($p < 0.05$), indicating that firms with higher debt levels may face stricter monitoring from creditors, thereby reducing agency costs. Meanwhile, political stability has a significant positive effect at the 5% level, indicating that a more stable political environment can increase agency costs. While the effects of other variables, particularly institutional ownership and firm age, are not statistically significant and therefore provide less conclusive insights into their role in influencing agency costs. These nuances underline the importance of accurately representing the significance and implications of each variable in the analysis.

Model (3) combines all variables from the previous model. Institutional ownership has a significant negative relationship with agency costs, although at a lower significance level (5%). This indicates that increased institutional ownership is associated with reduced agency costs, suggesting that institutional investors effectively act as monitoring agents, aligning the interests of principals and agents and mitigating conflicts. Firm size and leverage maintain statistical significance, while political stability loses significance. Firm age

does not significantly affect agency costs in this model. These results highlight the importance of ownership structure, especially institutional ownership, in reducing agency costs. Factors such as firm size and leverage also play an essential role. These findings provide valuable implications for corporate governance and strategies to minimize agency conflict.

Based on the regression results presented in the table, several interesting conclusions can be drawn regarding the factors that influence agency costs (AGENCYCOST). Model (4) shows that the representation of female directors has a significant negative relationship with agency costs, with a coefficient of -0.116 and a significance level of 0.1% ($p < 0.001$). This means that the presence of female directors on the board significantly reduces agency costs. This finding highlights the critical role of gender diversity in improving corporate governance and reducing agency conflicts. Consistent with the hypothesized effects, the results demonstrate that institutional ownership exerts a significant negative direct influence on agency conflicts, indicating that higher levels of institutional investment serve as an effective monitoring mechanism to mitigate agency problems.

Model (4) also reveals that firm size (FirmSize) significantly negatively affects agency costs at the 0.1% significance level, with a coefficient of -0.0139. Larger firms tend to have lower agency costs due to economies of scale, better resources, and more robust monitoring mechanisms. In addition, political stability (Polcon) shows a significant positive effect at the 5% level ($p < 0.05$), indicating that a more stable political environment can increase agency costs, possibly by reducing external pressures on the firm.

Table 9. **Moderated Regression Analysis**

	(4) AGENCY	(5) AGENCY
GENDER	-0.116*** (-5.18)	
INSTINV*GENDER		-0.140*** (-4.44)
Firm Size	-0.0139*** (-6.61)	-0.0136*** (-6.41)
Leverage	-0.105 (-1.69)	-0.113 (-1.81)
Polcon	0.116* (2.39)	0.106* (2.16)
FIRMAge	0.00177 (1.67)	0.00173 (1.62)
SIC	Included	Included
Year	Included	Included
_cons	0.994*** (15.51)	0.981*** (15.25)
R2	0.1238	0.1126
Adjusted R2	0.1157	0.1045
N	550	550

Sources: Author's calculations, 2025

Model (5) is a moderation between institutional investors and board gender diversity. The results show a significant negative relationship with agency costs at the 0.1% level, with a coefficient of -0.140. This finding highlights the interaction effect between institutional

investors and female representation on the board. Board gender diversity plays a role in weakening the relationship between institutional investors and agency costs. These results indicate that gender diversity successfully encourages justice and promotes fairness. The presence of women in the company can increase the board's independence in monitoring the company and improve performance.

Based on the moderated regression analysis presented in Table 9, it is evident that the relationship between institutional investors and agency costs is partially moderated by board gender diversity. Specifically, when the original connection between institutional investors (INSTINV) and agency costs (AGENCYCOST) is negative, as evidenced by the significant results in both models (4) and (5), the introduction of the moderating variable—board gender diversity (GENDER)—enhances the negative impact of INSTINV on AGENCY as reflected by the interaction term (INSTINV*GENDER). In this context, the findings suggest that gender diversity not only maintains the efficacy of institutional ownership in mitigating agency costs but also strengthens this relationship further, leading to a deeper reduction in agency conflicts than when institutional ownership stands alone. Such an interaction implies that the presence of female directors enhances the monitoring capabilities afforded by institutional investors, hence reinforcing the principle that diverse boards contribute positively to governance and organizational performance. This multidimensional perspective underscores the necessity of considering the moderating effects in regression analyses to accurately interpret the complexities of institutional dynamics within corporate governance frameworks.

Conclusion

This study seeks to provide robust empirical evidence regarding the influence of institutional investors on agency costs and to elucidate the moderating role of board gender diversity in shaping this relationship. The purpose of this investigation is to not only quantify the direct effects of institutional ownership on agency costs but also to assess how gender diversity on corporate boards can amplify or moderated these effects. The findings of this research contribute significantly to the discourse on corporate governance by affirming the essential function of institutional investors as influential monitoring agents. The analysis substantiates a potent negative relationship between institutional ownership and agency costs, indicating that higher levels of institutional investment can effectively align the interests of principals and agents, thereby contributing to improved governance outcomes. Moreover, the study unveils the critical moderating effect of board gender diversity, revealing that the presence of female directors not only complements but also strengthens the effectiveness of institutional ownership in reducing agency costs. Additionally, the research highlights the critical role of board gender diversity in the Indonesian corporate environment. The presence of female directors is shown to not only support institutional ownership in reducing agency costs but also enhance the effectiveness of overall governance. This suggests that diverse boards are not merely a matter of compliance or ethical considerations but are integral to enhancing monitoring efficacy and, consequently, firm performance.

However, several limitations must be acknowledged. Primarily, the study's focus on a singular national context—Indonesia—may impose constraints on the generalizability of its findings to other institutional environments characterized by diverse regulatory frameworks and cultural dynamics. This localized perspective necessitates careful consideration when

extrapolating the results to broader contexts. Additionally, the observational period, while capturing recent trends, does not delve into the longitudinal dynamics that might influence governance practices over time. The exclusive reliance on quantitative methods, encompassing regression and moderated regression analyses, may also obscure qualitative dimensions fundamental to understanding the intricacies of agency relationships, such as board member interactions or the behavioral motivations behind institutional investor engagement.

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