How Profitability Moderates the Impact of Enterprise Risk Management, Intellectual Capital, and Sustainability Reporting on Firm Value?

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Abstract: This research investigates the impact of enterprise risk management, intellectual capital, and sustainability reports on firm value, while considering the moderating effect of profitability. Data from 112 manufacturing sector companies listed on the IDX between 2019 and 2022 are analyzed using panel data regression. The robust least squares method tests the model's robustness. The findings indicate a positive influence of enterprise risk management, intellectual capital, and sustainability reports on firm value, with profitability further enhancing this effect. The study emphasizes the importance of the balanced scorecard framework in achieving company objectives by effectively balancing financial and non-financial elements. Furthermore, the resource-based view highlights the role of unique resources and capabilities in explaining firm value, demonstrating that enterprise risk management, intellectual capital, sustainability reporting, and profitability collectively contribute to gaining a competitive advantage. This research holds both theoretical and practical implications, underscoring the significance of integrating these factors for organizational success.

Keywords: Enterprise Risk Management; Intellectual Capital; Sustainability Report; Profitability; Firm Value

Introduction

The research focus has shifted from traditional financial strategies, such as investment decisions (Alghifari et al., 2022a; Suteja et al., 2023), dividend policies (Al Sa’Eed, 2018; Bossman et al., 2022), mergers and acquisitions (Amewu & Alagidede, 2021; Blomkvist et al., 2022; Wang et al., 2021; Zhao & Tang, 2023), to a more in-depth and comprehensive part of business management. This shows a shift in contemporary business perspectives that recognise the importance of non-financial elements such as sustainability (Jan et al.,
2021; Kavadis & Thomsen, 2023; Nguyen et al., 2021) and risk management (Anton & Nucu, 2020; Evana et al., 2023; Husaini et al., 2020). This research emphasises the importance of financial strategy in business, especially in developing countries. Now, however, it is not just about investment decisions or capital structure (Alghifari et al., 2022b; Alghifari et al., 2022c); it now covers broader aspects such as risk management and sustainability. Our research reflects developments in the theory and methodology used in business research, where analysis is not only focused on traditional aspects of finance but also includes new aspects that play a key role in modern business.

Research related to increasing firm value through enterprise risk management, intellectual capital, and sustainability reports is still widely debated. A study of Spanish issuers found that the implementation of ERM had no effect on financial performance as measured by return on equity, return on assets, and Tobin's Q (Otero González et al., 2020). A study of Malaysian technology companies found that there was a negative influence of ERM on firm value (Abdullah et al., 2017). A paper shows that ERM can improve performance by helping companies avoid losses, bankruptcy, and reputation costs (Grace et al., 2015). Another study found a positive influence of corporate risk management on corporate value in listed banks in Sub-Saharan Africa (Oniovosa & Godsday, 2023). A literature review found that the most frequently researched influence of ERM is on company performance, but little effort has been made to analyse its effect on firm value (Anton & Nucu, 2020).

Another debate is related to the determining factors of firm value; the results show that intellectual capital has a positive effect on firm value in non-cyclical consumer sector companies listed on the BEI (Heriyanto & Weli, 2023) as well as similar findings in mining companies listed on the BEI (Pangestuti et al., 2022). However, research by Rusgowanto & Panggabean (2021) found that there was no significant effect of intellectual capital on firm value. Similar results were also found by Bala et al. (2021), who found that human resource efficiency does not seem to have a relationship with firm value. Another factor that influences firm value is the sustainability report. Based on the results of regression analysis, research concludes that there is a positive influence of the disclosure of sustainability reports on firm value in the Saudi stock market (Younis, 2023). However, Nandy et al. (2023) found that sustainability reports weakened firm value in companies implementing GRI in 63 countries in 2011–2019. Similar results were also found by Wahyuandari et al. (2022), but on a different object, namely SOE companies listed on the Indonesian Stock Exchange in 2014–2018.

Based on the inconsistencies in the research findings previously explained, we will fill the gap by expanding the scope of the research so that several new things will be put forward, including: (1) including profitability as a moderating variable. Profitability provides important financial context for analysis because it is an important indicator of a company's financial condition (Alghifari et al., 2022c; Susan et al., 2022). Because profitability can indicate the extent to which a company generates profits, which is an important factor in assessing a company's performance and sustainability, profitability provides an important financial context for analysis (Kuo et al., 2023; Machmuddah et al., 2020). This is reinforced by the findings of Wahyuni & Oktavia (2020), Pamungkas & Meini (2023), Appah et al. (2023), Kurniawati et al. (2022), and Handayati et al. (2022) who found that profitability was able to moderate the influence of enterprise risk management, intellectual capital, and sustainability reports on firm value. (2) Research will be conducted on manufacturing sector companies listed on the IDX for the 2019–2022 period. The
manufacturing sector is a very important part of the economy and has significant social and economic influence. Understanding the components that influence business value in this subsector is critical. The manufacturing industry has special features that can impact risk, intellectual capital, and sustainable practices. This study will provide a better understanding of how businesses in this sector manage risk, develop intellectual capital, and report on sustainable practices. The COVID-19 pandemic has had a major impact on many industries, including the manufacturing industry, during the 2019–2022 period. This research can help us understand how intellectual capital and risk management practices have changed over time.

To enhance the completeness of the empirical model and improve the causality relationship, we incorporated control variables. The utilization of control variables serves several purposes: (1) to mitigate biased results (Esteban-Sanchez et al., 2017) and (2) to account for variations in the dependent variable (Oyewumi et al., 2018). The control variables employed in this study are leverage and firm size. A company's debt level can significantly impact the level of risk it faces. Companies with high debt levels are exposed to greater financial risks. On the other hand, firm size can serve as a proxy for performance and the scale of impact. Larger companies tend to possess more resources. The inclusion of leverage as a control variable is supported by previous research (Alghifari et al., 2022a; Jihadi et al., 2021; Prasetya Margono & Gantino, 2021), which demonstrates the influence of leverage on firm value. Similarly, the control variable for company size is substantiated by prior research (Alghifari et al., 2022b; Sondakh, 2019; Suteja et al., 2023), indicating the impact of firm size on firm value.

To support this novelty, the data analysis method will be based on a panel data regression analysis approach and model robustness testing using a data analysis method using robust least squares. Based on this, it is hoped that we can fulfil our research objective, namely empirically testing the influence of enterprise risk management, intellectual capital, and sustainability reports on firm value with a moderating effect on profitability in manufacturing sector companies listed on the IDX for the 2019–2022 period.

**Literature Review**

**Grand Theory**

Several major theories, including as agency theory, resource-based view theory, sustainability theory, stakeholder theory, and balanced scorecard theory, were employed in this study to support the relationship between the variables. The relationship between managers (agents) and owners (principals) inside organisations is the focus of agency theory. It points out a conflict of interest between the two and emphasises the importance of incentive and monitoring systems for resolving agency difficulties (Jensen & Meckling, 1976). The Resource-Based View Theory emphasises how important unique resources and internal competencies are to a company's ability to gain a competitive edge. It emphasises how companies should use these resources to create long-term success (Wernerfelt, 1984). The need of taking social, economic, and environmental factors into account while making business decisions is highlighted by sustainability theory (Elkington, 1998). It looks at ways to lessen negative consequences so that companies can operate sustainably over the long run (Azizul Islam, 2017). The idea that corporations have obligations to parties other than only shareholders who impact or have influence over their operations is emphasised by the
stakeholder theory. This emphasises how important it is to consider the interests of numerous stakeholders when making decisions (Freeman, 1984). A performance management tool called the balanced scorecard was created to assist businesses in evaluating their performance from a variety of fair angles. The balanced scorecard is a performance management method developed to help organisations measure their performance from various, balanced perspectives. The balanced scorecard measures organisational performance from a financial perspective and involves non-financial aspects (Kaplan & Norton, 1992). Non-financial aspects of this research include enterprise management, intellectual capital, and sustainability reports. Meanwhile, the financial aspect is represented by profitability.

**Enterprise Risk Management, Intellectual Capital, and Sustainability Reporting, Profitability, and Firm Value**

Enterprise risk management involves implementing policies to control risks, guiding managers to make thoughtful decisions, identifying both short- and long-term influences, promoting financial loss avoidance, and minimizing the company's risk through carefully thought-out risk management approaches (Yun, 2023). Effectively leveraging intellectual capital, comprising intangible assets like knowledge, experience, and innovation, can enhance a company's earnings and competitiveness, involving boosting worker output, creating innovative goods and services, developing a powerful brand, and attracting and retaining top personnel (Rahman & Liu, 2023).

GRI-based sustainability reports provide businesses with improved risk and opportunity understanding, a focus on the relationship between financial and non-financial performance, influence on strategy, policies, and long-term business plans, cost savings through increased efficiency, and a benchmark to assess sustainability performance (Ningsih et al., 2023). Externally, they contribute to reduced negative effects on the environment, social issues, and governance, improved reputation and brand loyalty, and stakeholder understanding of organizational values. Profitability, as a gauge of a company's financial success, offers a summary of its operational effectiveness and capacity for profit-making, contributing to improved investor appeal, enhanced competitiveness, and the capacity to finance continuing investments (Ridwan et al., 2023). Firm value, reflected in share price, is crucial for maximizing a company's perceived worth and profitability, emphasizing the need to prioritize cash flow over accounting profits, consider risk factors, and not disregard social responsibility in order to optimize the present value of all future profits for shareholders (Gunardi et al., 2022).

**Hypotheses Development**

Agency theory explains the interaction between shareholders, who act as owners of the company, and managers, who act as agents and are responsible for managing the company on behalf of the shareholders (Jensen & Meckling, 1976). The existence of conflicts of interest between owners and managers can affect the performance of a company, as this idea shows. Enterprise risk management helps overcome agency conflicts by ensuring management manages risks by considering the interests of shareholders in maintaining firm value (Jankensgård, 2019). ERM helps businesses discover and manage hazards that could threaten their value by mitigating or avoiding certain hazards. Thus, ERM helps protect the
value of company assets. This can increase the trust of stakeholders such as shareholders, customers, and other interested parties (Bailey, 2022). This trust can maintain or increase firm value.

H₁: Enterprise risk management has a positive effect on firm value.

To gain a competitive advantage, organisations must have resources and various capabilities. This is emphasised in the theoretical framework of resource superiority (Wernerfelt, 1984). In the competitive world of business, strong intellectual capital can be a critical component that makes a difference. Companies that can offer something different through their intellectual excellence have the potential to attract new customers and maintain a larger market share (Acuña-Opazo & González, 2021). Businesses can improve performance and become more competitive by managing intellectual capital well. Companies can produce products and services better and more efficiently by having educated and skilled human resources (Mensah & Gottwald, 2016). Sustainable intellectual capital allows businesses to adapt to changes in the business environment and remain relevant in the long term (Rustiarini et al., 2022). This helps businesses stay relevant in the long term, increasing their value.

H₂: Intellectual capital has a positive effect on firm value.

By considering its impact on society, the environment, and the economy, sustainability theory emphasises that companies that engage in sustainable practices must do so for a long time (Elkington, 1998). Sustainability reports are a tool that companies use to communicate the sustainability practices they implement, which are based on sustainability principles. This report provides concrete evidence of how companies apply sustainability concepts in their operations and achieve their economic, environmental, and social goals (Ahn et al., 2023). In addition, the sustainability report shows the values of the organisation and its governance model (Sari et al., 2023), as well as the relationship between its goals for a sustainable global economy and its strategy. Sustainability reports are proof that a company is responsible for the interests of its stakeholders (Yondrichs et al., 2021). Building shareholder interest with a long-term vision and showing how to increase firm value with social and environmental issues are two advantages of sustainability reports (Yusoff et al., 2023). In sustainability reports or annual reports, environmental, social, and economic performance is disclosed to show the company's level of accountability, responsibility, and transparency to investors and other stakeholders (Pujiningsih, 2020).

H₃: Sustainability reports has a positive effect on firm value.

Companies that make more money have greater financial resources to handle risks and adverse circumstances (Jiang et al., 2023). Companies with low profitability may be more vulnerable to risks that could threaten their value, but they can more easily handle losses that may arise from business risks (Pangestuti et al., 2022). Solid financial performance can indicate a high level of profitability, which will foster the confidence of investors and other stakeholders (Neves et al., 2022). Companies can provide additional confidence to shareholders and potential investors when reporting good ERM practices with healthy profitability conditions (Iswajuni et al., 2018). High profitability can help a business grow and become financially strong to survive difficult business situations or crises.
H$_4$: Profitability moderates the influence of enterprise risk management on firm value.

Companies that value intellectual capital tend to be more aware of risk and have employees who are better able to manage business risk (Jurczak, 2017). Educated and knowledgeable employees can help in finding, measuring, and better managing risks. High profitability can encourage investment in effective risk management to maintain firm value. Employee knowledge, skills, and competencies are often closely related to intellectual capital (Li et al., 2019). In businesses with high profitability, employees may be more motivated and happier due to greater compensation and benefits. People who are happy with their work tend to be more productive and contribute to their company's value.

H$_5$: Profitability moderates the influence of intellectual capital on firm value.

Companies that make commitments to sustainability practices and report impacts in a transparent manner can build the trust of investors and other stakeholders (Khatri & Kjærland, 2023). Companies that have good sustainability reports often attract investors (Afrizal et al., 2023). Good profitability and sustainability reports can provide additional confidence about a company's financial performance and sustainability (Sehgal et al., 2023), which in turn can have a positive impact on companies that generate high profits, as they may more easily commit additional budget to sustainability initiatives. This includes investments in renewable energy, green technology, or other environmental projects. Companies with high profitability can strengthen their sustainability base, which can increase firm value.

H$_6$: Profitability moderates the influence of sustainability reports on firm value.

Methods

The population in this study was 167 manufacturing sector companies listed on the IDX for the 2019–2022 period. We excluded companies that did not have complete financial reports related to the variables studied. So our sample consists of 112 companies, with a total of 448 observations. This study consists of three types of variables, namely independent variables, dependent variables, moderating variables, and control variables. The independent variables are enterprise risk management, intellectual capital, and sustainability reports. The dependent variable is firm value, the moderating variable is profitability, and the control variables used are leverage and company size. To enhance the completeness of the empirical model and improve the causality relationship, we incorporated control variables. The utilization of control variables serves several purposes: (1) to mitigate biased results (Esteban-Sanchez et al., 2017) and (2) to account for variations in the dependent variable (Oyewumi et al., 2018). The control variables employed in this study are leverage and firm size. A company's debt level can significantly impact the level of risk it faces. Companies with high debt levels are exposed to greater financial risks. On the other hand, firm size can serve as a proxy for performance and the scale of impact. Larger companies tend to possess more resources. The inclusion of leverage as a control variable is supported by previous research (Alghifari et al., 2022a; Jihadi et al., 2021; Prasetya Margono & Gantino, 2021), which demonstrates the influence of leverage on firm value. Similarly, the control variable for company size is substantiated by prior research (Alghifari et al., 2022b; Sondakh, 2019; Suteja et al., 2023), indicating the
impact of firm size on firm value. A complete list of variable definitions is presented in Table 1.

### Table 1. Variable Definition

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Formula</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm Value</td>
<td>Firm value is the price that potential buyers would pay when the company is sold.</td>
<td>$Tobin's Q = \frac{MVS + D}{TA}$</td>
<td>(Ibrahim &amp; Aboud, 2023; Saeed Jagirani et al., 2023)</td>
</tr>
<tr>
<td>Enterprise Risk Management</td>
<td>How an organisation uses various management approaches systematically and comprehensively to map various existing problems is the subject of a field of science called risk management.</td>
<td>$ERMDI = \frac{\sum ij Ditem}{\sum ij ADitem}$</td>
<td>(Jiang et al., 2023)</td>
</tr>
<tr>
<td>Intellectual Capital</td>
<td>Intellectual capital is a combination of intangible assets, such as intellectual property, employees, and company infrastructure, that can operate well. The value of a company is compared with the book value of its assets or the value of its financial capital.</td>
<td>$ICDI = \frac{\sum ij Ditem}{\sum ij ADitem}$</td>
<td>(Amendola et al., 2023; Singh &amp; Mitchell Van der Zahn, 2008)</td>
</tr>
<tr>
<td>Sustainability Report</td>
<td>A sustainability report is a report about a company's concern for society, seen from three perspectives: economic, social, and environmental.</td>
<td>$SRDI = \frac{V}{M}$</td>
<td>(Mihai &amp; Aleca, 2023)</td>
</tr>
<tr>
<td>Profitability</td>
<td>Profitability ratios are metrics used to evaluate a company's capacity to generate profits within a certain time period.</td>
<td>$\text{Return on Assets (ROA)} = \frac{\text{Net Income}}{\text{Total Assets}}$</td>
<td>(Gutiérrez-Ponce &amp; Wibowo, 2023; Nirwana &amp; Wedari, 2023)</td>
</tr>
<tr>
<td>Leverage</td>
<td>Leverage allows individuals or organisations to use debt or loans to increase profits or return on investment.</td>
<td>$\text{Debt to Equity (DER)} = \frac{\text{Total Debt}}{\text{Total Equity}}$</td>
<td>(Anggraini &amp; Zulkifli, 2021; Pattiruhu &amp; Paais, 2020)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>Company size is the total number of assets owned by the company.</td>
<td>$\text{Natural Logarithm Of Total Assets}$</td>
<td>(Hoti Arifaj et al., 2023; Yadav et al., 2022)</td>
</tr>
</tbody>
</table>
The verification method is used in this research, so it is necessary to test hypotheses with the aim of testing the influence of enterprise risk management, intellectual capital, and sustainability reports on firm value with profitability moderation controlled by leverage and company size. The research data uses panel data, which is a combination of time series and cross-section data. Based on this, the following panel data regression equation model is produced:

\[
\text{Firm Value} = \beta_1 + \beta_2 \text{Enterprise Risk Management}_{it} + \beta_3 \text{Intellectual Capital}_{it} \\
+ \beta_4 \text{sustainability report}_{it} + \beta_5 \text{Profitability}_{it} \\
+ \beta_6 \text{Enterprise Risk Management}_{it} \cdot \text{Profitability}_{it} \\
+ \beta_7 \text{Intellectual capital}_{it} \cdot \text{Profitability}_{it} + \beta_8 \text{sustainability report}_{it} \cdot \text{Profitability}_{it} \\
+ \beta_9 \text{Leverage}_{it} + \beta_10 \text{Firm Size}_{it} + u_{it}
\]

The panel data regression analysis approach uses the common effect model, fixed effect model, and random effect model. Next, to determine the best model, the Chow test, Hausman test, and Lagrange multiplier test were carried out. Next, we carried out a classical assumption test on the selected model. The research uses three classic assumption tests, namely the normality test, the multicollinearity test, and the heteroscedasticity test. Autocorrelation testing on non-time series data, both cross-section and panel data, is not useful (Basuki and Prawoto, 2017). This is mainly due to the fact that, although time series data exist, they are not pure collections of time (time series). Consequently, autocorrelation tests were not performed in our study.

Findings

Based on table 2, it can be seen that the average firm value is approximately 1.60, ranging from 0.05 to 11.15. The standard deviation of 1.57 indicates moderate variability in firm values. On average, the firm's approach to risk management is around 0.55. The values range from 0.28 to 0.90, suggesting diversity in risk management strategies. The low standard deviation of 0.13 indicates relatively consistent risk management practices. The mean intellectual capital is 0.46, ranging from 0.04 to 0.92. The standard deviation of 0.19 suggests varying levels of intellectual capital across observations.

The average sustainability report score is 0.50, showing a diverse range from 0.03 to 0.88. The standard deviation of 0.19 indicates variability in sustainability reporting practices. Profitability, on average, is low at 0.03. The values range from -0.26 to 0.26, indicating a mix of profitable and less profitable periods. The low standard deviation of 0.06 suggests relatively stable profitability. The firm's average leverage is 1.39, with a wide range from 0.00 to 16.33. The high standard deviation of 2.20 suggests a significant variation in leverage levels, indicating potential financial risk. The mean firm size is 7.75, with values ranging from 4.42 to 12.79. The standard deviation of 1.63 suggests moderate variability in firm sizes across observations.

Table 2. Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>Firm Value</th>
<th>Enterprise Risk Management</th>
<th>Intellectual Capital</th>
<th>Sustainability Report</th>
<th>Profitability</th>
<th>Leverage</th>
<th>Firm Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.60377</td>
<td>0.54939</td>
<td>0.45965</td>
<td>0.50055</td>
<td>0.02830</td>
<td>1.39090</td>
<td>7.74511</td>
</tr>
<tr>
<td>Maximum</td>
<td>11.15000</td>
<td>0.90000</td>
<td>0.92045</td>
<td>0.88097</td>
<td>0.26368</td>
<td>16.33314</td>
<td>12.78863</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.05000</td>
<td>0.28000</td>
<td>0.04487</td>
<td>0.03122</td>
<td>-0.26196</td>
<td>0.00311</td>
<td>4.42451</td>
</tr>
</tbody>
</table>
Table 3 presents the correlation matrix for the variables in the estimation model. Correlations between explanatory variables and firm value provide an initial insight into their univariate relationships. The correlation coefficient between our explanatory variables and firm value is strong on average. This can be seen from the value of each correlation, namely enterprise risk management of 0.70518, intellectual capital of 0.70518, sustainability report of 0.72093, profitability of 0.78723, leverage of 0.54136, and firm size of 0.82635.

The results of panel data testing are shown in Table 4. The model specification test is carried out first to decide which model is appropriate to use. The results of the chow test show that the common effect model is the chosen model. Based on the Hausman test, it can be seen that the random effect model was chosen. Next, based on the Lagrange multiplier test, a random effect model was selected. From these three tests, we decided the random effect model was the most appropriate model. The classical assumption test is carried out on the most feasible model. The research uses three classic assumption tests, namely the normality test, the multicollinearity test, and the heteroscedasticity test (Glejser test). The normality test shows that the data is normally distributed, as indicated by the Jarque-Bera probability value of more than 0.05. The results of the multicollinearity test show that the correlation between explanatory variables is lower than 0.8, indicating there is no multicollinearity (Table 3). The Glejser test shows that there are no symptoms of heteroscedasticity in the regression model; this can be seen from the significance value of each independent variable for the absolute value of the residual, which is more than 0.05.

Table 3. Correlation Matrix

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Firm Value</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Enterprise Risk Management</td>
<td>0.75782</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Intellectual Capital</td>
<td>0.70518</td>
<td>0.67089</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sustainability Report</td>
<td>0.72093</td>
<td>0.74718</td>
<td></td>
<td>0.76212</td>
<td>1.00000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Profitability</td>
<td>0.78723</td>
<td>0.73980</td>
<td></td>
<td>0.70079</td>
<td>0.73307</td>
<td>1.00000</td>
<td></td>
</tr>
<tr>
<td>6. Leverage</td>
<td>0.54136</td>
<td>0.48447</td>
<td></td>
<td>0.32570</td>
<td>0.33881</td>
<td>0.25177</td>
<td>1.00000</td>
</tr>
<tr>
<td>7. Firm Size</td>
<td>0.82635</td>
<td>0.79613</td>
<td></td>
<td>0.76292</td>
<td>0.78240</td>
<td>0.70725</td>
<td>0.36254</td>
</tr>
</tbody>
</table>

Table 4. Data Panel Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Outcome Variable : Tobin's Q</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Common Effect Model</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.11696*** (0.19200)</td>
</tr>
<tr>
<td>ERM</td>
<td>0.77186** (0.32856)</td>
</tr>
<tr>
<td>IC</td>
<td>0.401537** (0.20228)</td>
</tr>
<tr>
<td>SR</td>
<td>1.492452*** (0.22392)</td>
</tr>
<tr>
<td>ROA</td>
<td>-17.79455*** (1.68263)</td>
</tr>
<tr>
<td>Variable</td>
<td>Outcome Variable : Tobin's Q</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td></td>
<td>Common Effect Model</td>
</tr>
<tr>
<td></td>
<td>(4.64673)</td>
</tr>
<tr>
<td>IC*ROA</td>
<td>17.64168***</td>
</tr>
<tr>
<td></td>
<td>(3.62822)</td>
</tr>
<tr>
<td>SR*ROA</td>
<td>0.81116***</td>
</tr>
<tr>
<td></td>
<td>(0.19599)</td>
</tr>
<tr>
<td>DER</td>
<td>0.09552***</td>
</tr>
<tr>
<td></td>
<td>(0.01263)</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.24219***</td>
</tr>
<tr>
<td></td>
<td>(0.03052)</td>
</tr>
<tr>
<td>R²</td>
<td>0.91510</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.91336</td>
</tr>
<tr>
<td>F – Test</td>
<td>524.56920***</td>
</tr>
<tr>
<td>Chow – Test For FEM</td>
<td>0.59670</td>
</tr>
<tr>
<td>Hausman – Test For REM</td>
<td>3.56333</td>
</tr>
<tr>
<td>Lagrange Multiplier – Test For CEM</td>
<td>215.95740***</td>
</tr>
<tr>
<td>Multicollinearity Test</td>
<td>No</td>
</tr>
<tr>
<td>Heteroscedasticity Test</td>
<td>No</td>
</tr>
<tr>
<td>Normality Test</td>
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</tbody>
</table>

Note(s): ***, **, * indicate the significance level of 1%, 5%, and 10% respectively. The figures stated represent the coefficient values of the variables. On the other hand, the values in the parentheses stand for the values of the standard error.

Based on the results of the random effect model in Table 4, it shows that all variables are enterprise risk management, intellectual capital, sustainability report, profitability, the interaction between enterprise risk management and profitability, interaction between intellectual capital and profitability, interaction between sustainability report and profitability, as well as the leverage control variable. and company size has an influence on firm value (F-test = 159.09830; p < 0.01), indicating the suitability of the model for this research. The R² value shows a value of 0.76576, which means the model has good predictions and is included in the high category.

In Hypothesis 1 (H₁), we hypothesize that enterprise risk management has a positive effect on firm value. The results reveal the positive influence of enterprise risk management on firm value (Tobin's Q) ( = 1.02899; SE = 0.33559; p < 0.01). These results are in line with research conducted (Chairani & Siregar, 2021; Faisal et al., 2021). ERM helps management make better decisions with better information. By making good decisions, companies can improve their plans and achieve sustainable growth. ERM helps businesses discover market risks such as changes in raw material prices or customer preferences. Companies can maintain profitability, avoid losses, and increase their value by managing these risks. Climate change, supply resilience, and other external risks are often associated with the manufacturing industry. Companies can become more sustainable and valuable in the long term with ERM’s help in planning for and mitigating the impact of these risks. These results are able to provide an important contribution, especially to strengthening agency theory (Jensen & Meckling, 1976). Enterprise risk management is able to overcome agency conflicts by ensuring that management manages risks by considering the interests of shareholders, which has an impact on increasing firm value.
For hypothesis 2 (H$_2$), we hypothesize that intellectual capital has a positive effect on firm value. The results show a positive influence of intellectual capital on firm value (Tobin's Q) ($\beta = 0.90910; SE = 0.22382; p < 0.01$). This research is in line with the findings of A. H. Nguyen and Doan (2020), that intellectual assets such as knowledge, expertise, and innovation increase firm value. Intellectual capital can improve supply chain management, cost control, and resource use. Strong intellectual capital can help a business comply with regulations, avoid legal sanctions, and maintain its reputation. Companies have a stronger basis for making smart choices thanks to intellectual capital. Better decisions can help appropriate business strategies and help companies grow and succeed. Strong intellectual capital is more attractive to investors because it has more long-term growth potential, which can increase the value of the company. These results are in line with the theoretical framework of resource superiority (Wernerfelt, 1984). To gain competitive advantage, organisations must have resources and various capabilities, one of which is intellectual capital.

In Hypothesis 3 (H$_3$), we hypothesize that sustainability reports has a positive effect on firm value. The results reveal a positive influence of sustainability reports on firm value (Tobin's Q) ($\beta = 1.28468; SE = 0.20590; p < 0.01$). This research is in line with Younis (2023) and sustainability theory (Elkington, 1998). Companies that present complete and transparent sustainability reports give a favourable signal to stakeholders that they are concerned about the environmental and social consequences of their operations. Investors and consumers frequently want information regarding environmentally friendly business practices, and companies that supply this information can earn their trust. The manufacturing industry is closely associated with environmental and safety regulations. Companies that clearly present sustainability measures and compliance with regulations can reduce legal and reputational risks, impacting the increase in the company's value. Sustainability reports can reflect a company's policies regarding the supply chain. Manufacturers that have supply chain resilience and effectively manage risks in the supply chain can attract investor interest and build corporate value.

For the moderation effects (H$_4$, H$_5$, and H$_6$), the interaction shows a significant influence on firm value. The results report a positive moderation of profitability on the influence of enterprise risk management on firm value (Tobin's Q) ($\beta = 24.98375; SE = 3.47165; p < 0.01$). These findings are appropriate and in line with Wahyuni & Oktavia (2020). Highly profitable manufacturing companies have a greater potential for product or geographic diversification. With a diversified portfolio, companies can effectively manage risks and adapt to variations in market conditions. Moreover, their high profitability enables easier access to financial resources and capital, facilitating the implementation of effective risk management strategies, such as investment in new technology or the development of sustainability programs. Additionally, highly profitable companies demonstrate strong financial resilience, allowing them to respond more effectively to financial risks and providing them with the flexibility to manage risks such as currency or interest rate fluctuations through the use of financial instruments or financial risk management strategies.

The positive moderating relationship of profitability on the influence of intellectual capital on firm value (Tobin's Q) ($\beta = 9.59801; SE = 3.15127; p < 0.01$). This research is in line with Pamungkas & Meini (2023), and Appah et al., (2023). Manufacturing companies that
are more lucrative can invest more in research and development. This can boost a company's intellectual capital, such as patents, trademarks, and technologies, and improve its worth. Profitability creates incentives to concentrate more on product and process innovation. This innovation's intellectual capital can create a competitive edge and boost the desirability of the company's products or services continuously. Profitability growth can fund investments in employee education and development. More talented and informed employees can bring value to the organization by contributing to its intellectual capital.

The positive moderating relationship between profitability and the influence of sustainability reports on firm value (\( \beta = 17.50124; SE = 6.40786; p < 0.05 \)). These results are in line with Kurniawati et al. (2022) and Handayati et al. (2022). More profitable manufacturing companies can invest more in sustainability initiatives, such as environmentally friendly technologies, carbon emission reduction, and other sustainable product practices, boosting their appeal. High profitability facilitates the establishment of a sustainable company reputation and image. When sustainability reports align with strong financial performance, consumer trust in the company tends to increase. Profitability provides resources to enhance operational efficiency, including sustainable practices that lower long-term costs, creating both economic and ecological value. Strong profits also support sustainable growth, driven by business strategies that prioritize sustainability and contribute to increased company value.

**Robustness Check**

We carried out a robustness check to ensure the reliability of our statistical conclusions taken from Table 5. The robustness check is to retest the influence of Islamic enterprise risk management, intellectual capital, and sustainability reports on firm value with moderation in profitability using data analysis methods using robust least squares. The robustness check results based on Table 5 show the positive influence of enterprise risk management on firm value (Tobin's Q) (\( \beta = 0.21815; SE = 0.09115; p < 0.05 \)). Positive influence of intellectual capital on firm value (Tobin's Q) (\( \beta = 0.36929; SE = 0.05612; p < 0.01 \)). Positive influence of sustainability reports on firm value (Tobin's Q) (\( \beta = 0.86656; SE = 0.06212; p < 0.01 \)). Positive moderation of profitability on the influence of enterprise risk management on firm value (Tobin's Q) (\( \beta = 55.08395; SE = 1.28914; p < 0.01 \)), positive moderation relationship of profitability on the influence of intellectual capital on firm value (Tobin's Q) (\( \beta = 6.40114; SE = 1.00658; p < 0.01 \)), as well as a positive moderating relationship from profitability on the influence of sustainability reports on firm value (\( \beta = 0.98401; SE = 0.05437; p < 0.01 \)). Control variables, such as leverage (\( \beta = 0.15425; SE = 0.00350; p < 0.01 \)) and firm size (\( \beta = 0.11510; SE = 0.00847; p < 0.01 \)), demonstrate a positive effect on firm value. The results of the robustness test consistently demonstrate that enterprise risk management, intellectual capital, sustainability reports, as well as the control variables leverage and firm size, exert an influence on firm value. Moreover, profitability is found to moderate this influence. These findings indicate that the research model utilized in this study is valid and reliable. It exhibits strong resilience to change and external influences, thus instilling trust in its ability to provide relevant and consistent results across various conditions.

<table>
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<tr>
<th>Variable</th>
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Note(s): ***, **, * indicate the significance level of 1%, 5%, and 10% respectively. The figures stated represent the coefficient values of the variables. On the other hand, the values in the parentheses stand for the values of the standard error.

**Conclusion**

This research empirically tests the influence of enterprise risk management, intellectual capital, and sustainability reports on firm value, with profitability as a moderating factor, in manufacturing sector companies listed on the IDX for the period of 2019-2022. Panel data regression analysis is employed for the analysis. The results indicate a positive influence of enterprise risk management, intellectual capital, and sustainability reports on firm value, and demonstrate that profitability positively moderates these influences.

Theoretical implications centered on the balanced scorecard underscore its role in managing the balance between financial and non-financial elements for company objectives. Components like enterprise risk management, intellectual capital, sustainability reports, and profitability, integral within the Balanced Scorecard framework, have shown their capacity to enhance firm value. The focus on operational efficiency and risk management, validated as drivers of increased firm value, highlights how enterprise risk management identifies and manages risks, while intellectual capital fosters efficiency through employee knowledge and skill enhancement. Aligned with the resource-based view, a company's value is linked to unique resources and capabilities. Collectively, enterprise risk management, intellectual capital, sustainability reports, and profitability contribute to competitive advantages, ultimately elevating overall company value.
Stakeholder theory emphasizes meeting the expectations of various stakeholders, and companies can positively influence firm value by implementing enterprise risk management, enhancing intellectual capital, and presenting sustainability reports alongside favorable profitability conditions to improve relationships with stakeholders.

The results of this research provide several implications that need to be considered, including (1) To discover, manage, and reduce business risks, companies must improve enterprise risk management practices. This may include evaluating governance and environmental and social risks that may impact sustainability performance; (2) focusing on developing intellectual capital is important. Companies must increase their intellectual capital by investing in innovative technology, employee training, and knowledge management; and (3) more comprehensive, transparent, and accurate sustainability reports will build employee trust. This can be achieved through optimizing business processes, increasing efficiency, and reducing operational costs. (5) Risk management strategies, intellectual capital development, and sustainability reporting must be adjusted to the company's objectives to increase profitability and increase value. This requires careful strategic planning.

The study's focus on manufacturing companies listed on the IDX from 2019-2022 limits the generalizability of findings, making direct application to other sectors or regions challenging. Additionally, the confined time frame excludes potential future changes in risk management, intellectual capital, and sustainability reporting practices, hindering insights into long-term trends. The subjective nature of measurement indicators for enterprise risk management, intellectual capital, sustainability reports, and profitability, coupled with potential variations in measurement methods, adds a layer of complexity to the result interpretation.

Further research could concentrate on developing more sophisticated predictive models to estimate how corporate risk management, intellectual resources, sustainability reporting, and profitability affect corporate value. Models like these can help companies plan their business strategies based on various scenarios and understand how certain decisions can affect firm value. Additionally, follow-up research could involve long-term studies that examine how a company's risk management, intellectual capital, sustainability report, profitability, and firm value change over time. Cross-country studies can also compare how corporate risk management, intellectual capital, resilience reporting, and profitability affect corporate value across different countries and legal contexts.

References


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