

## Exploring the Impact of EVA, Capital Gearing, and Intellectual Capital on Systematic Risk: The Mediating Role of Corporate Value

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### ABSTRACT

This study examines the factors that influence systematic risk in basic materials and industrial companies listed on the Indonesia Stock Exchange (IDX) between 2018 and 2022. Using multiple linear regression with panel data from 21 companies (205 observations), the study tests the effects of Economic Value Added (EVA), capital gearing, intellectual capital, and corporate value alongside current ratio, debt-to-equity ratio, and firm size as controls on systematic risk. Results show that neither EVA nor capital gearing significantly affects systematic risk, whereas intellectual capital and corporate value each exert a significant positive effect. Corporate value mediates the relationship between intellectual capital and systematic risk, but not those involving EVA or capital gearing. These findings indicate that knowledge-intensive activities heighten market-wide risk exposure, partly through the channel of firm valuation.

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## INTRODUCTION

The basic materials and industrial sector sits at the heavy end of the Indonesian economy: chemicals, metals, cement, and heavy manufacturing, all capital-intensive, all tied closely to commodity cycles and global industrial demand. Between 2018 and 2022, firms in this sector lived through a full stress cycle. Conditions were relatively stable in 2018 and 2019, then came a sharp market dislocation in early 2020 when the IDX Composite dropped roughly 37% in a matter of weeks, followed by an uneven recovery through 2021 and 2022. That sequence created wide dispersion in how individual stocks moved relative to the market. Some firms barely flinched; others tracked the index crash almost point for point. Beta, the coefficient that measures this co-movement, varied substantially across the sector. What explains that variation is the central question of this study.

Systematic risk is market-wide by definition. No portfolio can diversify it away because it reflects forces that hit all firms simultaneously, among them interest rate changes, exchange rate shocks, commodity supercycles, and geopolitical disruptions (Cordes et al., 2023; Malliaris & Malliaris, 2021). But market-wide does not mean uniform. A firm carrying heavy debt amplifies the impact of a credit squeeze on its equity; a firm whose balance sheet is dominated by intangible assets faces a different kind of problem when investor uncertainty spikes, since markets struggle to price what they cannot see, and the result is wider return swings. Firm-level characteristics do not create systematic risk, but they shape how much of it a given stock absorbs (Artikis & Alexopoulos, 2016; Handini, 2023; Tudose et al., 2022). The literature agrees on this in principle. It is far less settled on which characteristics matter most, and in what direction.

Several candidates have been studied, including leverage, size, liquidity, and profitability (Arora, 2020; Sujana, 2017; Yusuf, 2019). Three variables have received comparatively little attention in the Indonesian setting despite strong theoretical reasons to include them. The first is Economic Value Added. Unlike conventional accounting profit, EVA asks whether a firm's returns actually cover the full cost of the capital used to generate them, including equity. A firm posting positive net income can still be destroying shareholder value if those returns fall short of what investors could have earned elsewhere. That gap matters for systematic risk because investors who trust a firm's capital efficiency may treat its stock as less vulnerable during market downturns (Li, 2023; Tudose et al., 2022).

Capital gearing is the second. When a firm funds its operations largely through fixed-cost debt, its equity returns become mechanically more volatile: interest must be paid whether revenues are strong or not, so when conditions deteriorate, shareholders absorb the residual loss in amplified form. Trade-off theory has long predicted that this amplification should show up in beta (Yusuf, 2019), though how strongly depends on the industry and the economic cycle.

The third is intellectual capital, measured here through Pulic's VAIC™ framework. Human expertise, proprietary systems, and relational networks are the kinds of assets that drive competitive advantage in modern industry, but they are also the hardest for outside investors to evaluate. There is no market for a firm's internal knowledge base, no standard price for accumulated organisational know-how. That opacity creates information asymmetry, and when uncertainty rises market-wide, stocks whose value rests heavily on intangibles tend to see wider return swings as investors struggle to hold a stable estimate of what they are actually worth (Anhar et al., 2021; Persulesy et al., 2022; Vafaei et al., 2011). All three have been examined in relation to firm performance. Their relationship with systematic risk, particularly in Indonesian manufacturing and industrial firms, is another matter entirely.

There is a second gap, less obvious but arguably more interesting. Corporate value, measured here as the market-to-book ratio of assets, is not just an outcome variable. It aggregates investor beliefs about a firm's future growth potential, and those beliefs are themselves shaped by EVA, by capital structure decisions, and by whatever the market can infer about a firm's intellectual resources. If corporate value is a downstream product of these characteristics, it may also be the mechanism through which they influence beta. Prior work has shown that EVA and intellectual capital affect firm valuation (Berzkalne & Zelgalve, 2014; Otuya et al., 2023), and that high market premiums are associated with greater stock price sensitivity (Subekti & Kusuma, 2001). What remains untested is whether corporate value formally mediates the EVA-beta, gearing-beta, and IC-beta relationships. No published panel study on the Indonesian basic materials and industrial sector has examined this question.

Three research questions organise the investigation. Do EVA, capital gearing, and intellectual capital each exert a significant direct effect on the systematic risk of IDX-listed basic materials and industrial firms? Does corporate value itself affect beta in this context? And does corporate value mediate the path from each of the three main predictors to systematic risk? The study draws on a panel of 21 firms across 2018 to 2022, yielding 205 firm-year observations, estimated through a fixed effects model identified via sequential Chow and Hausman tests. The period is analytically valuable precisely because it is not calm: the COVID-19 shock of 2020 and the subsequent recovery create the kind of variation in systematic risk that makes it possible to distinguish which firm characteristics genuinely matter from those that appear relevant only in stable conditions.

## LITERATURE REVIEW

### *Agency Theory and Economic Value Added*

Shareholders rarely run the firms they own. They delegate that task to managers, and in doing so, they introduce a problem: managers may not always act in shareholders' best interest. Agency Theory, developed principally by Jensen and Meckling (1976), formalises this conflict. Managers are agents with their own career concerns, risk preferences, and time horizons, all of which can diverge from the goal of maximising firm value. Designing performance metrics that pull managerial behaviour back toward shareholder interests is therefore one of the central preoccupations of corporate governance.

Economic Value Added was developed precisely for this purpose. It is calculated as NOPAT minus the product of invested capital and WACC the idea being that a firm only genuinely creates value when its operating returns exceed the full cost of the capital used to generate them, including the opportunity cost of equity (Joorboonyan et al., 2015; Li, 2023). This is not how conventional accounting profit works. A company can report positive net income while simultaneously destroying shareholder value if its returns fall short of what investors could have earned elsewhere. EVA closes this gap.

The empirical record on EVA is not unanimous. Handini (2023) found it positively linked to firm performance and investor confidence among Indonesian companies, and Artikis and Alexopoulos (2016) argued that sustained value creation improves how the market perceives firm quality. Tudose et al. (2022), on the other hand, point out that EVA calculations are sensitive to WACC assumptions a firm's EVA can swing from positive to negative simply by changing the estimated cost of equity, without anything changing operationally. This sensitivity is a real limitation for cross-firm comparisons.

From a systematic risk standpoint, the theoretical channel runs through investor perception. A firm with a consistent track record of positive EVA sends a signal of financial discipline; investors who read that signal may treat the stock as less vulnerable during market downturns, reducing its beta. Whether that mechanism is strong enough to show up in panel data from Indonesian basic materials and industrial firms is an empirical question this study aims to settle.  $H_1$ : *Economic Value Added exerts a significant effect on systematic risk.*

### *Trade-Off Theory and Capital Gearing*

Debt is useful until it isn't. The tax deductibility of interest payments makes borrowing attractive; the possibility of financial distress makes it dangerous. Trade-Off Theory captures this tension, suggesting that firms seek an optimal leverage point where the marginal benefit of the debt tax shield equals the marginal cost of distress risk (Kraus & Litzenberger, 1973). In practice, that optimal point is never perfectly identified, and many firms end up carrying more debt than is strictly prudent.

Capital gearing measures how much of a firm's capital structure consists of fixed-interest debt. The risk implication is mechanical: fixed obligations must be met regardless of revenue conditions, so when earnings fall, equity holders absorb the residual loss in amplified form. A firm earning just enough to cover its interest in a good year faces a serious problem when commodity prices drop or demand softens. This is exactly the dynamic that makes gearing theoretically relevant to beta it magnifies the sensitivity of equity returns to underlying economic conditions.

The evidence broadly supports this. Yusuf (2019) found that higher leverage raises market sensitivity and investor risk perception in East African capital markets. Tudose et al. (2022) documented similar patterns in European firms, noting that debt-intensive companies exhibit greater fragility during economic contractions. In the Indonesian basic materials and industrial context, the case is particularly intuitive. Revenues in this sector are cyclical, tied closely to commodity pricing and industrial demand. A highly geared cement or chemical company has little room to manoeuvre when those cycles turn.

*H<sub>2</sub>: Capital gearing exerts a significant effect on systematic risk.*

### ***Resource-Based Theory and Intellectual Capital***

Not all competitive advantages are visible on a balance sheet. The Resource-Based View holds that sustained outperformance comes from internal resources that competitors cannot easily copy or buy resources that are valuable, rare, and difficult to substitute (Barney, 1991). Physical assets rarely qualify on all these dimensions. Intellectual capital often does. Intellectual capital comprises three interrelated components. Human capital is the productive capacity embedded in people their expertise, judgment, and experience. Structural capital is what remains when employees leave: the systems, databases, processes, and organisational routines that encode accumulated knowledge. Relational capital covers the external dimension client relationships, supplier networks, and reputational assets that took years to build (Anhar et al., 2021; Persulesy et al., 2022). Together, these intangibles shape a firm's ability to innovate, operate efficiently, and adapt to changing conditions.

Studies across several markets confirm the performance benefits. Achim et al. (2023) found positive intellectual capital effects on firm performance in Romania; Hatane et al. (2019) documented similar dynamics among Indonesian service firms; Rusa et al. (2022) extended the picture to European Union data. The consensus is fairly robust: IC matters for value creation. The systematic risk question is more complicated. Intangible assets are hard to price. Investors cannot inspect a firm's internal knowledge base the way they can inspect a factory, so they estimate and those estimates carry uncertainty. Firms investing heavily in R&D, talent, or proprietary systems operate in domains where payoffs are uncertain and timelines are long. When market sentiment shifts downward, ambiguity about intangible asset values can trigger disproportionate sell-offs, pushing these stocks into sharper co-movement with the broader market. This study tests that hypothesis using VAIC<sup>TM</sup> as the IC measurement instrument.

*H<sub>3</sub>: Intellectual capital exerts a significant effect on systematic risk.*

### ***Signalling Theory and Corporate Value***

Investors are permanently working with incomplete information. They cannot observe a firm's internal capabilities, management quality, or future cash flow prospects directly. What they can observe are signals measurable outputs and decisions from which they draw inferences. Signalling Theory, associated primarily with Spence (1973) and Ross (1977), provides the framework for understanding how this inference process works and when it breaks down.

Market valuation is one of the most powerful signals available. The market-to-book value of assets ratio (MV/BVA) reflects what investors are collectively willing to pay above and beyond the recorded asset value of a firm the premium attributable to expected future growth, management quality, and intangible value not captured on the balance sheet (Subekti & Kusuma, 2001). A high MV/BVA says, in effect, that the market believes the firm is worth more than its books suggest.

High valuations bring their own risks, though. Berzkalne and Zelgalve (2014) noted that market premiums embed forward-looking expectations that are inherently revisable. When a high-valuation firm delivers results below market expectations even modestly the correction in stock price tends to overshoot. Otuya et al. (2023) highlighted this asymmetry: stocks priced for strong growth are more vulnerable to sentiment-driven repricing than stocks trading near book value. That repricing dynamic generates higher co-movement with market-wide mood swings, which is what elevated beta ultimately measures.

H<sub>4</sub>: *Corporate value exerts a significant effect on systematic risk.*

### ***The Mediating Role of Corporate Value***

The hypotheses above treat each variable as a separate pathway to systematic risk. But corporate value is not independent of EVA, gearing, or intellectual capital it is partly a product of them. A firm generating strong EVA will, other things equal, attract higher market valuations. A firm with intellectual capital that the market can observe and price will command a premium over its book assets. Capital structure decisions signal financial prudence or recklessness, and markets price that signal into valuations accordingly. If these dynamics hold, then corporate value is not just another predictor of beta; it is a channel through which the other variables operate.

This mediation story draws directly on signalling theory. The market cannot monitor EVA calculations or audit intellectual capital quarterly. What it can observe is the market valuation multiple a noisy but accessible aggregate of investor beliefs about firm quality. EVA, gearing, and IC feed into those beliefs, which are compressed into a price-to-book ratio, which then influences how sensitively the stock moves with the market. The mediation pathway is: firm fundamentals shape valuation, and valuation shapes systematic risk.

Berzkalne and Zelgalve (2014) and Otuya et al. (2023) have both pointed to firm value as a conduit between corporate characteristics and market outcomes, though neither tested this formally as a mediation pathway within a systematic risk model. The present study fills that gap using panel data and the Baron and Kenny (1986) mediation procedure supplemented by Sobel tests, within a fixed effects framework that accounts for unobserved firm-level heterogeneity.

- H<sub>5</sub>: Corporate value mediates the relationship between EVA and systematic risk.  
 H<sub>6</sub>: Corporate value mediates the relationship between capital gearing and systematic risk.  
 H<sub>7</sub>: Corporate value mediates the relationship between intellectual capital and systematic risk.

### Conceptual Framework

The framework posits that EVA, capital gearing, and intellectual capital influence systematic risk through two pathways: directly, and indirectly via corporate value. Current ratio, debt-to-equity ratio, and firm size function as controls throughout, isolating the primary effects from well-documented risk correlates in the literature. The full hypothesised structure is illustrated in Figure 1.

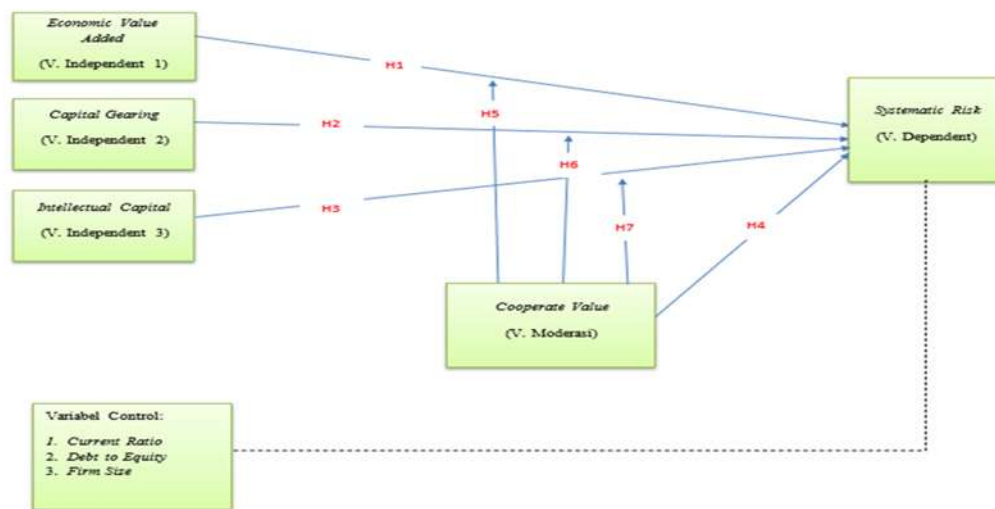


Figure 1. Conceptual Framework

### METHODOLOGY

This study employs a quantitative explanatory design using secondary panel data sourced from audited annual financial reports and stock price records on the Indonesia Stock Exchange website ([www.idx.go.id](http://www.idx.go.id)). The observation period covers 2018 to 2022, a window selected because it encompasses a full market cycle including the pre-pandemic expansion, the 2020 contraction, and the subsequent recovery, producing meaningful variation in beta estimates across firm-years.

The target population comprised all basic materials and industrial companies listed continuously on the IDX throughout the study period. Purposive sampling applied four criteria: continuous listing from 2018 to 2022, positive earnings in each observation year, financial statements denominated in Indonesian Rupiah, and complete audited data across all five years. The resulting sample consists of 21 companies and 205 firm-year observations.

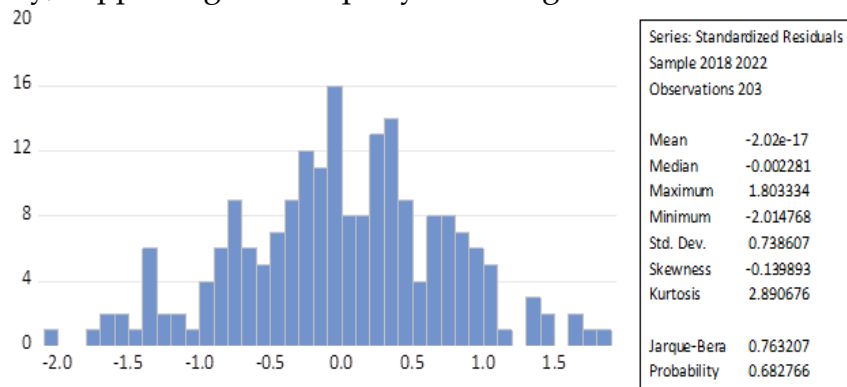
Variables are measured as follows. Systematic risk (beta) is estimated via market model regression of monthly firm returns against the IDX Composite Index over a 60-month window. EVA is computed as NOPAT minus invested capital multiplied by WACC. Capital gearing is long-term interest-bearing debt divided by total invested capital. Intellectual capital uses Pulic's (1998) VAIC™, aggregating capital employed efficiency, human capital efficiency, and structural capital efficiency. Corporate value is the market-to-book value of assets ratio. Control variables are the current ratio, debt-to-equity ratio, and the natural logarithm of total assets as a proxy for firm size.

Three panel regression equations are estimated to capture direct effects of the independent variables on systematic risk, their effects on corporate value, and the role of corporate value in transmitting those effects to beta. Mediation is assessed using the Baron and Kenny (1986) procedure with Sobel tests. Panel model selection follows a sequential Chow-Hausman-Lagrange Multiplier testing procedure. Prior to interpretation, classical assumption tests were conducted covering normality (Jarque-Bera), multicollinearity (correlation matrix), autocorrelation (Breusch-Godfrey), and heteroskedasticity (Breusch-Pagan-Godfrey). All analysis was performed in EViews 13.

## RESEARCH RESULT

### Normality Test

The histogram and associated descriptive statistics of standardised residuals confirm approximate normality. The mean residual is near zero and the median is  $-0.002$ , suggesting a symmetric distribution. The skewness value of  $-0.14$  is negligible, and the kurtosis value of  $2.89$  is close to the normal benchmark of  $3$ . The Jarque-Bera statistic ( $0.763$ ;  $p = 0.683$ ) indicates no significant departure from normality, supporting the adequacy of the regression model.



**Figure 2. Normality Test**

Source: The Authors, 2026

### Multicollinearity Test

As shown in Table 1, all pairwise correlations among EVA, capital gearing, and intellectual capital fall below the 0.90 threshold commonly used to identify multicollinearity. This confirms that the predictor variables are sufficiently independent, allowing the regression estimates to be interpreted with reasonable confidence.

**Table 1. Multicollinearity Test**

	ECONOMIC_VALUE_ADDED	CAPITAL_GEARING	INTELLECTUAL_C
ECONOMIC_VALUE_ADDED	1.000000	0.005691	-0.189258
CAPITAL_GEARING	0.005691	1.000000	0.160770
INTELLECTUAL_CAPITAL	-0.189258	0.160770	1.000000

Source: The Authors, 2026

### Autocorrelation Test

The Breusch-Godfrey Serial Correlation LM Test (Table 2) yields an F-statistic p-value of 0.685 and a chi-square p-value of 0.677, both well above the 0.05 threshold. The null hypothesis of no serial correlation is therefore retained, confirming that the residuals are independent over time.

**Table 2. Autocorrelation Test**

Breusch-Godfrey Serial Correlation LM Test:  
Null hypothesis: No serial correlation at up to 100 lags

F-statistic	1.039734	Prob. F(100,94)	0.4250
Obs*R-squared	107.6637	Prob. Chi-Square(100)	0.2825

Source: The Authors, 2024

### Heteroskedasticity Test

The Breusch-Pagan-Godfrey test (Table 3) produces an F-statistic of 0.934 ( $p = 0.503$ ) and an Obs\*R<sup>2</sup> statistic of 9.416 ( $p = 0.493$ ). All p-values exceed 0.05, providing no evidence against the null hypothesis of constant error variance. Heteroskedasticity is therefore not a concern in this model.

**Table 3. Heteroskedasticity Test**

Heteroskedasticity Test: Breusch-Pagan-Godfrey  
Null hypothesis: Homoskedasticity

F-statistic	0.933974	Prob. F(10,194)	0.5031
Obs*R-squared	9.416003	Prob. Chi-Square(10)	0.4931
Scaled explained SS	6.373695	Prob. Chi-Square(10)	0.7830

Source: The Authors, 2026

### Chow Test

The Chow test (Table 4) examines whether the regression model exhibits a structural break. The resulting F-statistic of 4.254 ( $p = 0.000$ ) exceeds the 0.05 significance level, so the null hypothesis of structural stability is retained. The regression parameters are consistent across sub-samples.

**Table 4. Chow Test**

Redundant Fixed Effects Tests  
Equation: Untitled  
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	4.254382	(40,155)	0.0000
Cross-section Chi-square	150.410674	40	0.0000

Source: The Authors, 2026

**Hausman Test**

The Hausman test (Table 5) yields a chi-square statistic of 12.999 with 3 degrees of freedom ( $p = 0.005$ ). Because this  $p$ -value falls below 0.05, the random effects specification is rejected in favour of the fixed effects model, indicating that individual-specific effects are correlated with the explanatory variables.

**Table 5. Hausman Test**

Correlated Random Effects - Hausman Test  
Equation: Untitled  
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	12.467081	7	0.0862

Source: The Authors, 2026

**Fixed Effect Model and Hypothesis Testing**

The fixed effect model (Table 6) reports an  $R^2$  of 0.4775, indicating that EVA, capital gearing, intellectual capital, current ratio, DER, and firm size jointly account for 47.75% of the variation in systematic risk. The remaining variation is attributable to factors outside the model, such as earnings per ratio (EPS/EPS), net profit margin, and other market-level variables.

**Table 6. Fixed Effect Model**

Dependent Variable: RESIKOSISTEMIK  
Method: Panel Least Squares  
Date: 10/30/23 Time: 20:56  
Sample: 2018 2022  
Periods included: 5  
Cross-sections included: 41  
Total panel (unbalanced) observations: 205

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.207714	8.557106	-0.842307	0.4009
ECONOMIC_VALUE_ADDED	-3.41E-09	2.40E-09	-1.420776	0.1574
CAPITAL_GEARING	0.333558	0.349269	0.955016	0.3411
INTELLECTUAL_CAPITAL	6.75E-06	1.70E-06	3.976110	0.0001
CORPORATE_VALUE	4.68E-05	1.59E-05	2.939800	0.0038
CORPORATE_VALUE*ECONOMIC_VALUE_ADDED	3.27E-13	2.28E-13	1.438535	0.1523
CORPORATE_VALUE*CAPITAL_GEARING	-3.68E-05	2.68E-05	-1.376780	0.1706
CORPORATE_VALUE*INTELLECTUAL_CAPITAL	-2.12E-10	5.78E-11	-3.662558	0.0003
CURRENT_RATIO	2.13E-07	2.48E-06	0.086098	0.9315
DEBT_TO_EQUITY_RATIO	4.45E-06	5.61E-06	0.793087	0.4290
FIRM_SIZE	2.11E-05	3.02E-05	0.698927	0.4857
Effects Specification				
Cross-section fixed (dummy variables)				
Root MSE	0.736785	R-squared	0.606844	
Mean dependent var	-0.377700	Adjusted R-squared	0.477516	
S.D. dependent var	1.177961	S.E. of regression	0.851466	
Akaike info criterion	2.729423	Sum squared resid	110.1991	
Schwarz criterion	3.561804	Log likelihood	-226.0364	
Hannan-Quinn criter.	3.066171	F-statistic	4.692296	
Durbin-Watson stat	2.442136	Prob(F-statistic)	0.000000	

Source: The Authors, 2026

- H1: EVA and Systematic Risk. The p-value for EVA is 0.157, which exceeds the 0.05 threshold. Accordingly, H1 is rejected: EVA does not exert a statistically significant effect on systematic risk in this sample.*
- H2: Capital Gearing and Systematic Risk. The p-value for capital gearing is 0.341, again above the threshold. H2 is rejected, indicating that the proportion of debt financing has no significant bearing on systematic risk in this context.*
- H3: Intellectual Capital and Systematic Risk. Intellectual capital returns a p-value of 0.0001, well below 0.05. H3 is accepted: intellectual capital has a significant positive effect on systematic risk. Greater investment in knowledge-based assets is associated with heightened market risk exposure.*
- H4: Corporate Value and Systematic Risk. Corporate value yields a p-value of 0.004, leading to acceptance of H4. Higher firm valuation is positively associated with systematic risk, consistent with the view that high-value firms attract greater market expectations and are more exposed to macro volatility.*
- H5: Mediation of EVA by Corporate Value. The indirect path through corporate value produces a p-value of 0.152. H5 is rejected: corporate value does not mediate the EVA–systematic risk relationship.*
- H6: Mediation of Capital Gearing by Corporate Value. Similarly, the mediation path for capital gearing returns a p-value of 0.171. H6 is rejected.*
- H7: Mediation of Intellectual Capital by Corporate Value. The indirect path from intellectual capital through corporate value to systematic risk is significant ( $p = 0.0003$ ). H7 is accepted: corporate value partially channels the influence of intellectual capital on systematic risk.*

## **DISCUSSION**

### ***EVA and Systematic Risk (H1 Rejected)***

The non-significant effect of EVA on systematic risk ( $p = 0.157$ ) is consistent with the view that value-based performance metrics operate at a different analytical level from market-wide risk. EVA is an internal, accounting-derived measure of economic profit; it captures how efficiently management has deployed capital relative to its cost, but it does not directly reflect the co-movement of firm returns with market returns that defines beta. This distinction aligns with Artikis & Alexopoulos (2016), who note that EVA's explanatory power is strongest for cross-sectional differences in stock returns rather than for systematic risk per se. Furthermore, the calculation of WACC a key input in EVA involves assumptions (cost of equity, capital structure weights) that vary across firms and analysts, introducing measurement error that attenuates any relationship with beta (Delis et al., 2023; Li, 2023). In capital-intensive industries like basic materials and industrials, where systematic risk is heavily driven by commodity price cycles and macroeconomic demand, internal efficiency metrics such as EVA may be too firm-specific to explain co-movement with the broad market.

### ***Capital Gearing and Systematic Risk (H2 Rejected)***

The insignificant effect of capital gearing on systematic risk ( $p = 0.341$ ) challenges the intuitive expectation from trade-off theory that higher leverage raises beta. Several explanations are plausible in this context. First, basic materials and industrial firms in Indonesia often carry stable, long-term project debt backed by physical assets with relatively predictable cash flows (e.g., mining concessions, industrial plant), which the market may not price as high-risk relative to equity volatility (Tudose et al., 2022). Second, effective hedging strategies and relationship-based lending common in Indonesian conglomerates may insulate firms from the financial distress channel through which gearing theoretically raises beta (Yusuf, 2019). Third, the sample period includes the 2020 COVID shock, during which government-backed credit facilities and debt moratoria reduced the financial distress risk that would normally translate high gearing into higher systematic risk. The result suggests that the capital structure-beta link is not universal and is sensitive to institutional context and economic conditions.

### ***Intellectual Capital and Systematic Risk (H3 Accepted)***

The significant positive effect of intellectual capital on systematic risk ( $p = 0.0001$ ) is consistent with theoretical predictions from the resource-based view and information asymmetry arguments. Firms with high VAIC scores are characterised by substantial investments in human expertise, proprietary systems, and innovation processes activities whose value is inherently uncertain and difficult for the market to assess with precision (Anhar et al., 2021; Persulesy et al., 2022). This information asymmetry increases investor uncertainty about the firm's true risk-return profile, manifesting as higher beta. Additionally, IC-intensive firms in the industrial sector tend to pursue ambitious technological upgrading strategies that, while potentially value-creating, expose them to execution risk and the possibility of rapid obsolescence. When market-wide downturns occur, such firms may face disproportionate investor sell-offs as uncertainty about their intangible asset values rises, amplifying co-movement with the market index (Arora, 2020; Sujana, 2017). These findings align with Hatane et al. (2019), who document that intellectual capital intensity is associated with higher return volatility in Indonesian service firms.

### ***Corporate Value and Systematic Risk (H4 Accepted)***

Corporate value (MV/BVA) exerts a significant positive effect on systematic risk ( $p = 0.004$ ), indicating that firms commanding high market premiums above their book assets are also more sensitive to market-wide movements. This finding can be interpreted through the lens of investor expectations and repricing risk. High MV/BVA ratios embed substantial growth expectations into current stock prices; any macro shock that revises growth forecasts downward will trigger proportionally large corrections in these stocks, generating high co-movement with the market (Sujana, 2017). This is consistent with the growth stock premium documented in asset pricing research, where high valuation multiples are associated with greater return volatility. In the Indonesian basic materials sector, firms with high corporate value often reflect

optimism about commodity demand and industrial expansion – expectations that are particularly vulnerable to global economic downturns, as demonstrated during the 2020 contraction within the study window (Gaver & Gaver, 1993; Subekti & Kusuma, 2001).

***Mediation by Corporate Value (H5 and H6 Rejected; H7 Accepted)***

The mediation results reveal an important asymmetry. Corporate value does not mediate the relationships between EVA and systematic risk ( $p = 0.152$ ) or between capital gearing and systematic risk ( $p = 0.171$ ). These null mediation findings are coherent with the direct effect results: if EVA and capital gearing do not significantly affect systematic risk directly, there is little theoretical basis to expect that corporate value would carry their influence indirectly (Berzkalne & Zelgalve, 2014; Otuya et al., 2023; Vafaei et al., 2011). Moreover, corporate value as measured by MV/BVA is a market-based aggregate that responds to a broad array of signals beyond EVA or gearing; the specific information content of these variables may be too diluted to trace a mediation path.

By contrast, corporate value significantly mediates the intellectual capital–systematic risk relationship ( $p = 0.0003$ ). The mediation chain is theoretically coherent and empirically supported: IC investment enhances organisational capabilities and drives innovation, which the market rewards with higher valuations (higher MV/BVA). However, high valuations also embed elevated performance expectations that increase the firm's sensitivity to market-wide shocks when those expectations are revised. The intellectual capital–corporate value–systematic risk pathway thus represents a double-edged mechanism: IC creates value but simultaneously amplifies market risk through the channel of elevated investor expectations. This finding contributes to the literature by establishing corporate value as a significant mediator in this specific pathway, a relationship that has been theorised but rarely tested with Indonesian panel data (Persulesy et al., 2022; Rusa et al., 2022).

**CONCLUSIONS AND RECOMMENDATIONS**

The findings do not tell a single story. EVA and capital gearing, despite their theoretical relevance, show no significant relationship with beta in this sample. That result is worth sitting with rather than dismissing. In a sector where revenues track commodity cycles closely, the factors driving stock co-movement with the market appear to operate at a different level than internal capital efficiency or leverage ratios. Macroeconomic conditions during 2018 to 2022, including the COVID-19 shock and the commodity price swings that followed, likely dominated whatever signal EVA or gearing might otherwise have sent.

Intellectual capital and corporate value tell a different story. Both show significant positive effects on systematic risk, and corporate value carries the intellectual capital effect partly as a mediator. Firms with stronger knowledge-based assets attract higher market valuations, and those valuations bring greater sensitivity to market-wide sentiment shifts. The mechanism is essentially one of expectations: the market prices IC-intensive firms generously, and generous pricing means sharper corrections when conditions deteriorate. Investors holding stocks in this sector would do well to treat high VAIC scores not only as a performance indicator but as a risk signal.

The mediation finding narrows things further. Corporate value does not transmit the effects of EVA or capital gearing to beta, only those of intellectual capital. This suggests that the market does not consistently reprice firms based on their EVA performance or leverage position, at least not in ways that feed through to systematic risk in this sector and period. What the market does appear to price, and price in ways that matter for beta, is the intangible asset intensity of a firm.

For practice, the implication is that transparency around intellectual capital matters beyond the usual performance reporting reasons. If IC drives corporate value which drives systematic risk, then poor disclosure of intangible assets leaves investors estimating rather than knowing, and estimation under uncertainty tends to widen return distributions. Regulators and exchange authorities in Indonesia could usefully consider whether current reporting standards adequately capture the intellectual asset bases of listed industrial firms.

## **ADVANCED RESEARCH**

A few honest limitations are worth naming. The sample covers only one sector across five years, so how far these findings travel is genuinely unclear. The IC-beta relationship found here may reflect something specific to commodity-linked industrial firms, where intangible asset uncertainty interacts with cyclical revenue risk in ways that would not replicate in, say, the financial or consumer goods sectors. Testing that boundary would require a multi-sector dataset, which this study does not have. The five-year window is also both a strength and a constraint. It captures a full volatility cycle, which is useful, but it is still only one cycle. Whether the EVA and capital gearing results would look different across a longer horizon, or in a period without a pandemic shock dominating the middle years, is hard to say. The 2020 contraction was severe enough that it may have swamped signals that would otherwise be detectable.

On variables: VAIC covers the efficiency side of intellectual capital reasonably well but says nothing about innovation investment, R&D intensity, or patent activity. Two firms with identical VAIC scores could be in very different positions in terms of where their intellectual assets are going, not just where they currently stand. Ownership concentration and ESG-related disclosures are also absent from the model, and both have plausible links to how markets price systematic risk that future work could explore.

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