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Institutional Ownership and Corporate Sustainable Growth: Insights from the Indonesian Banking Sector

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ABSTRACT

This study investigated the effect of institutional ownership on corporate sustainable growth, with a particular focus on the moderating roles of firm size and firm age. The sample comprises 45 banks listed on the Indonesia Stock Exchange (IDX) from 2004 to 2021, resulting in 578 firm-year observations. Employing Ordinary Least Squares (OLS) regression, the findings indicate that institutional ownership has a negative effect on sustainable growth. However, firm size and firm age do not significantly moderate this relationship for firms with either above-average or below-average asset levels. Further analysis reveals that institutional ownership negatively affects smaller firms, while its impact on larger firms is statistically insignificant. These results suggest that the relationship between institutional ownership and sustainable growth may vary with firm size, although not in a moderating capacity. The findings imply that, while firm size and firm age do not function as moderators, they remain important contextual factors in understanding the influence of institutional ownership on corporate sustainable growth.

Keywords:
Firm age, firm size, corporate sustainable growth, institutional ownership

Kepemilikan Institusional dan Pertumbuhan Berkelanjutan Perusahaan: Menguji Peran Moderasi Ukuran dan Usia Perusahaan

ABSTRAK
Studi ini bertujuan untuk menyelidiki pengaruh kepemilikan institusional terhadap pertumbuhan berkelanjutan perusahaan, dengan mempertimbangkan peran moderasi dari ukuran dan usia perusahaan. Sampel penelitian terdiri dari 45 bank yang terdaftar di Bursa Efek Indonesia (BEI) selama periode 2004–2021, dengan total 578 observasi tahunan perusahaan. Menggunakan metode Ordinary Least Squares (OLS), hasil penelitian menunjukkan bahwa kepemilikan institusional berpengaruh negatif terhadap pertumbuhan berkelanjutan perusahaan. Namun, ukuran dan usia perusahaan tidak terbukti memoderasi hubungan tersebut, baik pada perusahaan dengan tingkat aset di atas maupun di bawah rata-rata. Analisis tambahan menunjukkan bahwa kepemilikan institusional berdampak negatif pada perusahaan kecil, sementara dampaknya tidak signifikan pada perusahaan besar. Temuan ini menegaskan bahwa meskipun ukuran dan usia perusahaan bukan moderator, keduanya tetap relevan dalam memahami mekanisme pengaruh kepemilikan institusional terhadap pertumbuhan berkelanjutan perusahaan.

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1. Introduction

Adequate company performance is crucial for attracting investors to invest capital in the form of shares. This is because investors seek business entities with stable growth and profit potential (Dang et al., 2019; Fung, 2014). Healthy financial statements, consistent revenue growth, and effective risk management indicate good performance. A company's success in managing these aspects attracts investors and opens opportunities to increase working capital, directly accelerating business growth and expansion. A company's ability to raise working capital and earn profits helps accelerate business growth and increase market competitiveness (Ajao & Small, 2012; Heikal et al., 2022). This competitiveness is essential not only in the context of the domestic market but also in the global stage (Cho, 2020; Dagnino et al., 2021). Companies that compete globally often have advantages in innovation, operational efficiency, and effective marketing strategies. (Azeem et al., 2021; Luo, 2021). These conditions create an environment conducive to long-term sustainable growth, ultimately increasing shareholder value.

Investors need an in-depth analysis that goes beyond the financial side of the equation and considers corporate governance, social responsibility, and environmental performance. This approach includes a thorough analysis focusing on financial aspects and considers non-financial factors, such as corporate governance, social responsibility, and environmental impact. By doing so, investors can obtain a more comprehensive picture of a company's health and growth potential. An effective method in this approach is using the Sustainable Growth Rate (SGR). The SGR is an essential tool used to measure the level of growth that a company can sustain without adding new debt (Isnurhadi et al., 2022; Mamilla, 2019). This indicator helps to identify potential growth problems in specific sectors and companies. In addition, SGR is helpful in evaluating a company's financial performance from a long-term perspective. Through a holistic approach focusing on corporate growth management, SGR provides essential insights to help investors make informed investment decisions.

Companies require adequate supervision to promote sustainable growth. Institutional investors play a significant role in this context (Dyck et al., 2019; Fich et al., 2015). Institutional investors such as insurance companies, banks, and pension funds hold shareholdings in various companies (Abd-Mutalib et al., 2016; Bebchuk et al., 2017; Çelik & Isaksson, 2014). Institutional ownership is a funding source and efficient monitoring mechanism (Lin & Fu, 2017; Ward et al., 2020). The primary benefit of institutional investors is their access to comprehensive information and resources, which enables them to supervise more effectively than other investors (Y. R. Lin & Fu, 2017; Ward et al., 2020). Their capacity to obtain, analyze, and utilize the company's financial and non-financial information gives them a deeper understanding of its performance and potential risks. Close monitoring from institutional investors can lead to increased transparency and responsibility in a company's strategic decision-making. This can ultimately improve company performance and ensure sustainable growth.

The main objective of this study is to investigate the effect of institutional ownership on the sustainable growth of companies. Previous studies have shown mixed results on the effect of

ownership structure on firm performance. Rashid (2020) and Kao et al. (2019) found that institutional ownership positively influences firm performance, especially in terms of return on assets and increased firm value. Ogabo et al. (2021) also confirms that managerial ownership can improve company performance. Abdallah & Ismail (2017) found that the positive association between governance quality and firm performance is stronger for low-concentrated ownership. However, Aluchna & Kaminski (2017) observed a negative effect of ownership concentration by majority shareholders on firm profitability performance. Meanwhile, Ducassy & Montandrau (2015) found that institutional ownership does not affect corporate social performance, suggesting that institutional investors may need help to drive toward sustainable growth. Phung & Mishra (2016) adds that firm performance increases up to a certain point with an increase in foreign ownership but then declines.

Despite extensive studies on ownership structure and firm performance, the role of firm size and age as moderating variables remains underexplored. Many previous studies have focused on the direct relationship between ownership and performance, overlooking how firm-specific characteristics such as size and age might alter this relationship. Previous research often does not consider firm size sensitivity factors when analyzing the relationship between ownership structure and firm performance. This creates a significant research gap given that firm size can influence internal and external performance and sustainable growth dynamics. Similarly, firm age may affect how companies respond to ownership structure, yet its moderating effect has not been conclusively examined in the literature.

This study seeks to fill this gap by integrating firm size as an important factor in analyzing the relationship between ownership and firm performance, particularly in sustainable growth. Furthermore, this study presents a novel approach by examining firm size and age as potential moderating variables, recognizing that firm characteristics could influence how institutional ownership affects sustainable growth. This approach is based on the observation that many previous studies have validated the existence of a positive direct relationship between firm size, age, and performance. Thus, this study not only enriches the understanding of the effect of ownership on performance, but also provides a new perspective on how factors such as firm size and age moderate the relationship. By explicitly analyzing the interaction effects of these moderating variables, this research offers a more nuanced understanding of ownership dynamics and their impact on corporate sustainable growth. By considering these variables, this study offers a more holistic and comprehensive viewpoint in assessing the impact of ownership on corporate sustainable growth.

2. Theoretical framework and hypotheses development

Stakeholder theory provides a relevant lens to examine the role of institutional ownership in sustainable corporate growth. According to Freeman et al. (2021), firms do not operate solely to maximize shareholder value but must also consider the interests of multiple stakeholders, including employees, suppliers, customers, and regulators. As key stakeholders, institutional investors can

influence corporate decision-making by encouraging sustainability-oriented policies and governance mechanisms that align with long-term stakeholder interests. This aligns with the argument that organizations should build and maintain sustainable stakeholder relationships to achieve long-term success (Mahajan et al., 2023).

Thus, institutional ownership is a financial mechanism and a governance tool that fosters accountability and ethical corporate behavior. Institutional investors, particularly those with long-term holdings, can push firms toward sustainable practices that benefit a broader range of stakeholders, thereby contributing to corporate sustainable growth. This perspective reinforces that sustainable performance is achieved through financial capital and responsible stakeholder engagement and governance.

Building upon this theoretical perspective, empirical studies have examined the impact of institutional ownership on firm performance and sustainable growth. Several studies have consistently demonstrated a positive relationship between institutional ownership and firm performance. For instance, Rashid (2020) examined 527 annual reports of listed companies in Bangladesh from 2015 to 2017 and found that institutional ownership positively influenced firm performance, as measured by return on assets. This suggests that the presence of institutional investors enhances operational and financial efficiency. Similarly, Kao et al. (2019), using a sample of companies listed in Taiwan from 1997 to 2015, revealed that institutional ownership positively impacts firm value. Their findings indicate that institutional investors contribute to better oversight and governance practices, ultimately increasing firm value.

Furthermore, Ogabo et al. (2021) studied firms listed in the FTSE 350 in the UK during the fiscal years 2008–2018 and found that managerial ownership positively impacts corporate performance, suggesting that managers with ownership stakes are more motivated to enhance firm value. Additionally, Phung & Mishra (2016) observed that firm performance improves with increasing foreign ownership up to a certain point, reinforcing that ownership structure is crucial in driving corporate success. Thus, institutional ownership is a financial driver and a governance mechanism that fosters corporate accountability and long-term sustainability.

H1: Institutional ownership has a positive effect on corporate sustainable growth.

Previous research has extensively investigated the moderating influence of firm size and firm age, highlighting their significant role in shaping corporate financial outcomes. Dang et al. (2019) acknowledge that business size is essential in empirical corporate finance, as it influences various financial relationships and strategic decision-making. Additionally, Ibhagui & Olokoyo (2018) found that the negative impact of leverage on firm performance is more significant in small-scale enterprises. Their findings suggest that as a company expands, it gains financial stability, mitigating the adverse effects of leverage, which eventually disappear entirely when a firm reaches a certain scale. This implies that firm size can amplify or weaken the impact of financial mechanisms, including institutional ownership, on corporate sustainable growth.

Similarly, Lin et al. (2019) investigated the correlation between Green Innovation Strategy (GIS) and Corporate Financial Performance (CFP), finding that firm size moderates the strength of this relationship. Their study revealed that smaller businesses achieve higher returns from green innovation investments than larger firms, which may struggle with bureaucratic inefficiencies in innovation adoption. From a stakeholder theory perspective (Freeman et al., 2021), larger firms tend to have more diverse and complex stakeholder relationships, which can influence how institutional ownership drives corporate sustainability. Institutional investors may encourage larger firms to adopt stakeholder-oriented strategies, balancing financial goals with broader social and environmental concerns.

Regarding firm age, Coad et al. (2016) found that younger companies experience greater improvements in performance through research and development (R&D) activities at higher growth levels but face more substantial declines at lower levels. This suggests that firm age moderates corporate performance by influencing how firms respond to investment decisions, including those driven by institutional ownership. Stakeholder theory highlights that younger firms still establishing legitimacy may engage more actively with institutional investors to gain credibility and access to resources (Mahajan et al., 2023). Meanwhile, older firms with established reputations and stakeholder networks may leverage institutional ownership for long-term stability rather than rapid growth. Aziz & Samad (2016) further demonstrated that innovation has a more pronounced effect on competitive advantage in younger firms, particularly in Malaysia's small and medium-sized food manufacturing sector. These findings indicate that firm age may shape the extent to which institutional ownership enhances sustainable growth, as younger firms may exhibit higher flexibility and responsiveness to strategic changes. In comparison, older firms benefit from accumulated experience and established networks.

In a separate study, Rafiq et al. (2016) examined the impact of R&D investments on profitability and sales in China and the US mining sectors. Their findings suggest that firm age moderates the link between R&D and financial performance, with established firms generating more earnings and sales than younger firms. This supports the argument that firm age moderates how institutional ownership influences sustainable growth, as older firms may leverage institutional investors' oversight to enhance stability. In contrast, younger firms may use it to drive innovation and expansion. Stakeholder theory further reinforces that firms at different life cycle stages interact with stakeholders differently, affecting how institutional ownership contributes to sustainable corporate growth.

H2a: Firm size strengthens institutional ownership's positive effect on sustainable corporate growth.

H2b: Firm age strengthens institutional ownership's positive effect on sustainable corporate growth.

3. Research method

This study employed data from 45 publicly listed banks on the Indonesia Stock Exchange (IDX) between 2004 and 2021, comprising 578 observations. The samples were selected based on data availability during the research period. The data were obtained from authoritative publications, including annual financial and business sustainability reports. The financial records were collected from the official website of the Indonesia Stock Exchange, and the individual websites of each bank were included in the research sample. In addition, relevant macroeconomic data was obtained from the Indonesian Central Bureau of Statistics to support the research.

Table 1 Research sample selection criteria

Criteria	Total Size
Total observations of banking companies listed on the official website of the Indonesia Stock Exchange during the period 2004 to 2021	582
Total observations of companies in the banking sector that publish audited financial statements and annual reports for 2004 to 2021	582
Total observations of banking companies that do not have the data required for research available in full	(4)
The total observations of banking companies selected as samples have the necessary data for research available in full.	578

This study investigated the factors influencing firms' sustainable growth rate (SGR), the dependent variable. The SGR is calculated using the formula:

SGR = profit margin × asset turnover ratio × leverage factor × retention ratio

This variable reflects a firm's ability to grow sustainably by leveraging internal efficiencies and financial strategies. The independent variable in this study is institutional ownership, defined as the proportion of shares held by institutional investors. This variable is measured as the percentage of share ownership by institutional investors (Bose et al., 2018), reflecting the extent of institutional influence on corporate decision-making and governance.

To explore the dynamics of this relationship, the study incorporates two moderating variables: firm size and firm age. Firm size is measured as the natural logarithm of the company's total assets, representing the scale of operations and available resources (Bose et al., 2018). Firm age, calculated as the natural logarithm of the number of years since the firm's establishment, captures organizational maturity and accumulated experience (Bose et al., 2018). These moderating variables are employed to assess how firm characteristics influence the relationship between institutional ownership and sustainable growth. A brief operationalization of the variables is shown in Table 2.

To enhance the rigor of the analysis and address potential confounding effects, this study incorporates control variables at both the firm and macroeconomic levels. These variables are selected based on their theoretical and empirical relevance in influencing firms' sustainable growth.

Table 2. Operationalization of variables

Variable	Operationalization
Dependent Variable	
Sustainable Growth Rate (SGR)	SGR can be presented with the following formula: SGR = Profit margin × Asset turnover ratio × Leverage factor × Retention ratio (Ul Ain et al., 2022).
Independent Variable	
Institutional Ownership (INSTOWN)	Measured as the percentage of share ownership by institutional investors (Bose et al., 2018).
Moderating Variables	
Firm Size (FSIZE)	Measured as the natural logarithm of the company's total assets (Bose et al., 2018).
Firm Age (FAGE)	Measured as the natural logarithm of the number of years since company incorporation (Bose et al., 2018).
Control Variables	
Return On Assets (ROA)	Pre-tax income is divided by total assets (Muthitacharoen, 2020).
Return On Equity (ROE)	Pre-tax income is divided by total equity (Yoon et al., 2021).
Dividend Payout Ratio (DPR)	Dividend per share divided by earnings per share (Sanoran, 2023).
Inflation rate (INF)	GDP per capita growth (annual %) (Le & Ngo, 2020; Petria et al., 2015).
GDP Growth (GDPGR)	Inflation, GDP deflator (annual %) (Le & Ngo, 2020; Petria et al., 2015).

At the firm level, the control variables include Return on Assets (ROA), which reflects a firm's operational efficiency and profitability by measuring its ability to generate earnings relative to its total assets (Muthitacharoen, 2020). Return on Equity (ROE) is employed to capture the firm's financial performance by assessing profitability concerning shareholders' equity. (Yoon et al., 2021). Another key variable is the Dividend Payout Ratio (DPR), which represents a firm's dividend policy and can influence investor perceptions and company valuation (Sanoran, 2023). The inclusion of these variables is supported by prior research indicating that profitability, efficiency, and dividend policies significantly impact a firm's ability to sustain growth, particularly concerning institutional ownership and firm characteristics.

At the macroeconomic level, this study controls for the effects of inflation and Gross Domestic Product (GDP) growth. Inflation is measured as the annual percentage growth in GDP per capita, representing economic stability and purchasing power, which may influence firm revenues and operational costs (Le & Ngo, 2020; Petria et al., 2015). Meanwhile, GDP growth is represented by the inflation-adjusted GDP deflator in annual percentage terms, indicating overall economic expansion that can affect investment opportunities and firms' growth potential (Le & Ngo, 2020; Petria et al., 2015). By integrating these control variables, this study ensures that broader external factors do not drive the relationship between institutional ownership, firm characteristics, and sustainable growth. This approach strengthens the validity of the findings by providing a more comprehensive understanding of the determinants of firms' sustainable growth.

In this study, the Ordinary Least Squares (OLS) method is used to investigate the effect of institutional ownership on corporate sustainable growth. In this model, the symbol φ_(i,d)

represents the control variables, which include Return on Assets (ROA), Return on Equity (ROE), Dividend Payout Ratio (DPR), Inflation Rate (INFL), and GDP Growth (GDPGR). The study was designed with five different equations to gain a broader understanding. The first equation is analyzed without including control variables to see the pure effect of institutional ownership. The second equation adds control variables to examine their effect on the main relationship. The third and fourth equations include Firm Size and Firm Age as moderating variables to see how firm size and age affect the relationship between institutional ownership and sustainable growth. Finally, the fifth equation uses moderating variables, firm size, and firm age, to observe the interaction between the two factors in the context of corporate sustainable growth.

Eq. 1: $\mathrm{SGR}_{i,d} = \beta_0 + \beta_1 \mathrm{INSTOWN}_{i,d} + \epsilon$:
Eq. 2: $\mathrm{SGR}_{i,d} = \beta_0 + \beta_1 \mathrm{INSTOWN}_{i,d} + \beta_2 \varphi_{i,d} + \epsilon$
Eq. 3: $\mathrm{SGR}_{i,d} = \beta_0 + \beta_1 \mathrm{INSTOWN}_{i,d} + \beta_2 \mathrm{FSIZE}_{i,d} + \beta_3 \mathrm{INSTOWN} * \mathrm{FSIZE}_{i,d} + \beta_4 \varphi_{i,d} + \epsilon$
Eq. 4: $\mathrm{SGR}_{i,d} = \beta_0 + \beta_1 \mathrm{INSTOWN}_{i,d} + \beta_2 \mathrm{FAGE}_{i,d} + \beta_3 \mathrm{INSTOWN} * \mathrm{FAGE}_{i,d} + \beta_4 \varphi_{i,d} + \epsilon$
Eq. 5: $\mathrm{SGR}_{i,d} = \beta_0 + \beta_1 \mathrm{INSTOWN}_{i,d} + \beta_2 \mathrm{FAGE}_{i,d} + \beta_3 \mathrm{FSIZE}_{i,d} + \beta_4 \mathrm{INSTOWN} * \mathrm{FSIZE} * \mathrm{FAGE}_{i,d} + \beta_5 \varphi_{i,d} + \epsilon$

4. Results and discussion

The descriptive statistics offer a comprehensive overview of the variables analyzed in this study, highlighting variations in the sampled companies' financial, operational, and macroeconomic characteristics (Table 1). The Sustainable Growth Rate (SGR), the primary dependent variable, has a mean of 7.20 and a median of 8.11. This indicates that, on average, companies exhibit positive growth potential, with some achieving significantly higher growth rates. However, the broad standard deviation of 23.75 reflects substantial variability, with SGR values ranging from a minimum of -205.72 to a maximum of 135.50. This variation suggests that while some companies thrive, others may face challenges that hinder sustainable growth.

The Institutional Ownership (INSTOWN) variable, representing the proportion of shares owned by institutional investors, has a mean of 0.62 and a median of 0.71. This indicates that institutional investors hold a substantial stake in most companies, with a significant proportion owning over 70% of the shares. However, the standard deviation of 0.33 highlights notable differences in institutional ownership across firms, ranging from 0% to 99%. This variation underscores the diverse levels of institutional involvement in corporate governance.

Financial performance indicators provide further insight. Return on Assets (ROA), calculated as pre-tax income divided by total assets, has a modest mean of 0.01, with a median of 0.01, indicating that, on average, companies generate minimal returns on their assets. However, the high standard deviation of 0.06, coupled with a minimum value of -1.30 and a maximum of 0.09, points to significant disparities in operational efficiency. Similarly, Return on Equity (ROE), with a mean of 0.07 and a median of 0.07, suggests moderate profitability for most firms. However, the standard deviation of 0.30, alongside extreme values ranging from -3.53 to 4.74, highlights variability in the ability of companies to generate returns for their shareholders.

The Dividend Payout Ratio (DPR), measuring the proportion of earnings distributed as dividends, shows a mean of 18.06 and a median of 0. This indicates that while some companies allocate a significant portion of earnings to dividends, a large subset of firms does not pay dividends at all. The high standard deviation of 39.28 and the wide range from -4.21 to 454.67 further emphasize this disparity.

The Firm Size (FSIZE) variable, expressed as the natural logarithm of total assets, has a mean of 24.09 and a low standard deviation of 1.82. This suggests that the sample predominantly comprises large firms with similar asset levels, as reflected in the range from 18.31 to 28.18. Similarly, Firm Age (FAGE), calculated as the natural logarithm of the number of years since incorporation, has a mean of 3.73 and a standard deviation of 0.54, indicating that the sample is dominated by well-established companies, with firm ages ranging from newly incorporated entities (1.95) to long-standing firms (4.84).

At the macroeconomic level, the Inflation Rate (INFL) has a mean of 4.88% and a standard deviation of 2.55%, indicating moderate inflation levels over the study period. The range from 1.56% to 13.11% highlights the variability in economic conditions. Similarly, GDP Growth (GDPGR), with a mean of 4.72% and a standard deviation of 2.03%, reflects steady economic growth, although the range from -2.07% to 6.35% suggests occasional periods of economic contraction. Thus, these statistics reveal a sample characterized by diverse financial performance, high institutional ownership, and predominantly large, well-established firms operating within a relatively stable macroeconomic environment. This variability provides a rich context for analyzing the relationships between institutional ownership, firm characteristics, and sustainable growth.

Table 3 presents correlation data summarizing the relationship between the variables examined in this investigation. The correlation value of -0.182 indicates a significant negative association between institutional ownership (INSTOWN) and sustainable growth rate (SGR). These findings suggest that an increase in institutional ownership is associated with a decrease in the company's sustainable growth rate (SGR). Furthermore, the variables return on assets (ROA) and return on equity (ROE) negatively correlate with SGR. The correlation coefficient for ROA is -0.214, while the value for ROE is -0.407, indicating a stronger correlation. This suggests that although ROA and ROE are typically viewed as positive performance indicators, they are inversely related to corporate sustainable growth in this study's specific context. The correlation study shows a significant positive correlation between the size of the business (FSIZE) and its age (FAGE) with the sustainable growth rate (SGR), as indicated by correlation coefficients of 0.264 and 0.152, respectively. In contrast, the dividend payout ratio (DPR) has no significant association with the SGR, as indicated by a correlation value of 0.022. Conversely, there is a negligible correlation between inflation (INFL) and GDP growth (GDPGR) and SGR, as indicated by correlation coefficients of -0.052 and -0.020, respectively.

Table 3. Correlation between Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) SGR	1.000								
(2) INSTOWN	-0.182*	1.000							
	(0.000)								
(3) ROA	0.214*	-0.102*	1.000						
	(0.000)	(0.014)							
(4) ROE	0.407*	-0.108*	-0.464*	1.000					
	(0.000)	(0.010)	(0.000)						
(5) DPR	0.022	-0.260*	0.065	0.064	1.000				
	(0.596)	(0.000)	(0.117)	(0.126)					
(6) FSIZE	0.264*	-0.363*	0.155*	0.129*	0.242*	1.000			
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)				
(7) FAGE	0.152*	-0.089*	0.132*	0.041	0.067	0.472*	1.000		
	(0.000)	(0.033)	(0.002)	(0.328)	(0.107)	(0.000)			
(8) INFL	-0.052	-0.087*	0.044	-0.108*	-0.005	0.453*	0.259*	1.000	
	(0.210)	(0.038)	(0.286)	(0.009)	(0.905)	(0.000)	(0.000)		
(9) GDPGR	-0.020	-0.038	0.010	-0.116*	-0.031	0.297*	0.161*	0.466*	1.000
	(0.638)	(0.363)	(0.809)	(0.005)	(0.458)	(0.000)	(0.000)	(0.000)	

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

The multicollinearity test is crucial in this research to confirm the absence of excessive interdependence among the independent variables. We examine the Variance Inflation Factor (VIF) value to perform this test (presented in Table 4). A VIF score below 10 indicates the absence of multicollinearity in the model. Table 3 presents the VIF values for various variables, including Return On Equity (ROE) with a value of 1.35, Return On Assets (ROA) with a value of 1.32, Inflation rate (INFL) with a value of 1.29, GDP Growth (GDPGR) with a value of 1.29, Institutional Ownership (INSTOWN) with a value of 1.12, and Dividend Payout Ratio (DPR) with a value of 1.08. The mean Variance Inflation Factor is 1.24. These findings suggest minimal multicollinearity among the independent variables in this model. This enhances the validity of the research conducted to examine the impact of institutional ownership on corporate sustainable growth, considering the moderating variables of firm size and firm age.

Table 4. Multicollinearity test result

Variable	VIF	1/VIF
ROE	1.35	0.741858
ROA	1.32	0.755886
INFL	1.29	0.773854
GDPGR	1.29	0.77541
INSTOWN	1.12	0.892905
DPR	1.08	0.926104
Mean VIF	1.24	

This section employs five regression models to investigate the relationship, progressing from Model 1 to Model 5 with the gradual inclusion of control variables (Table 5). Model 1 reveals that INSTOWN has a statistically significant negative effect on SGR (B = -13.12, t = -4.67) at a significance level below 1%. The model explains 3.16% of the variation in SGR, as indicated by

the R2-Adj value. Model 2, which includes control variables such as Return On Assets (ROA) and inflation, shows a decrease in the negative effect of INSTOWN on SGR (B = -12.12, t = -4.19). The inclusion of these control variables increases the R2-Adj value to 7.12%. Model 3, which includes Return On Equity (ROE), demonstrates a decrease in the negative impact of INSTOWN (B = -10.23, t = -3.09), with R2-Adj increasing to 18.1%. Additionally, this model indicates a positive impact of ROE on SGR. Model 4, including the Dividend Payout Ratio (DPR), indicates a more pronounced negative impact of INSTOWN on SGR (B = -14.09, t = -4.86) compared to the previous model. However, the R2-Adj value decreases to 3.20%. Model 5, which includes all control variables, shows a reduced negative impact of INSTOWN on SGR (B = -5.817, t = -2.50), with significant positive effects of ROA and ROE. The model explains 37.9% of the variation in SGR, as indicated by the high R2-Adj value and F_Stat of 13.95 with Prob > F below 0.0000.

Table 5. Regression test results

	(1) **SGR**	**(2)** **SGR**	**(3)** **SGR**	**(4)** **SGR**	**(5)** **SGR**
INSTOWN	-13.12***	-12.12***	-10.23***	-14.09***	-5.817**
	(-4.67)	(-4.19)	(-3.09)	(-4.86)	(-2.50)
ROA		81.51			207.2***
		(1.18)			(6.22)
ROE			30.61**		50.11***
			(2.07)		(4.81)
DPR				-0.0175	-0.0431***
				(-1.54)	(-4.08)
INFL		-0.746	-0.376	-0.671	-0.398
		(-1.40)	(-0.77)	(-1.24)	(-0.89)
GDPGR		0.109	0.458	0.0658	0.750*
		(0.31)	(1.04)	(0.17)	(1.84)
_cons	15.39***	17.44***	11.04***	19.28***	5.228**
	(11.54)	(5.50)	(2.84)	(6.34)	(2.06)
N	578	578	578	578	578
R^2-Adj	0.0316	0.0712	0.181	0.0320	0.379
F_Stat	21.84	5.940	9.802	7.849	13.95
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000

The table includes regression coefficients and t-statistics $\left(\frac{b}{t_{stat}}\right)$. Robust regressions have been presented to account for heteroscedasticity and autocorrelation. The significance levels are denoted by ***, **, and *, corresponding to 1%, 5%, and 10% respectively.

Table 5 shows the regression analysis results, which indicate that institutional investors' ownership negatively impacts the Sustainable Growth Rate of banking businesses. This suggests that many institutional investors may influence the firm's strategic policies. This may lead to operational efficiency and decrease the firm's ability to grow. This finding suggests that institutional investors often concentrate on stability and short-term profits when they own a significant stake in an organization. Institutional investors may prefer to make choices that generate quick profits. This suggests that the findings of this study contradict Hypothesis 1, which states that sustainable growth rates will increase when institutional investors have ownership.

Instead, this study found that the conflict of interest between long-term sustainable investment and short-term profits may lead to lower growth rates. However, lower institutional investor ownership may be advantageous for sustainable growth. With less control from institutional investors, this is because firm management has more freedom to take risks and make strategic decisions supporting sustainable growth. As a result, the company's operations become more efficient and oriented towards long-term sustainable growth.

Table 6 presents the statistical analysis of the regression results for Sustainable Growth Rate (SGR) with moderating variables of firm size (FSIZE) and firm age (FAGE). The analysis shows that institutional ownership (INSTOWN) has no significant relationship with SGR, as indicated by the insignificant interaction coefficient of INSTOWN*FSIZE and INSTOWN*FAGE. Moreover, the variable FSIZE demonstrates a positive impact on SGR. In the second model, FSIZE has a positive coefficient of 2.263 with a significance level below 1%. This suggests that the company's size is crucial in promoting sustainable growth. Conversely, FAGE does not directly influence SGR significantly, with a coefficient of 1.991 and an insignificant significance level. Furthermore, the control variables in this model, including Return On Assets (ROA), Return On Equity (ROE), Dividend Payout Ratio (DPR), inflation rate (INFL), and GDP growth (GDPGR), also have a significant impact on SGR. ROA and ROE consistently exhibit a significant positive effect in all models, while DPR has a significant negative effect.

Table 6. Regression test results with moderating variables

	(1) SGR	(2) SGR	(3) SGR	(4) SGR
INSTOWN	-5.817**	8.392	-13.30	1.865
	(-2.50)	(0.34)	(-0.74)	(0.11)
INSTOWN*FSIZE		-0.463		
		(-0.46)		
FSIZE		2.263***		2.025**
		(2.63)		(2.36)
INSTOWN*FAGE			1.912	
			(0.44)	
FAGE			1.991	1.361
			(1.01)	(0.82)
INSTOWN*FAGE*FSIZE				-0.0522
				(-0.31)
ROA	207.2***	193.9***	201.3***	193.4***
	(6.22)	(5.73)	(5.99)	(5.74)
ROE	50.11***	47.13***	49.25***	47.05***
	(4.81)	(4.53)	(4.76)	(4.53)
DPR	-0.0431***	-0.0574***	-0.0458***	-0.0568***
	(-4.08)	(-4.72)	(-4.29)	(-4.60)
INFL	-0.398	-0.946*	-0.550	-0.956*
	(-0.89)	(-1.72)	(-1.11)	(-1.73)
GDPGR	0.750*	0.508	0.691*	0.504
	(1.84)	(1.48)	(1.83)	(1.48)
_cons	5.228**	-46.92**	-0.794	-46.12*
	(2.06)	(-2.35)	(-0.10)	(-1.94)

N	578	578	578	578
R^2-Adj	0.379	0.390	0.380	0.390
F_Stat	13.95	30.25	13.81	33.08
Prob > F	0.0000	0.0000	0.0000	0.0000

The table includes regression coefficients and t-statistics $\left(\frac{b}{t_{stat}}\right)$. Robust regressions have been presented to account for heteroscedasticity and autocorrelation. The significance levels are denoted by ***, **, and *, corresponding to 1%, 5%, and 10% respectively.

The results of this study indicate that company size has a direct and positive relationship with Sustainable Growth Rate. This means larger companies have more potential to create higher sustainable growth rates. This can be explained by the greater resources owned by large companies, which gives them stability and the ability to create profits without seeking new funding sources. Large companies usually have better access to capital, advanced technology, and qualified human resources, all contributing to their ability to grow sustainably. Furthermore, the findings suggest that firm size is not significant in determining the sustainable growth rate. This emphasizes that the possession of resources is more relevant than the maturity factor of firm age in achieving sustainable growth. In other words, having adequate and efficient resources is more important than just the age or size of the firm in promoting sustainable growth. Table 6 shows that neither firm size nor age moderates the relationship between institutional ownership and Sustainable Growth Rate. This suggests that institutional ownership consistently affects sustainable growth, regardless of the size or age of the firm. It is suggested that other factors may have a greater influence on how institutional ownership affects sustainable growth, such as the quality of management, corporate strategy, and adaptation to market changes. Internal factors of the firm and strategic policies taken by management appear to play a more crucial role in influencing how institutional ownership affects the firm's sustainable growth. Table 7 presents regression results on how firm size and firm age (FAGE) influence the relationship between institutional ownership and corporate sustainable growth, based on a sample divided into large and small asset groups.

This study reveals different dynamics that influence these variables. Significant assets refer to firms with asset values above the industry average, while small assets refer to those below them. In firms with smaller asset sizes, FAGE was found to weaken the effect of institutional ownership on sustainable growth. The negative coefficient between FAGE and sustainable growth suggests that older firms with small assets may struggle to maintain growth, possibly due to more rigid organizational structures or unsupportive legacy policies. In this context, more than significant institutional ownership is needed to drive the necessary change or innovation for sustainable growth, particularly in smaller firms with a longer lifespan. Meanwhile, in the group of firms with larger asset sizes, the regression results indicate that FAGE and FSIZE do not moderate the effect of institutional ownership on sustainable growth. This can be explained by arguing that larger firms already have better resources and capacity to grow sustainably, independent of the firm's age. Institutional ownership may have a less significant moderating effect on firm performance in larger firms due to their development of more efficient processes and growth strategies.

Table 7. Regression results with moderating variables for small-larger assets

	Small Assets				Larger Assets			
	SGR	**SGR**	**SGR**	**SGR**	**SGR**	**SGR**	**SGR**	**SGR**
INSTOWN	-4.073	262.8	327.7**	149.9*	-0.867	-6.422	-8.506	-3.621
	(-0.84)	(1.50)	(2.25)	(1.96)	(-0.37)	(-0.16)	(-0.36)	(-0.16)
INSTOWN*FSIZE		-11.93				0.245		
		(-1.50)				(0.15)		
FSIZE		8.792		5.553*		0.763		0.782
		(1.28)		(1.66)		(0.61)		(0.73)
INSTOWN*FAGE			-98.19**				1.930	
			(-2.23)				(0.33)	
FAGE			84.00**	37.69*			0.0478	-0.129
			(2.12)	(1.76)			(0.02)	(-0.06)
INSTOWN*FAGE*FSIZE				-2.010*				0.0336
				(-1.93)				(0.15)
ROA	303.4***	304.6***	292.6***	295.4***	350.4***	341.6***	346.4***	340.9***
	(2.80)	(2.84)	(3.00)	(2.89)	(4.54)	(4.12)	(4.40)	(4.12)
ROE	26.80***	26.89***	27.06***	27.12***	97.41***	95.16***	96.59***	95.03***
	(3.59)	(3.69)	(4.00)	(3.85)	(4.36)	(3.97)	(4.25)	(3.97)
DPR	-0.00939	-0.00531	-0.00516	-0.00674	-0.0716***	-0.0777***	-0.0732***	-0.0779***
	(-1.06)	(-0.56)	(-0.35)	(-0.61)	(-4.55)	(-4.40)	(-4.36)	(-4.29)
INFL	-1.133*	-0.992	-1.497**	-1.245*	0.0607	-0.148	0.0104	-0.152
	(-1.78)	(-1.41)	(-2.21)	(-1.73)	(0.13)	(-0.24)	(0.02)	(-0.24)
GDPGR	0.942**	0.949**	0.846**	0.878**	0.608	0.498	0.586	0.499
	(2.23)	(2.27)	(2.12)	(2.19)	(1.51)	(1.30)	(1.55)	(1.30)
_cons	3.694	-193.4	-275.4**	-246.9*	-4.488	-21.63	-3.960	-21.52
	(0.89)	(-1.29)	(-2.13)	(-1.76)	(-0.79)	(-0.84)	(-0.44)	(-0.83)
N	169	169	169	169	409	409	409	409
R^2-Adj	0.666	0.668	0.690	0.679	0.396	0.395	0.393	0.393
F_Stat	15.84	14.03	16.39	13.91	12.97	19.20	11.25	19.62
Prob > F	2.77e-14	2.30e-15	1.41e-17	2.26e-16	2.02e-13	1.82e-24	2.12e-14	2.97e-27

The table includes regression coefficients and t-statistics $\left(\frac{b}{t_{stat}}\right)$. Robust regressions have been presented to account for heteroscedasticity and autocorrelation. The significance levels are denoted by ***, **, and *, corresponding to 1%, 5%, and 10% respectively.

Test of difference

In this test of difference, we focus on the impact of firm size on corporate sustainable growth. For this purpose, we created dummy variables named LARGE and SMALL. The variable LARGE is assigned a value of 1 if the firm's asset value is above the average asset value of all banks during the 2021 period and 0 if its asset value is below the average. Conversely, the variable SMALL is assigned a value of 1 if the firm's asset value is below the average and 0 if it is above it. The results of this analysis are reported in detail in Table 8.

Table 8. Regression test results for additional analysis

	(1) SGR	(2) SGR	(3) SGR	(4) SGR	(5) SGR
INSTOWN*SMALL	-15.29***	-15.10***	-10.58***	-16.37***	-4.197
	(-5.81)	(-5.54)	(-3.39)	(-6.18)	(-1.23)
INSTOWN*LARGE	4.339	4.198	4.998	4.451	3.913
	(0.96)	(0.93)	(1.15)	(0.97)	(0.96)
ROA		78.62			204.6***
		(1.26)			(5.67)
INFL		-0.965*	-0.543	-0.901*	-0.461
		(-1.85)	(-1.13)	(-1.70)	(-1.04)
GDPGR		0.0686	0.410	0.0315	0.736*
		(0.20)	(0.97)	(0.09)	(1.88)
ROE			28.94*		49.28***
			(1.94)		(4.40)
DPR				-0.00508	-0.0327***
				(-0.34)	(-2.95)
_cons	10.01***	13.94***	7.490***	14.58***	2.267
	(7.64)	(6.47)	(2.66)	(7.34)	(0.98)
N	578	578	578	578	578
R^2-Adj	0.0592	0.100	0.193	0.0632	0.379
F_Stat	20.67	11.64	17.50	9.725	27.80
Prob > F	2.14e-09	1.00e-10	3.83e-16	6.27e-09	6.22e-33

The table includes regression coefficients and t-statistics $\left(\frac{b}{t_{stat}}\right)$. Robust regressions have been presented to account for heteroscedasticity and autocorrelation. The significance levels are denoted by ***, **, and *, corresponding to levels of 1%, 5%, and 10% respectively.

Previous findings showing the effect of institutional ownership on the sustainable growth of firms are also confirmed in this analysis. We find that statistically, institutional ownership has a negative and significant effect on the sustainable growth of small firms. Meanwhile, its effect on large firms is positive but insignificant. This suggests that there are different dynamics in the effect of institutional ownership depending on the firm's size. One interesting new finding is the effect of firm asset value on the relationship between institutional ownership and sustainable growth. The analysis shows that the absolute value of the coefficient β_1, which represents the effect of institutional ownership on small firms, is higher than the absolute value of the coefficient β_2, which represents its effect on large firms. This finding indicates that the influence of institutional ownership on firms with small asset values is more potent than that of firms with large asset values.

This additional analysis provides new insights into how firm size affects the relationship between institutional ownership and corporate sustainable growth.

Discussion

The results of this study indicate that institutional ownership negatively affects the company's sustainable growth, so Hypothesis 1 is rejected. This finding is contrary to previous studies by Kao et al. (2019) and Rashid (2020), which found that institutional ownership positively affects company performance, especially regarding Return on Assets (ROA) and increasing company value. From stakeholder theory's perspective, institutional ownership benefits various stakeholders by creating more transparent and accountable governance (Freeman et al., 2021). However, the results of this study indicate that concentrated institutional ownership can be a factor that suppresses the company's strategy in achieving a balance between financial performance and sustainability.

According to Mahajan et al. (2023), stakeholder theory emphasizes that companies must consider the interests of various parties, including institutional investors, employees, society, and the environment, when making strategic decisions. However, in the context of this study, high institutional ownership appears to be more oriented towards short-term returns, which has the potential to conflict with the goal of sustainable growth. Freeman et al. (2021) assert that companies that only focus on shareholder interests tend to ignore the interests of other stakeholders, which can weaken sustainability strategies.

Ducassy & Montandrau (2015) found that institutional ownership does not significantly impact corporate social performance. This suggests that institutional investors may prioritize financial gains over sustainable business practices. Stakeholder theory argues that companies seeking sustainable growth must consider the long-term interests of all stakeholders (Freeman et al., 2021). In institutional ownership, if institutional shareholders care more about short-term profits, companies will face pressure to meet financial targets in the short term, which can hinder investment in green innovation, sustainability programs, and ESG (Environmental, Social, and Governance) initiatives. Furthermore, Abdallah & Ismail (2017) found that the relationship between governance quality and corporate performance is stronger in companies with dispersed ownership. This finding aligns with stakeholder theory, which states that companies more responsive to multiple stakeholders tend to have more stable and sustainable performance (Mahajan et al., 2023). Conversely, if institutional ownership is too concentrated, companies may be more trapped in short-term pressures from major shareholders, thus inhibiting flexibility in strategic decision-making that considers sustainability.

This study also found that firm size and firm age do not strengthen the positive effect of institutional ownership on sustainable growth, so Hypotheses 2a and 2b were rejected. These results indicate that firm characteristics, such as size and age, do not always act as factors that strengthen the relationship between institutional ownership and sustainable growth.

From the perspective of stakeholder theory, firm size, and age can affect how firms interact with stakeholders, including institutional investors (Freeman et al., 2021). Larger firms tend to have a wider network of stakeholders, including governments, local communities, and environmental activists, who can pressure firms to pay more attention to sustainability practices. In contrast, smaller firms are often more flexible in adopting sustainable innovations but are also more vulnerable to pressure from institutional investors oriented towards short-term profits. Lin et al. (2019) found that firm size moderates the relationship between green innovation strategy (GIS) and financial performance, where small firms benefit more from green innovation investments than large firms. In the context of stakeholder theory, this suggests that small firms may be more responsive to pressure from external stakeholders to adopt sustainability strategies. However, the results of this study suggest that institutional ownership may not play the same role in driving the sustainable growth of firms, regardless of firm size and age. From the stakeholder theory perspective, larger firms tend to have more resources to adopt sustainability strategies but also face more bureaucratic challenges that may slow down the implementation of sustainability policies (Mahajan et al., 2023). Meanwhile, younger firms may be more active in innovating and adapting to sustainability trends but face higher risks in attracting long-term investment. Therefore, the impact of institutional ownership on sustainable growth depends on how firms manage their relationships with stakeholders and balance short-term pressures with long-term goals.

Whilst stakeholder theory emphasizes the importance of considering the interests of multiple stakeholders in business strategy, the results of this study suggest that concentrated institutional ownership may be a barrier to sustainable growth. Companies seeking to balance financial performance and sustainability must manage stakeholder relationships strategically, especially in the face of pressure from institutional investors who are more oriented towards short-term profits.

5. Conclusions

This study explores the impact of institutional ownership on corporate sustainable growth while considering the moderating effects of firm size and firm age. The findings reveal that institutional ownership generally has a negative effect on firms' sustainable growth. Furthermore, firm size and firm age do not significantly moderate this relationship. However, for firms with below-average assets, firm age appears to weaken the negative impact of institutional ownership. In contrast, neither firm age nor firm size shows a significant moderating effect for firms with above-average assets. Additional analysis indicates that institutional ownership has a negative and significant effect on small firms, whereas its effect on large firms is positive but statistically insignificant. These results suggest that institutional ownership’s impact depends on firm size, with smaller firms experiencing stronger negative effects than their larger counterparts. This study contributes to understanding institutional ownership’s influence on corporate sustainable growth by incorporating firm-specific characteristics such as size and age.

This research is subject to certain limitations that should be acknowledged. The study focuses only on firm size and firm age as moderating variables in the relationship between

institutional ownership and sustainable growth, which limits the scope of analysis. Other factors, such as business growth rate, industry dynamics, financial constraints, and governance structures, may also shape this relationship. Future research should incorporate these additional moderating and mediating factors to provide a more comprehensive understanding of the institutional ownership-sustainability link. The study also does not differentiate among types of institutional investors, even though institutional ownership encompasses various categories, including long-term investors, short-term hedge funds, state-owned investment bodies, and socially responsible investment (SRI) funds. Each type of investor may exert different levels of influence on corporate sustainability strategies. Future studies should examine how various institutional investors impact sustainable growth differently, as their investment time horizon and strategic priorities can significantly alter corporate decision-making.

A cross-sectional approach is employed, which captures firm behavior at a single point in time. However, this methodological choice does not fully account for the dynamic nature of institutional ownership and how its effects may evolve. A longitudinal study design that tracks firms over multiple years would provide stronger insights into how institutional ownership influences sustainable growth across different economic and business life cycle stages. Further, the study does not examine how corporate governance mechanisms may interact with institutional ownership to shape sustainable growth outcomes. Factors such as board independence, shareholder activism, and executive compensation policies could influence the extent to which institutional investors drive sustainability initiatives. Future research should explore these governance-related variables to refine the understanding of how institutional ownership contributes to or hinders corporate sustainability. While the findings offer generalizable insights, the study is conducted within a specific economic and regulatory environment. Institutional ownership's impact on sustainable growth may vary across legal, cultural, and governance frameworks. Cross-country comparative analyses would help assess how institutional ownership dynamics differ under diverse regulatory and market conditions.

The findings of this study carry significant implications for managers, policymakers, and investors. Institutional ownership does not always enhance corporate financial and operational efficiency, and decision-making should be guided by firm-specific market conditions rather than generalized assumptions about institutional ownership's benefits. The role of firm size and age in sustainable growth may be less influential than previously assumed, indicating that sustainability strategies should be based on broader organizational objectives rather than firm characteristics alone.

For firms with below-average assets, older firms appear to have more effective adaptation mechanisms in response to institutional ownership. Leveraging organizational experience and established structures can help firms better navigate pressures from institutional investors. For firms with above-average assets, firm size, and age do not significantly influence the relationship between institutional ownership and sustainable growth, suggesting that large firms require tailored sustainability strategies that address unique operational and stakeholder challenges.

Institutional ownership has a negative and significant effect on the sustainable growth of small firms, whereas its effect on large firms is positive but statistically insignificant. Small and medium-sized enterprises (SMEs), which often face resource constraints and weaker governance structures, may be particularly vulnerable to short-term pressures from institutional investors. Managers of small firms should carefully evaluate their investor composition and implement governance mechanisms that protect long-term sustainability goals. Policymakers should also consider regulatory frameworks encouraging institutional investors to adopt long-term investment approaches that align with sustainability objectives.

By integrating these insights, firms and regulators can develop more effective institutional ownership frameworks that foster corporate sustainability while addressing the unique challenges of firm size and age. Future research should continue to investigate how institutional ownership interacts with other corporate characteristics and economic conditions, further refining strategies for sustainable corporate growth. A more nuanced understanding of these relationships will enable business leaders, policymakers, and investors to optimize institutional ownership structures while balancing financial performance with long-term sustainability objectives.

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