What Drives Firm Value in Capital-Intensive Industries? Evidence from Energy and Basic Materials Firms in Indonesia and Malaysia

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Abstract

Purpose: *This study examines the main factors that influence firm value in capital-intensive industries. Specifically, it analyzes whether firm size, market capitalization, and firm growth affect firm value in Indonesia and Malaysia.*

Methodology/approach: *The study uses a quantitative explanatory approach with panel data from publicly listed energy and basic materials companies in Indonesia and Malaysia during 2021–2024 (n = 171). Panel regression analysis is applied to the full sample and to each country separately to compare the results between the two markets.*

Findings: *The results show that firm size and market capitalization have a positive and significant effect on firm value in both countries and in the combined sample. However, firm growth does not have a significant effect. This indicates that in capital-intensive industries, investors pay more attention to company size and market valuation than to growth indicators. The model explains firm value better in Indonesia than in Malaysia, suggesting differences in how each market responds to company characteristics.*

Practical implications: *For managers, the findings emphasize the importance of increasing company scale, maintaining transparency, and strengthening market reputation to improve firm value. For investors, firm size and market capitalization appear to be more reliable indicators than growth when assessing companies in capital-intensive sectors.*

Originality/value: *This study provides comparative evidence from two Southeast Asian emerging markets and offers empirical support for agency theory by demonstrating how larger firms and stronger market valuation mechanisms can reduce information asymmetry and enhance firm value in capital-intensive environments.*

Keywords:
Firm value; Capital-intensive industries; Firm size; Market capitalization; Emerging markets.

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INTRODUCTION

The energy, mining, and minerals sectors play a strategic role in the global economy, as they provide the primary sources of energy and raw materials necessary for production and consumption activities (Lee, 2021; Naseer, 2023). Since the development of the modern oil industry in the late nineteenth century, commodities such as oil and coal have formed the foundation of the global energy system, significantly influencing cost structures and economic growth. The international commitment to energy transition and emission reduction under the Paris Agreement has further encouraged adjustments in the policies and strategic orientations of energy companies (United Nations, 2015; Westerman & Achtereekte, 2020). At the same time, this sector is highly sensitive to commodity price volatility and geopolitical dynamics. The COVID-19 pandemic and the Russia–Ukraine conflict triggered sharp fluctuations in oil and coal prices, affecting company revenues, risk profiles, and stock prices (Cui et al., 2023; Naseer, 2023; Wang et al., 2023), while also increasing broader financial market volatility (Mechrgui & Theiri, 2024). Moreover, the capital-intensive nature of the industry, characterized by substantial investments in exploration, reserve development, and distribution infrastructure, results in high-cost structures that are particularly sensitive to price changes (Siswanti et al., 2024; Zeitun et al., 2023). Within the ASEAN region, Indonesia and Malaysia demonstrate dominant roles in this sector, each with distinct characteristics. Indonesia relies heavily on coal and nickel production as major contributors to GDP and foreign exchange earnings, particularly in Papua and Kalimantan (Umar et al., 2025). However, mining expansion has also been associated with the deforestation of more than 500,000 hectares of forest and persistent weaknesses in environmental compliance over the past decade (Rheynaldi et al., 2023). Meanwhile, Malaysia depends substantially on the oil and gas industry, with cumulative production of approximately 9 billion barrels of oil and 50 trillion cubic feet of gas since 1974, and commercial reserves exceeding 17 billion barrels of oil equivalent (Omarali & Dong, 2025; Petronas, 2025). Given the significant contribution of the energy and minerals sector to the issuer composition and market capitalization of the Indonesia Stock Exchange and Bursa Malaysia, changes in commodity prices, environmental policies, and global demand dynamics are rapidly reflected in corporate performance and firm valuation. Therefore, analyzing the factors that influence firm value in this sector is essential for maintaining capital market stability in both countries.

The dominant role of the energy, mining, and minerals sectors in Indonesia and Malaysia is reflected in the dynamics of firm value, which tends to move in line with fluctuations in stock prices and market capitalization. Conceptually, firm value is viewed as market value, as it represents shareholder wealth through increases in share prices and investment returns (Friske et al., 2023; Luthfiani & Suryani, 2022). Therefore, companies strive to maintain performance

and sustain competitive advantages in order to enhance and preserve firm value (Huynh et al., 2020; Rockwell, 2019). However, numerous' studies indicate that high stock market volatility can undermine investor confidence and affect broader economic stability (Abdelmalek, 2022; Chowdhury et al., 2022; Khan, 2024). In the energy and mining sectors, global commodity price changes, macroeconomic uncertainty, and geopolitical risks frequently trigger sharp and unstable valuation movements. These conditions suggest that corporate growth is not always immediately rewarded by the market, as investors also evaluate a company's ability to sustain performance, manage risk, and respond to evolving energy policies. This phenomenon is reflected in the stock price movements of energy sector firms listed on the Indonesia Stock Exchange. Thus, firm value serves as a crucial indicator of how the market assesses a company's prospects and quality amid economic and geopolitical uncertainty.

In addition to market- related factors, firm size is theoretically associated with firm value. Larger firms generally possess more substantial resources, broader business diversification, easier access to external financing, and stronger bargaining power within the industry, which collectively contribute to performance stability and enhanced investor confidence (Hirdinis, 2019; Kaulika & Imronudin, 2025; Ni'Mah & Triani, 2021). Firm size also reflects production capacity, operational experience, and an established reputation, all of which can strengthen market perceptions of a company's future prospects (Hutabarat, 2022). In the energy, coal, and minerals sectors in Indonesia and Malaysia, the capital-intensive nature of the industry further amplifies the relevance of firm size. Large-scale companies are generally better positioned to absorb commodity price fluctuations, manage long-term project risks, and comply with regulatory requirements while meeting substantial investment demands (Zyznarska-Dworczak & Rudžionienė, 2022). Therefore, firm size can be interpreted as a signal of fundamental strength and business sustainability, ultimately contributing to higher firm value from the perspective of investors.

Market capitalization influences firm value because it both reflects and shapes investors' collective perceptions of a company's equity value, measured as the share price multiplied by the number of outstanding shares (Coad & Grassano, 2019; Gavrilakis & Floros, 2023). As a market-based indicator, market capitalization conveys information regarding financial strength, liquidity, and growth prospects. Consequently, firms with larger market capitalizations are generally perceived as more stable, possessing more diversified revenue streams and broader access to external financing (Rastogi & Singh, 2023). This perception reduces perceived risk and information asymmetry among investors, ultimately contributing to higher firm valuations. According to efficient market theory, market capitalization reflects the aggregation of publicly available information; therefore, increases in market capitalization are often accompanied by

increases in firm value (Soufian et al., 2013). For energy and mineral companies in Indonesia and Malaysia, market capitalization serves as an important signal of corporate maturity and resilience to commodity price volatility. Thus, higher market capitalization strengthens market perceptions of firm quality and sustainability, which ultimately enhances firm value, particularly when supported by strong profitability and sound corporate governance.

Firm growth is also closely associated with firm value, as it reflects expansion capacity and future cash flow prospects (Hutabarat, 2022; Yulita Amalia et al., 2019). Growth, as evidenced by increases in assets, production capacity, and sales, signals the existence of productive investment opportunities and the firm's ability to expand its market share (Astrianti et al., 2019; Kaulika & Imronudin, 2025; Triyani et al., 2023). Companies that demonstrate consistent growth tend to generate rising profits over time, build strong reputations, and provide stable dividend distributions, all of which enhance investor confidence (Amaliyah & Witiastuti, 2015; Heryana et al., 2020). Growth accompanied by increasing profitability indicates management effectiveness in utilizing resources to generate earnings (Annarelli et al., 2020; Hery, 2019), while also increasing retained earnings as a source of internal financing to support sustainable expansion. From an investor perspective, improvements in performance and profitability serve as important signals regarding a company's future prospects (An et al., 2018; Xue et al., 2021). Therefore, firm growth is expected to be positively related to firm value, as it reflects long-term growth opportunities, sustainable performance, and the company's ability to create added value for shareholders (Edeling & Wies, 2024; Ihsan et al., 2025).

Previous studies on the energy and minerals sector have generally focused on single-country analysis, which limits their ability to capture the role of institutional and market heterogeneity in shaping firm value. For example, Olinda et al. (2025) and Iskandar et al. (2025) focus exclusively on the Indonesian capital market. While these studies offer valuable insights, their conclusions tend to be context-bound and may not hold in different regulatory and market environments. More importantly, the existing literature presents inconsistent findings regarding the determinants of firm value. Some studies report that firm size and market capitalization positively influence firm value due to greater market visibility and access to capital, while others find insignificant or even negative relationships, suggesting the presence of inefficiencies or overvaluation in certain contexts. Similarly, firm growth is not consistently associated with higher firm value, as its effect may depend on how growth opportunities are perceived and priced by investors. These inconsistencies indicate that prior studies may have overlooked the role of country-specific institutional settings in moderating these relationships. In fact, Indonesia and Malaysia provide a compelling comparative setting. Despite both being major emerging economies in ASEAN, they differ substantially in terms of capital market structure, investor

composition, market depth, and regulatory frameworks. As highlighted Jin and Kim (2022) explain that variations in formal institutions and levels of dependence on specific energy commodities generate distinct market dynamics across countries. However, empirical evidence that explicitly examines whether and how these cross-country differences shape the relationship between firm characteristics and firm value remains limited. Accordingly, this study addresses two critical gaps. First, it moves beyond single-country evidence by incorporating a cross-country perspective within capital-intensive industries. Second, it investigates whether the effects of firm size, firm growth, and market capitalization on firm value are consistent or vary across different institutional environments. By doing so, this study not only extends the empirical scope of prior research but also provides a more context-sensitive understanding of firm value determinants, thereby offering clarification on the mixed findings reported in the literature.

This study offers an additional perspective by simultaneously examining accounting-based variables (firm size and firm growth) and a market-based variable (market capitalization) within a single integrated empirical framework in the contexts of Indonesia and Malaysia. Although prior research has investigated these variables in other sectors, such as manufacturing or cosmetics (Kaulika & Imronudin, 2025; Melawati & Nirwana, 2025), the combined analysis of internal operational factors and market perception variables in the capital-intensive energy sector remains relatively limited, particularly in a comparative ASEAN setting. This research therefore seeks to contribute to the literature by exploring how these determinants operate in a sector that is highly influenced by national energy policies and global commodity price fluctuations. Through this approach, the study aims to provide a broader understanding of how markets respond to corporate financial performance signals, without positioning itself as the first investigation in this area.

The relevance of this research can be viewed from both academic and practical perspectives. Academically, it is expected to enrich the literature on firm value determinants in capital-intensive industries within emerging markets, which often face regulatory complexity and exposure to global energy price volatility. Practically, the findings may assist investors in evaluating the prospects of energy and mineral companies in Indonesia and Malaysia, as well as support management in formulating growth strategies that align with capital market expectations. A deeper understanding of firm value determinants in the energy sector across these two countries is increasingly important given the growing integration of regional capital markets. Such insights may help inform decision-making and support investment stability in the sector over time.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This study examines the effects of firm size, market capitalization, and firm growth on firm value by integrating agency theory, signalling theory, and the resource-based view. Agency theory explains that conflicts of interest between managers and shareholders, driven by information asymmetry, may lead to suboptimal decisions that reduce firm value. However, this perspective alone does not fully explain how firm characteristics are interpreted by the market or transformed into value (Jensen & Meckling, 1976). In modern corporations, the separation between ownership and control often gives rise to conflicts of interest, as both parties are assumed to act in accordance with their own self-interests. Managers, as agents, typically possess more comprehensive internal information regarding the firm's condition and future prospects than shareholders, thereby creating information asymmetry (Shehata, 2014).

From a signalling perspective, firm size, market capitalization, and firm growth act as observable signals that convey information about firm quality and future prospects to investors. Larger firms and those with higher market capitalization tend to signal stability and credibility, while consistent growth signals future cash flow potential. These signals help reduce information asymmetry and influence investor perception (Abbas & Hidayat, 2022).

In addition, the resource-based view suggests that firm size and growth reflect the firm's ability to accumulate and utilize strategic resources to create competitive advantage. Firms that effectively manage their resources are more likely to generate sustainable value. Therefore, firm value is not only shaped by agency-related monitoring mechanisms but also by how signals are interpreted by the market and how resources are deployed efficiently (Chen et al., 2014)

Firm size has a significant effect on firm value

Firm size reflects the scale of operations and the total assets managed by a business entity. Larger firms generally possess competitive advantages, including greater operational stability, easier access to capital markets, and stronger capacity for risk diversification compared to smaller firms. From the perspective of agency theory, large firms are typically subject to more intensive monitoring by analysts, regulators, and the public, which indirectly compels managers (agents) to act more transparently and efficiently (Kaulika & Imronudin, 2025; Rachman & Nopiyanti, 2019). Increased external oversight helps reduce information asymmetry and agency costs. The market often interprets the stability of large firms as a positive signal of business sustainability, thereby strengthening investor confidence and ultimately enhancing firm value (Iskandar et al., 2025). Beyond monitoring, signalling theory suggests that firm size serves as a credible signal of stability and long-term viability, as larger firms are more likely to sustain operations and withstand economic shocks. From the resource-based view, firm size also represents the firm's ability to accumulate and deploy strategic resources that support

competitive advantage and value creation. Firms with greater resource capacity are better positioned to exploit investment opportunities and generate sustainable returns. These combined mechanisms reduced agency costs, positive market signalling, and stronger resource utilization lead investors to assign higher valuations to larger firms. Empirical evidence from Yunita et al. (2025), Gustiana et al. (2019), and Kaulika & Imronudin (2025) also indicates that firm size has a positive effect on firm value, as larger firms are perceived to be more reliable in generating returns. Based on this reasoning, the following hypothesis is proposed in this study:

H_1: Firm size positively affects firm value.

Market Capitalization has a significant effect on firm value

Market capitalization represents the total equity value of a company based on its current share price, reflecting the market's assessment of the firm's future prospects and underlying fundamentals. A higher market capitalization indicates stronger investor appreciation of overall managerial performance (Firdausi et al., 2016; Widiatmoko et al., 2020). Within the framework of agency theory, market capitalization can function as an effective external monitoring mechanism. In capital markets characterized by adequate liquidity and transparency, such as those in Indonesia and Malaysia, changes in market capitalization signal the extent to which managers (agents) have acted in alignment with shareholders' interests. rom a signalling perspective, market capitalization serves as an aggregated signal of firm credibility and performance, as it incorporates available information into stock prices. A higher valuation indicates that the market perceives lower risk and stronger expected cash flows. In addition, from the resource-based view, firms with larger market capitalization have greater access to external financing, enabling them to leverage strategic resources and pursue value-enhancing investments more effectively. Through these mechanisms enhanced monitoring, positive market signalling, and improved resource access higher market capitalization is expected to lead to higher firm value. When managers successfully reduce information asymmetry, perceived agency risk declines, leading to higher stock price valuations and, ultimately, an increase in overall firm value (Saraswati et al., 2021). Empirical evidence from Permata and Alkaf (2020) demonstrates that market capitalization has a positive and significant effect on firm value (Tobin's Q), reinforcing its role as an indicator of public confidence. Based on this reasoning, the following hypothesis is proposed:

H_2: Market capitalization positively affects firm value.

Firm growth has a significant effect on firm value

Firm growth, measured through increases in assets or revenue, indicates a company's ability to expand its operations and strengthen its competitiveness within the industry (Yunita et al., 2025). Consistent growth sends a signal that the business is profitable and possesses promising

future cash flow prospects. From the perspective of agency theory, firm growth results from strategic decisions made by managers (agents) in utilizing corporate resources. High-quality growth reflects managerial success in aligning expansion strategies with shareholders' long-term objectives (Kaulika & Imronudin, 2025). When growth is supported by healthy profitability, investors are more likely to interpret it as evidence of managerial efficiency rather than merely an attempt to increase managerial power. Consequently, the market may respond with higher firm valuations. From a signalling perspective, consistent growth conveys positive information about future cash flow potential and business prospects, leading investors to form more favorable expectations. In addition, the resource-based view emphasizes that growth indicates the firm's capability to develop and leverage strategic resources to sustain competitive advantage. Firms that achieve productive growth are therefore more likely to create long-term value. Through these mechanisms efficient managerial decision-making, positive market signalling, and effective resource utilization firm growth is expected to enhance firm value. Empirical studies by Ihsan et al. (2025) and Yunita et al. (2025) suggest that well-managed and aggressive asset growth can positively influence market valuation, as it signals stronger future profit potential. Based on this reasoning, the following hypothesis is proposed:

H_3: Firm growth positively affects firm value.

METHOD

This study adopts an explanatory quantitative research design to analyze the effects of firm size, market capitalization, and firm growth on firm value. The sample includes companies operating in the energy and basic materials sub-sectors such as coal and consumable fuels; oil and gas (including exploration, drilling, refining, equipment, storage, and transportation); metals and mining; aluminum; copper; gold; and steel listed on the Indonesia Stock Exchange and Bursa Malaysia during the 2021–2024 period.

Purposive sampling was employed to select the sample, based on specific criteria: (1) companies were consistently listed throughout the observation period, and (2) they provided complete and accessible annual reports and financial data for all research variables. Firms with missing or inconsistent data were excluded from the analysis. Of the initial 182 companies identified, 11 were excluded due to incomplete data or unavailable annual reports for at least one year during the study period. Consequently, the final sample consists of 171 companies (n = 171), comprising 97 firms from Indonesia and 74 firms from Malaysia (see Table 1).

Table 1. Sample

Sub-sectors	Indonesia Stock Exchange	Bursa Malaysia	All Sample
Aluminium	4	5	9
Coal & Consumable Fuels	33	2	35
Copper	1	0	1
Diversified Metals & Mining	16	7	23
Gold	4	1	5
Oil & Gas Drilling	1	1	2
Oil & Gas Equipment & Services	12	23	35
Oil & Gas Exploration & Product	7	1	8
Oil & Gas Refining & Marketing	1	3	4
Oil & Gas Storage & Transportation	8	5	13
Steel	10	26	36
Total sample	97	74	171

Source(s): Authors' own work

The energy and basic materials sectors were selected because they are capital-intensive industries that are highly sensitive to commodity price volatility, macroeconomic conditions, and global supply chain dynamics. These characteristics make firm-specific attributes particularly important in explaining variations in firm value. Indonesia and Malaysia were chosen as the research settings because both are major commodity-producing countries in Southeast Asia, enabling a broader regional comparison. The 2021–2024 period was selected to capture the post-pandemic recovery phase as well as the ongoing global energy transition, both of which may affect corporate performance and market valuation. The independent variables in this study consist of firm size (FS), market capitalization (MC), and firm growth (FG). To ensure cross-country comparability, all monetary variables were standardized prior to analysis. Financial data originally reported in Indonesian Rupiah and Malaysian Ringgit were converted into USD using annual average exchange rates.

Firm size (X_1) is measured using the natural logarithm of total assets (Kaulika & Imronudin, 2025), which is formulated as follows:

$$FS = ln_{Total\ Aset}$$

The next independent variable is market capitalization (MC). MC is the total value of all a company's shares of stock. It is calculated by multiplying the price of a stock by its total number of outstanding shares (Gavrilakis & Floros, 2023), which is formulated as follows:

$$Market\ Cap. = Shares\ Outstanding\ \times Stock\ Price$$

The last independent variable is firm growth (FG). FG is to measures how well the company maintains its overall economic position (Heryana et al., 2020), which is formulated as follows:

$$FG = \frac{Total\ Asset\ in\ t1 - Total\ Asset\ in\ t0}{Total\ Asset\ in\ the\ year\ t0} \times 100\%$$

The dependent variable in this study is firm value, which is proxied by Tobin's Q as an indicator of market-based performance, particularly from the investors' viewpoint (Wolfe & Hermanson, 2004). A Tobin's Q ratio greater than one suggests that the firm is perceived to have strong growth prospects and effective asset management (Tobin, 1978). Consistent with prior studies (Sardo & Serrasqueiro, 2017), this research adopts Tobin's Q to represent firm value. The measurement of Tobin's Q follows the formulation applied in earlier literature (Nguyen et al., 2020; Tobin, 1978).

$$Tobin^{'}s\ Q = \frac{MVE + D}{TA}$$

MVE = Stock price at the end of December of company multiplied with outstanding shares
D = Book value of total debts (current liabilities + long-term liabilities)
TA = Book value of total assets

This study applies a panel data regression model since the data consist of both cross-sectional units and time-series observations. Compared to ordinary least squares (OLS), which assumes stable relationships across firms and periods, panel data analysis provides a more suitable framework for datasets that vary across entities and over time (Widarjono, 2018). Unlike OLS, panel techniques permit differences in relationships among variables across companies and time horizons (Widarjono, 2018). In addition, panel data methods help account for unobservable firm-specific characteristics, identify effects that may be overlooked in purely cross-sectional analyses, and improve the efficiency and reliability of parameter estimates (Baltagi, 2021).

Panel data regression was conducted after preliminary data screening to ensure that the dataset was suitable for further analysis (Hair et al., 2019). The classical assumption tests including normality, heteroscedasticity, multicollinearity, and autocorrelation were also performed. The normality test results indicated a p-value of less than 0.05, suggesting non-normal distribution. However, given that the sample size exceeds 30 observations, the data can be assumed to approximate normality based on the central limit theorem (Nainggolan et al., 2020). Finally, the panel regression analysis was carried out by selecting the most appropriate estimation model for the study.

The following regression model as follows:

$$FV = \alpha + \beta_1 FS_{it} + \beta_2 MC_{it} + \beta_3 FG_{it} + \epsilon_{it}$$

Notes:
α = constant
β_{1-3} = coefficient of regression
i = companies to-i
t = period to t

Panel data regression analysis can be estimated using three alternative models: the common effect model (CEM), the fixed effect model (FEM), and the random effect model (REM). Based on the model selection tests, the random effect model (REM) was identified as the most appropriate specification for this study.

The REM approach assumes that individual-specific effects are random and incorporated into the error term. This model allows the residual components to vary across firms and potentially correlate over time (Widarjono, 2018). In the random effect framework, differences in intercepts among companies are captured through the disturbance term rather than being treated as fixed parameters.

RESULTS AND DISCUSSION

Based on Table 2, from a total of 684 observations during the 2021–2024 period, firm value (measured by Tobin's Q) has an average of 0.79, with a maximum value of 42.55 and a minimum of 0.00. This wide range indicates a substantial valuation gap among firms in the energy and basic materials sectors. The highest value was recorded by PT Petrindo Jaya Kreasi Tbk in 2023, reflecting very strong market appreciation during that period. In contrast, the lowest values were observed in several firms in Indonesia and Malaysia in specific years, including PT Merdeka Gold Resources Tbk and Alam Maritim Resources Berhad, indicating relatively low market valuations compared to their book values. On average, Tobin's Q for Indonesian firms (1.02) is higher than that of Malaysian firms (0.49), suggesting that the Indonesian market tends to assign more optimistic valuations to companies in this sector.

Firm size has an average value of 11.76, confirming the capital-intensive nature of the industry. The maximum firm size was observed in PT Amman Mineral Internasional Tbk in 2024, while the minimum was recorded in KNM Group Berhad in 2021, reflecting substantial differences in asset capacity across firms. Market capitalization exhibits considerable variation (mean 767.78; standard deviation 3,611.54), with the highest value achieved by PT Bayan Resources Tbk in 2022, coinciding with the surge in global commodity prices. Meanwhile, firm growth averages 22.35%, with significant fluctuations, and the highest growth rate was recorded by PT Merdeka

Battery Materials Tbk in 2022, indicating aggressive asset expansion. Market capitalization and firm growth exhibit considerable dispersion, as indicated by their large standard deviations and extreme maximum values. To address scale differences and reduce the influence of extreme observations, selected variables particularly firm size and market capitalization were transformed using the natural logarithm. In addition, outliers were handled using winsorization at the 1st and 99th percentiles to mitigate the impact of extreme values without eliminating observations. Overall, the substantial variation across nearly all variables suggests strong heterogeneity among firms and between countries. Therefore, the use of panel data regression is appropriate to accommodate these differences in firm characteristics and cross-country conditions.

Table 2. Descriptive Statistic

Variable	N	Mean	Maximum	Minimum	Std. Deviation
Panel A: All sample					
Firm Value	684	0.79	42.55	0.00	1.96
Firm Size	684	11.76	16.22	0.00	2.77
Market Capitalization	684	767.78	44498.13	0.00	3611.54
Firm Growth	684	22.35	14327.81	-1.00	548.83
Panel B: Indonesia Stock Exchange					
Firm Value	388	1.02	42.55	0.00	2.50
Firm Size	388	12.07	16.22	0.00	2.76
Market Capitalization	388	1237.84	44498.13	0.00	4730.38
Firm Growth	388	37.07	14327.81	-1.00	727.38
Panel B: Bursa Malaysia					
Firm Value	296	0.49	7.42	0.00	0.73
Firm Size	296	11.37	15.62	0.00	2.75
Market Capitalization	296	151.62	3927.58	0.00	414.57
Firm Growth	296	3.06	886.45	-1.00	51.52

Source(s): Authors' own work

Table 3 presents the results of the Pearson correlation test among the research variables. Overall, the correlation coefficients indicate weak to moderate relationships between the

independent and dependent variables, suggesting no strong initial indication of multicollinearity. Firm size ($_{X1}$) shows a weak positive correlation with firm value (r = 0.075; significant at the 5% level), indicating that larger firms tend to have slightly higher firm value, although the relationship is not strong. Market capitalization (X_2) exhibits a stronger positive correlation with firm value (r = 0.468; significant at the 1% level), suggesting that firms with higher market capitalization are generally associated with higher firm value. This finding supports the view that market capitalization reflects investor perception and confidence in a company's future prospects. In contrast, firm growth (X_3) does not demonstrate a significant correlation with firm value (r = –0.016), implying that a direct linear relationship between asset growth and firm value is not evident at the correlation stage. This may be explained by the fact that high growth is not necessarily perceived positively by the market if it is not accompanied by adequate profitability or efficiency. Furthermore, the correlations among the independent variables are relatively low (all below 0.3), indicating that each variable captures a different aspect of firm characteristics. Therefore, the variables are considered suitable for further analysis using panel regression without serious concerns regarding multicollinearity.

Table 3. Pearson Correlation

	Variable	1	2	3	4
1	Y Firm Value	1.000			
2	X_1 Firm Size	0.075*	1.000		
3	X_2 Market Capitalization	0.468**	0.236**	1.000	
4	X_3 Firm Growth	-0.016	0.041	-0.009	1.000

Note: ** Significant correlation at 0.01, *Significant correlation at 0.05
Source(s): Authors' own work

Based on Table 4, the three independent variables simultaneously have a significant effect on firm value across all models. This is indicated by the F-test significance value of 0.000 ($p < 0.01$) for the full sample, as well as for Indonesia and Malaysia separately. This result shows that firm size, market capitalization, and firm growth together influence firm value. However, the model's explanatory power differs between countries. For the overall sample, the R^2 value of 0.684 means that 68.4% of the variation in firm value can be explained by the three variables. The model shows the strongest explanatory power in Indonesia, with an R^2 of 0.746, indicating that 74.6% of the changes in firm value are explained by the variables included in the model. In contrast, the R^2 value for Malaysia is only 0.056, meaning that the model explains just 5.6% of the variation in firm value in Malaysia. When examined individually, firm size and market

capitalization have positive and significant effects in all models, whereas firm growth does not have a significant effect. These findings suggest that firm size and market capitalization are more consistent determinants of firm value particularly in emerging markets such as Indonesia and Malaysia compared to asset growth.

Table 4. Regression Test

	Variable	Model 1 All Sample	Model 2 Indonesia	Model 3 Malaysia
	(Constant)	0.713	1.534	0.076
X_1	Firm Size	0.021*	0.078**	0.029*
X_2	Market Capitalization	0.000**	0.000**	0.000**
X_3	Firm Growth	-2.875	-2.705	0.000
	R^2	0.684	0.746	0.056
	F-test p-value	0.000**	0.000**	0.000**

Note: *Significant coefficient on p<0.05. **Significant coefficient on p < 0.00

Source(s): Authors' own work

The findings indicate that firm size has a positive and significant effect on firm value, both in the full sample and in each country-specific model. This result is consistent with prior studies by Yunita et al. (2025), Gustiana et al. (2019), and Kaulika & Imronudin (2025), which report that larger firms tend to exhibit higher market valuations. Larger firms are more likely to sustain long-term operations, absorb commodity price volatility, and secure external financing under more favorable terms. These characteristics reduce perceived risk and enhance investor confidence, which is then capitalized into higher firm valuations. This effect appears stronger in Indonesia, indicating that investors in this market place greater weight on firm size as a proxy for stability. One possible explanation is that in environments where market uncertainty and information asymmetry are relatively higher, observable indicators such as firm size become more salient in guiding investment decisions. In contrast, in more mature or information-efficient markets, size alone may carry less incremental informational value.

Furthermore, market capitalization is found to have a positive and significant effect on firm value across all models. This finding supports Permata and Alkaf (2020), who argue that market capitalization serves as an indicator of investor confidence in a firm's prospects. From an economic perspective, this result suggests that market capitalization captures the extent to which investors incorporate available information into firm valuation. A higher market capitalization reflects stronger market confidence in a firm's ability to generate future cash flows

and manage risk, which is subsequently translated into higher firm value. In capital-intensive industries, where firms face high exposure to commodity price fluctuations and require substantial financing, market capitalization also signals financial strength and access to capital. These attributes reduce perceived risk and enhance investor willingness to assign higher valuations. However, the strength of this relationship differs across countries. The lower explanatory power observed in the Malaysian model suggests that firm value in Malaysia may be influenced by a broader set of factors beyond firm-level characteristics. This may reflect differences in institutional settings, such as more developed market mechanisms or varying investor behavior, which reduce the relative importance of market capitalization as a standalone signal. In contrast, the stronger relationship observed in Indonesia indicates that market capitalization plays a more prominent role in shaping firm value, particularly in environments where observable market indicators are more heavily relied upon by investors. Overall, these findings indicate that while market capitalization consistently enhances firm value, its magnitude and explanatory strength are shaped by the institutional and structural characteristics of each market. Conceptually, market capitalization reflects the aggregation of publicly available information regarding corporate performance and future expectations, in line with efficient market theory. From an agency theory perspective, an increase in market capitalization may be interpreted as external validation of managerial performance in aligning corporate actions with shareholder interests. In the energy and mining sectors, which are highly sensitive to global commodity price movements, firms with larger market capitalization are typically perceived as having stronger fundamentals and more controlled risk exposure, leading to higher market valuations. This explains why market capitalization emerges as a consistent determinant of firm value.

In contrast, firm growth does not exhibit a significant effect on firm value in either the combined sample or the country-level analyses. This result suggests that asset growth is not necessarily perceived positively by the market. Although penelitian Ihsan et al. (2025) and Yunita et al. (2025) document a positive relationship between growth and firm value, the present findings imply that asset expansion in the energy sector does not automatically translate into greater efficiency or profitability. From the perspective of agency theory, overly aggressive growth strategies may reflect managerial incentives to pursue expansion for personal interests rather than to maximize shareholder wealth. Given the high investment requirements and risk profile of the industry, investors may adopt a more cautious stance toward growth, placing greater emphasis on firm size stability and market capitalization strength rather than asset expansion alone when assessing firm value.

Overall, the differences between Indonesia and Malaysia indicate variation in market

responses to firm characteristics. The regression results demonstrate substantially higher explanatory power in Indonesia than in Malaysia, suggesting that firm size and market capitalization play a more prominent role in explaining firm value in the Indonesian market. These differences may be influenced by variations in capital market structures, investor composition, and sensitivity to commodity price movements, as discussed by Jin and Kim (2022) regarding cross-country institutional differences. Indonesia's substantial coal and nickel production base makes it more directly exposed to global commodity price dynamics, thereby increasing the relevance of firm size and market capitalization as key signals for investors. In Malaysia, although the variables are jointly significant, their relative contribution is smaller, indicating that other factors such as energy policy, ownership structure, or corporate governance may also shape firm value. These findings highlight that the determinants of firm value in the energy sector are not entirely uniform across countries, even within the same regional economic block.

CONCLUSION, IMPLICATION AND LIMITATION

This study aims to examine the effects of firm size, market capitalization, and firm growth on firm value among energy and basic materials sector companies in Indonesia and Malaysia during the 2021-2024 period. The findings indicate that firm size and market capitalization have a positive and significant effect on firm value, whereas firm growth does not show a significant influence. These results suggest that larger firms and those with higher market capitalization tend to receive more favorable market valuations. The evidence is consistent with agency theory, which suggests that larger firms tend to be subject to more intensive monitoring, potentially reducing information asymmetry and agency-related inefficiencies. However, as this study does not directly measure agency costs, governance quality, or information asymmetry, this interpretation should be viewed as indicative rather than conclusive. Market capitalization reflects the collective evaluation of investors regarding managerial performance and corporate prospects. In contrast, asset growth does not necessarily lead to higher firm value, particularly in capital-intensive and high-risk industries, where investors may prioritize stability and efficiency over expansion alone. Furthermore, the model explains a substantially greater proportion of variation in firm value in Indonesia than in Malaysia, indicating that firm-specific characteristics play a more prominent role in shaping firm value in the Indonesian market.

From a theoretical perspective, this study reinforces the relevance of agency theory in explaining the determinants of firm value, particularly through the roles of firm size and market capitalization as external monitoring mechanisms. It also contributes to the literature on firm value determinants in capital-intensive sectors within Southeast Asia by adopting a cross-country

approach. Practically, the findings imply that managers should not focus solely on asset expansion, but also prioritize managerial quality, transparency, and the strengthening of market perceptions. For investors and other stakeholders, firm size and market capitalization may serve as important indicators in assessing corporate stability and long-term prospects in the energy sector, which is highly sensitive to commodity price fluctuations.

This study has several limitations. First, the data are not normally distributed; however, they are retained in the analysis based on the central limit theorem, given the relatively large sample size. Second, the coefficient of determination for Malaysia is relatively low (5.6%), suggesting that additional factors outside the model may influence firm value. Future research is therefore encouraged to extend the observation period and incorporate a broader set of explanatory variables, particularly those related to corporate governance, ESG performance, ownership structure, and macroeconomic conditions. Further studies may also apply alternative modelling approaches, such as dynamic panel models or instrumental variable techniques, to better address potential endogeneity issues. In addition, expanding the sample to include a wider range of countries would allow for a more comprehensive assessment of how institutional differences shape firm value.

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