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From Diversity to Value: How ESG Links Gender Diversity and Firm Value

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ABSTRACK

This research examines how gender diversity, ESG performance, and firm value interact within Indonesian manufacturing firms. The growing role of information technology has pushed companies to prioritize not only financial outcomes but also sustainability and governance to ensure long-term value creation. Using panel data from 65 Indonesian manufacturing firms (2019–2023), this study applies multiple regression and mediation analysis with Stata 17. The results demonstrate that gender diversity improves ESG performance, which in turn enhances firm value, while ESG performance mediates the link between gender diversity and firm value. These findings align with legitimacy theory, emphasizing ESG as a means to build stakeholder trust, and agency theory, which underscores the governance benefits of diverse boards. This study extends ESG and gender diversity literature by providing emerging market evidence and practical implications for governance and sustainability strategies.

***Keywords**: ESG; firm value; gender diversity.*

INTRODUCTION

The rapid growth of technology and globalization has shifted business priorities beyond financial performance toward sustainability and governance. Firm value commonly measured through PBV now depends not only on profitability but also on non-financial factors such as ESG performance, which strengthens transparency, stakeholder trust, and long-term value (Seok et al., 2024; Naseer et al., 2024). Similarly, gender diversity in leadership has become a hallmark of good governance, fostering innovation, inclusivity, and stronger reputations (del Mar Fuentes-Fuentes et al., 2023; Truong, 2024; Monteiro et al., 2024).

Empirical evidence on the effects of gender diversity and ESG performance on firm value remains mixed. While many studies report positive relationships (Abdelkader et al., 2024; Monteiro et al., 2024), others find insignificant or even negative effects (Candy et al., 2024; Jayaraman et al., 2024). This inconsistency underscores the need for contextual research, particularly in emerging markets like Indonesia, where institutional and cultural factors differ.

This study examines Indonesian manufacturing firms, exploring how board gender diversity affects firm value through ESG performance as a mediator. Grounded in agency and

legitimacy theories, it posits that gender-diverse boards improve governance and oversight (agency theory) while enhancing legitimacy and stakeholder trust through ESG engagement (legitimacy theory). Together, these mechanisms link diversity to firm value, consistent with stakeholder theory (Freeman, 1984), which highlights that women directors' stakeholder-oriented perspectives drive broader social and financial benefits.

Prior research supports this framework: diverse boards enhance decision quality, reduce groupthink, and foster innovation (Reguera-Alvarado & Bravo-Urquiza, 2020). Studies in emerging economies by Agustina & Barokah (2024) and Bukari et al. (2024) show that gender-diverse boards strengthen accountability, adaptability, and firm performance. Likewise, Khunkaew et al. (2023) and Seok et al. (2024) find that women directors improve risk management and long-term stability. Overall, board gender diversity creates firm value both directly and indirectly through enhanced ESG performance, stronger governance, and improved legitimacy.

On the other hand, not all research has found uniformly positive effects. Some have argued that the benefits of diversity may depend on context or critical mass. For instance, a lack of significant performance improvement might occur if female directors are too few in number or excluded from key decision-making processes. Consistent with this view, Candy et al. (2024) detected no significant impact of board gender composition on firm value in Indonesian firms, suggesting that merely adding women to boards is not enough – their involvement and influence matter. In a related vein, Jayaraman et al. (2024) noted that board conflicts can sometimes intensify in more diverse groups, potentially hampering firm performance if not managed well. These mixed outcomes point to the need for further investigation (especially in emerging markets) to clarify when and how gender diversity translates into value. Overall, however, the prevailing evidence and theory suggest a positive expectation under appropriate conditions.

H1: Gender diversity has a positive effect on firm value.

Recent research emphasizes that board gender diversity plays a key role in enhancing firms' ESG performance. Female leaders often influence sustainability and CSR strategies, strengthening non-financial outcomes (Guedes et al., 2024, Al-Najjar & Salama, 2022). While social role theory suggests they emphasize ethical and communal goals, promoting stronger ESG commitments. Empirical research supports these assertions: the presence of women on a company's board has been linked to more serious consideration of CSR issues at the top management level (Shaheen et al., 2021).

In a seminal study, researchers found a positive correlation between board gender diversity and CSR performance. Empirical studies consistently support this link, showing that gender-diverse boards foster greater CSR engagement and disclosure, while also enhancing perceptions of accountability. More recent evidence, such as Al-Shammari et al. (2024), Odriozola et al. (2024), and Eliwa et al. (2023), confirms that gender-diverse leadership improves ESG consistency, reduces greenwashing, and strengthens social and governance performance. Monteiro et al. (2024) and Sepulveda-Nuñez et al. (2024) further note that gender equality initiatives and stakeholder engagement enhance ESG reporting quality. Overall, gender diversity serves as a strategic driver of ESG improvement by promoting ethical leadership, transparency, and responsible business practices.

H2: Gender diversity has a positive effect on ESG performance.

In the past decade, ESG performance has become a key determinant of firm value. No longer seen as philanthropy, ESG is now viewed as a strategic investment that enhances reputation, attracts investors, and reduces risk. Grounded in stakeholder theory and the resource-based view, strong ESG practices build trust and create valuable capabilities that support long-term competitiveness. Meta-analyses and global evidence by Ho et al. (2024) consistently show a positive ESG value relationship, confirming that responsible firms generally outperform peers financially. Recent studies reinforce this link: high ESG scores increase firm value in sectors like banking and technology (Paolone et al., 2024; Ademi & Klungseth, 2022; Rastogi & Singh, 2023). ESG investments also interact with enablers such as ICT and stakeholder engagement (Ho et al., 2024), while financial or cultural barriers may weaken the effect. Overall, markets increasingly reward firms with strong ESG discipline and consistent sustainability performance.

H3: ESG performance has a positive effect on firm value.

Board gender diversity can enhance firm value indirectly by improving ESG performance, which serves as a mediating channel between diversity and value creation. Diverse boards strengthen internal governance (agency theory) and external legitimacy (legitimacy theory), leading to better sustainability practices and stakeholder trust that ultimately enhance firm valuation (Kateb & Alahdal, 2025).

Empirical evidence supports this mediation pathway. Studies show that CSR or ESG fully mediates the link between gender diversity and firm performance. Gender-diverse boards promote stronger ESG outcomes through audit committee independence, expertise, and

proactive oversight (Al Kurdi et al., 2023). They also improve sustainability reporting and performance in key ESG areas like energy efficiency and workplace safety (Khunkaew et al., 2023).

Further research highlights ESG as a central driver of firm value, reinforcing that strong ESG practices strengthen the connection between financial performance and market valuation. Over time, experienced female directors contribute to sustained ESG improvements (Abdelkader et al., 2024), while customer satisfaction amplifies the ESG–value relationship (Seok et al., 2024). Overall, ESG acts as the bridge linking board diversity to long-term firm value.

H4: ESG performance mediates the effect of gender diversity on firm value.

The hypothesis development model can be illustrated as follows:

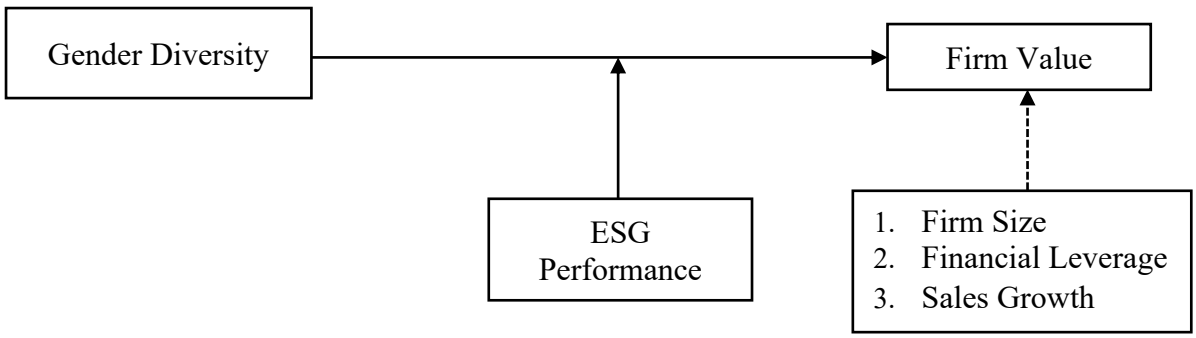


Figure 1. Conceptual Framework

RESEARCH METHOD

This study applies a quantitative research design to assess how gender diversity influences firm value, with ESG performance incorporated as a mediating factor. This study focuses on publicly listed manufacturing firms in Indonesia. The sample was selected using a purposive sampling method based on specific criteria. Table 1 presents the step-by-step process of sample selection. The analysis begins with all manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the study period. Firms were required to have complete financial statement data for each fiscal year from 2019 through 2023 and to have disclosed information on ESG performance (e.g., via annual reports or sustainability reports). Companies that did not meet these criteria – for instance, those that were listed or delisted partway through the period, or those lacking ESG disclosures – were excluded. After applying these filters, a final sample of 65 firms was obtained, yielding a panel dataset of 335 firm-year observations (65 companies over 5 years).

To ensure reliable results, the study employs a rigorous analysis model supported by Stata 17.

Table 1. Sample Selection Process

Selection Criteria	Number of Firms
Initial population: Manufacturing firms listed on IDX (2019)	130
– Firms without complete 2019–2023 data or no ESG disclosure	–65
Final sample: Manufacturing firms in sample	65
Total firm-year observations (2019–2023)	335

Source: Processed data (2025)

The study analyzes 65 Indonesian manufacturing firms (2019–2023), yielding 335 firm-year observations after excluding companies with incomplete financial or ESG data. Data were obtained from annual and sustainability reports and verified for consistency. Firm value is measured using Tobin's Q and, for robustness, PBV. The main independent variable, board gender diversity, is defined as the percentage of female directors. ESG performance serves as the mediating variable, represented by an equally weighted composite ESG score (Abdelkader et al., 2024). Control variables include firm size, financial leverage, and sales growth. Variable definitions and data sources are summarized in Table 2.

Table 2. Operational Definition of Variables

Variable	Measurement	Source
Gender Diversity	$\text{Percentage of women on the boards} = \frac{\text{female on board}}{\text{Total board member}} \times 100$	Odriozola et al. (2024)
Firm Value	$\text{Tobin's Q} = \frac{\text{Equity market value + Book value of debt}}{\text{Total asset}}$	Desai (2024)
ESG Performance	$\text{ESG Score} = (\omega E \times \text{Score E}) + (\omega S \times \text{Score S}) + (\omega G \times \text{Score G})$	Abdelkader et al., (2024)
Firm Size	*Log (Total assets)*	Agustina & Barokah (2024)
Financial Leverage	$\frac{\textit{Total debt}}{\textit{Total assets}}$	Candy et al. (2024)
Sales Growth	$\frac{\textit{Sales current period} - \textit{Sales previous period}}{\textit{Sales previous period}}$	(Seok et al., 2024)

Source: Processed data (2025)

All monetary values (e.g., market capitalization, assets) are expressed in Indonesian Rupiah and winsorized at 1% to minimize outlier effects. Gender diversity data were hand-

collected from annual reports, while ESG scores were obtained from sustainability reports or quantified from qualitative disclosures using GRI-based criteria (Abdelkader et al., 2024). Control variables, total assets, debt, and sales were sourced from audited financial statements. The analysis employs panel data regression. We begin with descriptive statistics and Pearson correlations, followed by OLS regressions to test H1–H3. Firm value (Tobin's Q) is regressed on gender diversity and ESG score, controlling for firm size, leverage, and sales growth, with year fixed effects to capture macroeconomic shocks. ESG is also regressed on gender diversity to test mediation. Multicollinearity tests show acceptable VIF values (<2.5), and robust standard errors address heteroskedasticity. For H4, mediation is assessed using the Sobel and bootstrap-based tests. The indirect effect (GD→ESG→Q) and mediation ratio are computed using Stata 17's mediation routines. Robustness is checked using PBV as an alternative dependent variable. All regressions are run in Stata 17, reporting standardized coefficients and t-statistics, with significance at $p<0.10$, $p<0.05$, and $p<0.01$.

RESULT AND DISCUSSION

Table 3 presents descriptive statistics for 335 firm-year observations (65 firms over 5 years). The mean Tobin's Q is 3.583 (SD = 24.655), ranging from 0.117 to 331.143, indicating a right-skewed distribution with a few firms showing exceptionally high market valuations. The median of about 1.10 confirms that most firms cluster at lower values, while a few high-growth or speculative firms inflate the mean. Board gender diversity averages 8.216% (SD = 11.745%), with values from 0% to 50%. This shows that many firms still lack female directors, though some have achieved parity, highlighting considerable variation and slow overall progress toward gender balance. Average ESG performance is 40.533 (SD = 26.512), ranging from 0 to 88.861. The spread reflects uneven sustainability engagement, with some firms leading on ESG initiatives while others remain inactive or non-disclosing. Control variables show that firm size (log assets) averages 31.424 (SD = 1.467), consistent with mid-to-large manufacturing firms. Leverage averages 0.220 (SD = 0.190), ranging from 0 to 0.744, suggesting generally moderate debt use. Sales growth averages 5.8% (SD = 21.7%), with wide variation (–59.3% to +107.5%), capturing both downturns and rapid expansions during the volatile 2019–2023 period, including the COVID-19 shock.

Descriptive statistics are presented to provide researchers with a clear overview of their dataset. The main components of this summary include sample size, mean, standard deviation, and the extreme boundaries of the variables—the lowest (minimum) and highest (maximum) values. The results of these calculations, based on 335 observations of the main variables, are

presented in Table 3.

Table 3. Descriptive Statistics

Variable	n	Minimum	Maximum	Mean	Std. Dev
Tobin's Q	335	0.117	331.143	3.583	24.655
Percentage of Women on Boards	335	0.000	50.000	8.216	11.745
ESG Score	335	0.000	88.861	40.533	26.512
Firm Size	335	27.436	35.315	31.424	1.467
Financial Leverage	335	0.000	0.744	0.220	0.190
Sales Growth	335	-0.593	1.075	0.058	0.217

Source: Processed data (2025)

Descriptive results highlight significant variability in firm valuations. Tobin's Q, the proxy for firm value, shows a mean of 3.583, a standard deviation of 24.655, and a range between 0.117 and 331.143. These statistics suggest that most firms are clustered at lower valuation levels, whereas a few outliers with exceptionally high values account for the large variation observed. Regarding board gender diversity, the average proportion of female directors is 8.216 percent, with a standard deviation of 11.745. The maximum value of 50 percent indicates that at least one firm has reached gender parity on its board. The wide gap between the minimum and maximum values reflects the unequal distribution of women's representation and highlights the importance of gender diversity in corporate governance debates. In terms of ESG performance, firms report an average score of 40.533, with a standard deviation of 26.512 and a range from 0.000 upward. This wide variation reflects differing levels of adoption of sustainability practices, where some firms have made significant progress in ESG integration, while others display limited or minimal engagement.

Additional context is provided through the descriptive statistics of the control variables. Firm size, defined as the natural logarithm of total assets, has an average value of 31.424 with a modest standard deviation of 1.467, reflecting that the firms studied are broadly similar in scale. Leverage averages 0.220 (SD = 0.190), suggesting a moderate dependence on debt financing. Meanwhile, sales growth records a mean of 0.058 with wider variability (SD = 0.217), implying that although most firms maintain steady growth, some experience significant contractions (–0.593) or substantial expansions (1.075).

Table 4 summarizes the Pearson correlations between the key variables. Board gender diversity shows a weak, insignificant negative correlation with Tobin's Q (r = –0.062, p = 0.259), suggesting no clear direct link between female board presence and firm value. ESG performance, however, is negatively and significantly correlated with Tobin's Q (r = –0.129,

p = 0.018), indicating that firms with stronger ESG scores tend to have lower market valuations—possibly because large, mature firms emphasize ESG more than smaller, high-growth firms with higher Q ratios. Gender diversity and ESG are positively correlated (r = 0.295, p < 0.001), supporting H2's premise that more diverse boards foster better ESG outcomes. Firm size also correlates positively with ESG (r = 0.485, p < 0.001), consistent with larger firms having greater ESG capacity and disclosure incentives. Leverage correlates negatively with both gender diversity (r = –0.153) and ESG (r = –0.192), both significant at p < 0.01, suggesting that more indebted firms tend to be less diverse and less engaged in ESG practices. Sales growth shows no significant correlations with other variables, implying limited short-term connections. Overall, ESG is the only variable significantly related to firm value at the bivariate level (and negatively so), while gender diversity's effect appears weak, warranting further multivariate analysis.

Table 4. Correlation Test Result

	Tobin's Q	Percentage of Women on Boards	ESG Score	Firm Size	Financial Leverage	Sales Growth
Tobin's Q	1.000					
Percentage of Women on Boards	-0.062	1.000				
	(0.259)					
ESG Score	-0.129**	0.295***	1.000			
	(0.018)	(0.000)				
Firm Size	-0.004	0.033	0.485***	1.000		
	(0.948)	(0.543)	(0.000)			
Financial Leverage	-0.002	-0.153***	-0.192***	-0.018	1.000	
	(0.972)	(0.005)	(0.000)	(0.741)		
Sales Growth	-0.046	-0.013	0.075	0.085	-0.086	1.000
	(0.405)	(0.806)	(0.168)	(0.122)	(0.115)	

p-values in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Source: Processed data (2025)

Table 4 shows a negative correlation between gender diversity and Tobin's Q (–0.062). This suggests that a greater proportion of women on boards corresponds with a slight reduction in Tobin's Q, a common proxy for firm value. However, the relatively weak coefficient implies that gender diversity does not meaningfully influence firm valuation within the sample. By contrast, the correlation between ESG scores and Tobin's Q is negative and significant (–0.129), indicating that the market assigns lower valuations to firms with stronger ESG outcomes.

Results demonstrate a positive connection between ESG scores and the proportion of

women on boards (0.295) as well as firm size (0.485). In contrast, board gender diversity is negatively associated with leverage (–0.153), and ESG performance likewise shows a negative correlation with leverage (–0.192). These patterns suggest that firms with greater size are more likely to include female directors on their boards and simultaneously report stronger ESG performance, while greater gender representation and stronger sustainability practices tend to be associated with lower reliance on debt financing. Overall, the correlation analysis highlights that ESG ratings are the only variable in the model that shows a statistically meaningful association with market-based measures of firm value, while other explanatory variables—including gender diversity-do not exhibit strong relationships with Tobin's Q.

Table 5 presents the OLS regression results for Tobin's Q as the dependent variable across five models.

Table 5. Regression Results for Tobin's Q

	(1) Tobin's Q	(2) Tobin's Q	(3) Tobin's Q	(4) Tobin's Q	(5) Tobin's Q
Percentage of Women on Boards	-0.130	-0.0546	-0.0358	-0.0430	-0.0467
	(-1.13)	(-0.46)	(-0.30)	(-0.36)	(-0.39)
ESG Score		-0.113**	-0.149**	-0.156**	-0.154**
		(-2.13)	(-2.44)	(-2.51)	(-2.48)
Firm Size			1.253	1.304	1.352
			(1.19)	(1.23)	(1.28)
Financial Leverage				-4.651	-5.126
				(-0.64)	(-0.70)
Sales Growth					-4.953
					(-0.80)
_cons	4.649***	8.604***	-29.47	-29.70	-30.85
	(2.83)	(3.48)	(-0.92)	(-0.92)	(-0.96)
r2	0.00382	0.0173	0.0214	0.0227	0.0245
aic	3099.7	3097.2	3097.8	3099.4	3100.7
bic	3107.4	3108.6	3113.0	3118.4	3123.6

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Source: Processed data (2025)

In all specifications, board gender diversity shows a negative but insignificant effect on firm value (e.g., –0.130 in Model 1; –0.047 in Model 5), providing no support for H1. This suggests that greater female board representation does not directly enhance market valuation in Indonesian manufacturing firms—possibly due to limited decision-making influence of female directors or low investor recognition of diversity benefits (Tania & Hesniati, 2022). In

contrast, ESG performance has a consistently significant negative relationship with firm value. The ESG coefficient is –0.113 ($p < 0.05$) in Model 2 and –0.154 ($p < 0.05$) in Model 5, indicating that firms with higher ESG scores tend to have lower Tobin's Q. This finding contradicts H3 but aligns with evidence from emerging markets where ESG adoption may be early-stage or cost-intensive (Matuszewska-Pierzynka et al., 2023). The negative effect may reflect short-term profit trade-offs, investor skepticism, or structural characteristics of large, mature firms leading in ESG but with slower growth prospects. Control variables (Model 5) show positive but insignificant effects for firm size, and negative, insignificant effects for leverage and sales growth, implying no strong direct influence on firm value within the sample. Overall, the results reject H1 and H3. Gender diversity does not directly impact firm value, and ESG is associated with lower valuations likely reflecting Indonesia's evolving ESG landscape. However, since gender diversity positively predicts ESG (see Table 6) and ESG significantly affects firm value, a potential indirect (mediated) effect emerges, supporting preliminary evidence for H4.

As reported in Table 5, the regression analysis demonstrates that gender diversity on boards has no meaningful effect on firm value using Tobin's Q as the proxy. The negative coefficients (–0.130 to –0.0467) and insignificant t-statistics suggest that female board participation is not a determinant of firm performance within the sample. ESG performance also demonstrates a negative and statistically significant influence, with coefficients between –0.113 and –0.156 ($p < 0.05$), suggesting that ESG initiatives have not translated into improved market valuation for Indonesian firms during the study period. Regarding the control variables, firm size shows positive coefficients (1.253–1.352) but without statistical significance, while leverage and sales growth both exhibit negative but insignificant effects. The expectation that gender diversity would positively influence firm performance is not supported by the evidence. The lack of significant results may be explained by women's limited involvement in key decision-making roles or by persistent market skepticism regarding the contribution of gender diversity to firm value (Tania & Hesniati, 2022).

Table 6. Regression Test Result for ESG Performance

	(1) ESG Score	(2) ESG Score	(3) ESG Score	(4) ESG Score
Percentage of Women on Boards	0.666***	0.630***	0.581***	0.583***
	(5.64)	(6.14)	(5.66)	(5.67)
Firm Size		8.591***	8.557***	8.517***
		(10.45)	(10.54)	(10.45)

Financial Leverage			-20.09**	-19.75**
			(-3.17)	(-3.10)
Sales Growth				3.271
				(0.59)
_cons	35.06***	-234.6***	-228.7***	-227.7***
	(20.72)	(-9.07)	(-8.94)	(-8.87)
N	335	335	335	335

t statistics in parentheses
* p < 0.1, ** p < 0.05, *** p < 0.01
Source: Processed data (2025)

Table 6 reports the regression results for ESG performance (H2), with ESG Score as the dependent variable. The findings strongly support H2: board gender diversity has a positive and highly significant effect on ESG across all models. The coefficient for % Women on Boards ranges from 0.583 to 0.666 (t = 5.6, p < 0.001), indicating that firms with more female directors consistently achieve higher ESG scores. A 10% increase in board gender diversity corresponds to roughly a 6-point rise in ESG score, confirming that diverse boards are more attuned to sustainability and stakeholder concerns. Among the controls, firm size shows a strong positive effect (coefficient 8.5, p < 0.001), implying larger firms perform better on ESG due to greater resources, visibility, and reporting capacity. Financial leverage has a significant negative effect (–20, p < 0.01), suggesting that highly leveraged firms invest less in ESG or prioritize short-term financial goals. Sales growth is positive but insignificant, indicating no direct short-term link to ESG performance. Overall, these results confirm a robust GD → ESG relationship, establishing the first step of the mediation pathway proposed in H4.

As presented in Table 6, the regression analysis demonstrates that gender diversity on corporate boards significantly improves ESG performance. Across the four models, the proportion of female directors produces coefficients between 0.581 and 0.666, all of which are significant at the 0.1% level (***). These findings suggest that firms with greater female participation on boards are more likely to strengthen their ESG initiatives. Regarding the control variables, firm size exhibits a strong positive effect on ESG scores (coefficient = 8.5, p < 0.001). Conversely, financial leverage shows a significant negative relationship, indicating that higher leverage diminishes ESG performance. Meanwhile, sales growth does not display any meaningful impact on ESG scores.

Table 7 presents the robustness test using PBV as an alternative measure of firm value. The results closely mirror those from the Tobin's Q models. Gender diversity remains negative

and insignificant (coefficients around –0.06 to –0.07), while ESG performance also shows a negative but non-significant effect (e.g., –0.233, t = –1.14 in Model 5). Control variables—firm size, leverage, and sales growth—display similar signs as before but remain statistically insignificant. These findings confirm that the absence of a positive relationship between board gender diversity or ESG and firm value is not dependent on how firm value is measured. The consistency between Tobin's Q and PBV reinforces the conclusion that neither gender diversity nor ESG performance directly enhances market valuation among Indonesian manufacturing firms during 2019–2023. Thus, H1 remains unsupported, and the overall results are robust across both valuation metrics.

Table 7. Robustness Test Result

	(1) PBV	(2) PBV	(3) PBV	(4) PBV	(5) PBV
Percentage of Women on Boards	-0.202	-0.077	-0.054	-0.059	-0.067
	(-1.26)	(-1.03)	(-1.01)	(-0.97)	(-0.99)
ESG Score		-0.189	-0.232	-0.237	-0.233
		(-1.32)	(-1.17)	(-1.14)	(-1.14)
Firm Size			1.521	1.556	1.663
			(0.75)	(0.74)	(0.76)
Financial Leverage				-3.197	-4.256
				(-0.40)	(-0.49)
Sales Growth					-11.043
					(-0.72)
_cons	9.192**	15.801*	-30.413	-30.571	-33.128
	(2.35)	(1.79)	(-0.57)	(-0.56)	(-0.59)
N	335	335	335	335	335

t statistics in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Source: Processed Data (2025)

Using a robustness test, which serves as an analytical method to validate that the research model and results are reliable and unbiased, this study employed the price-to-book value (PBV) ratio as an alternative proxy for the dependent variable (Sepriani & Candy, 2022). The robustness test results indicate consistency with the main findings, where both gender diversity and ESG scores still exhibit a negative and insignificant effect on PBV. These results suggest that the primary findings from the regression using Tobin's Q remain unchanged even when adopting a different proxy for firm value. This strengthens the evidence that gender diversity and ESG performance have not yet made a significant contribution to the market valuation of firms.

Table 8 presents the mediation analysis for H4, testing the indirect effect of gender diversity on firm value through ESG performance. Using the Delta method, Sobel test, and

Monte Carlo bootstrapping (10,000 resamples), all approaches yield consistent results: the indirect effect (GD → ESG → Q) is –0.075, significant at p = 0.045. This confirms that ESG fully mediates the relationship between gender diversity and firm value—an "indirect-only mediation" per Zhao et al. (2020). Roughly 58% of the total effect of gender diversity on firm value operates through ESG, meaning that female board representation influences firm value solely via improved ESG performance. However, since ESG is negatively linked to firm value in this period, the overall mediated effect is negative. In essence, gender-diverse boards enhance ESG outcomes, but these improvements were not yet rewarded by the market, reflecting short-term investor perceptions. Over time, as ESG gains strategic and reputational importance, this indirect path may turn positive, consistent with legitimacy theory.

Table 8. Mediation Test Result between Gender Diversity and Firm Value

Significance testing of indirect effect (Unstandardised)			
Estimates	**Delta**	**Sobel**	**Monte Carlo**
Indirect effect	-0.075	-0.075	-0.072
Std. Err.	0.038	0.038	0.036
z-value	-2.001	-2.001	-1.981
p-value	0.045	0.045	0.048
Conf. Interval	-0.149 , -0.002	-0.149 , -0.002	-0.154 , -0.003

Source: Processed data (2025)

As shown in Table 8, ESG performance acts as a complete mediator between gender diversity and firm value. According to the Baron and Kenny steps, as well as the Sobel test, only the indirect path is significant, consistent with Zhao, Lynch, and Chen's classification of indirect-only mediation. This means gender diversity influences firm value exclusively through ESG improvements. Approximately 58% of the effect of gender diversity is mediated by ESG (RIT = 0.579), with the mediation effect 1.4 times stronger than the direct effect (RID = 1.375). These results emphasize that ESG is the key mechanism linking gender diversity to enhanced firm value.

To ensure completeness, Table 9 provides a concise summary of the direct and indirect relationships among the key variables, along with hypothesis conclusions.

Table 9. Direct and Indirect Relationship Test Result among Variables

Description	**Coefficient**	***P-value***	**Result**
Gender Diversity (X)→ Firm Value (Y)	-0.055	0.646	Not Significant
Gender Diversity (X) → ESG (M)	0.666	0.000	Significant
ESG (M) → Firm Value (Y)	-0.113	0.032	Significant
Gender (X) →ESG (M) →Firm Value (Y)	0.075	0.045	Significant

Source: Processed data (2025)

It shows that: (a) the direct effect of Gender Diversity on Firm Value is not significant (thus H1 not supported), (b) the direct effect of Gender Diversity on ESG is positive and significant (H2 supported), (c) the direct effect of ESG on Firm Value is negative and significant (H3 not supported in terms of sign), and (d) the indirect effect of Gender Diversity on Firm Value via ESG is significant (H4 supported). Based on the regression test results between gender diversity and firm value measured by Tobin's Q, no significant effect is observed. The coefficient values range from -0.130 to -0.046 with p-values above 0.05, classifying the relationship as weak. In simple terms, increasing the number of female directors has not directly contributed to higher firm value. Correlation test results also support the existence of a weak and insignificant negative relationship between gender diversity and firm value.

These findings suggest that the surveyed companies in Indonesia do not fully respond positively to gender diversity in the market, or that such diversity is not yet strong enough to influence investors' perceptions of firm value. The findings are different from those of Bukari et al. (2024) and Fuentes-Fuentes et al. (2023), who identified a positive association between gender diversity and firm value. However, similar results were reported by Candy et al. (2024), who found that the connection is weak or insignificant.

To test the robustness of the model, the dependent variable was replaced from Tobin's Q to PBV. The results show that the regression outcomes remain consistent under this alternative measure of firm value. Both gender diversity and ESG scores display negative and insignificant effects on PBV, indicating that gender diversity does not influence market valuation directly or when alternative proxies are applied. Similarly, the control variables—firm size, leverage, and sales growth—also reveal no significant impact on firm value. Overall, the evidence fails to validate Hypothesis H1, as no positive and significant effect of gender diversity on firm value is observed.

The study shows that ESG fully connects gender diversity on boards with firm value. Even though gender diversity strongly increases ESG, ESG then decreases firm value, making the direct link between gender diversity and firm value insignificant. With approximately 58% of the total effect explained by the indirect pathway, the findings suggest that gender diversity influences firm value primarily through sustainability practices. This underscores its strategic role in advancing ESG, even if markets in Indonesia have yet to fully reward such efforts.

These findings are consistent with Suprapto and Ng (2023), who argue that the presence of women on boards can enhance managerial oversight and reduce agency conflicts, thereby lowering the likelihood of financial distress. The theoretical implications support agency

theory, in which female directors strengthen internal monitoring through ESG. The results are also aligned with legitimacy theory, which posits that ESG serves as an essential mechanism for gaining social legitimacy from stakeholders. Therefore, it is crucial for firms not only to increase gender diversity symbolically but also to strengthen women's active roles in sustainability strategies while building ESG reporting that is transparent, consistent, and accountable.

The findings suggest several key interpretations. First, the absence of a direct link between board gender diversity and firm value likely reflects Indonesia's structural and cultural context low female representation, limited decision-making influence, and possible investor bias. Simply appointing women without genuine inclusion may not yield financial gains. Second, gender diversity strongly enhances ESG performance, confirming that women directors drive better sustainability oversight and stakeholder engagement. This supports agency and stakeholder theory, highlighting board diversity as a catalyst for improved non-financial outcomes especially relevant as Indonesian firms face growing ESG pressures. Third, the negative ESG–value relationship indicates a market misalignment: investors may undervalue ESG due to limited awareness, scepticism, or delayed financial realization. This underscores the need for stronger ESG education, transparency, and incentives (e.g., IDX ESG Leaders Index) to help the market appreciate long-term ESG benefits. Finally, the mediation result implies that diversity influences firm value indirectly through ESG currently negative but potentially positive over time as ESG gains market recognition. Firms should view board diversity and ESG as strategic, long-term investments aligned with Indonesia's evolving governance and legitimacy landscape.

CONCLUSION AND RECOMMENDATION

This study investigates the relationship between board gender diversity, ESG performance, and firm value among Indonesian manufacturing firms from 2019 to 2023. The findings reveal no direct effect of gender diversity on firm value, whether measured by Tobin's Q or PBV. However, gender diversity significantly enhances ESG performance, which in turn negatively affects firm value in the short term. This indicates a full mediation effect, where women's presence on boards improves sustainability outcomes, but these improvements are not yet fully appreciated or rewarded by the market. Over time, as ESG awareness and investor sophistication increase, this indirect relationship may become value-enhancing.

The results highlight ESG as a crucial mediating mechanism that connects board diversity to firm value, supporting both agency and legitimacy theories. Female directors

contribute to better governance, transparency, and stakeholder trust through stronger ESG engagement. However, Indonesia's relatively low female board representation and limited investor emphasis on ESG may constrain the realization of these potential benefits. For managers, gender diversity should be pursued as a strategic investment in corporate governance and sustainability rather than a symbolic compliance effort. Firms are encouraged to empower female directors in decision-making roles and integrate ESG principles into long-term strategies to enhance both non-financial and financial outcomes. For policymakers and regulators, strengthening diversity and ESG frameworks through incentives, mandatory disclosures, and investor education can help align market perceptions with sustainability-driven value creation. Future research should extend the study period, include more sectors, and apply comparative or mixed-method approaches to explore how women's leadership influences ESG practices and firm performance. Examining disaggregated ESG dimensions could also identify which aspects—environmental, social, or governance—most strongly drive firm value over time.

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