Strategic company sustainability: optimize firm resource management through innovation efficiency

Andi Kushermanto
The Faculty of Economics and Business, Pekalongan University, Sriwijaya 3, Pekalongan 51119, Indonesia, andiunikal@gmail.com (corresponding author)

Abdul Rohman
The Department of Accounting, Faculty of Economics and Business, Diponegoro University, Erlangga Tengah 17, Semarang 50241, Indonesia, abdulrohman@lecturer.undip.ac.id

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Abstract: This study intends to investigate the effect of a company’s corporate governance aspects, measured by the size of the board of directors, on sustainable growth and the role of innovation efficiency as a moderating variable. The samples were taken from manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the 2017-2021 period using purposive sampling. There were 44 companies that met the criteria. The technical analysis used is Partial Least Square (PLS-SEM) with WarpPLS 8.0 software, which is reliable for processing small samples. Stochastic frontier analysis (SFA) analysis through Frontier 4.1 is used for the measurement of innovation efficiency. The results of this study show that corporate governance has positive and significant effects on sustainable growth. Furthermore, innovation efficiency is a moderating factor that can strengthen the influence of corporate governance on sustainable growth. The novel of this study provides evidence relating to the importance of management in human resources and management in innovation to increase the company's productivity through innovation efficiency, which has an important role in increasing the company's sustainable growth.

1 Introduction
Nowadays, companies need to have the ability to operate their business activities in a challenging and competitive business atmosphere, so it is important to consider sustainability aspects in a company's strategic planning to maintain long-term survival, growth, and profitability [1,2]. One of the company's goals is to gain maximum profit, so the aspect of how the company can maintain its sustainability to gain profit becomes a crucial concern for the company's management [3]. It becomes important to know the company's sustainability prospects in the future by considering several aspects. Furthermore, the topic of sustainable growth as one of the instruments to predict a company’s going concern has become a crucial aspect that management must focus on. Rapid growth in a company can exhaust resources, but a slow-growing company may show that the resources are not utilized effectively [4]. The sustainable growth concept describes that a company’s growth can maximally increase if the company’s financial performance can be maintained. Sustainable growth reflects the company's asset utilization efficiency and financing strategy, which are all key determinants of company performance [5]. Sustainable growth is a company's financial policy that is in line with the company's growth, and its concept describes how, by maintaining the existing capital structure without the issuance of new legalities, the company can still increase sales [6].

Sustainable growth has become a global issue and has received attention from various researchers around the world, such as [7-13]. Boards of directors are one of the main components of a company’s corporate governance, which is an important aspect of a company’s sustainability [14]. The board of directors has a vital role related to its duties in managing the company to generate profitability and decide the strategy to maintain the company’s continuity [15]. Based on previous research, it can be identified that there are differences in the influence of the board of directors on sustainable growth. If the relationship between the independent and dependent variables was inconsistent, then there may be other factors that can strengthen or weaken this relationship [16].

A study by [17] shows that innovation efficiency is a moderating factor between various market distortions and sustainable growth. Innovation efficiency is defined as the capability to transform innovation inputs into innovation outputs [18]. The main principle of efficiency is the allocation of inputs to produce maximum output so that maximum profit with minimum costs can be achieved and the company's ability to be sustainable can be maintained [19]. This research was conducted on manufacturing company objects in Indonesia on a general scale and is experiencing problems in maintaining their sustainability due to the COVID-19 pandemic, as stated in the previous study [20]. Based on these arguments, this study examines the effects of corporate governance on sustainable growth and the role of innovation efficiency in moderating this relationship. The research questions presented in this study are: How does corporate governance affect sustainable growth? And how does innovation efficiency moderate the relationship between corporate governance and sustainable growth?
2 Literature review

2.1 Theoretical framework

Stakeholder theory describes individuals, groups, or organizations that have the power to affect the achievement of an organization’s objectives and/or can be affected by the organization [21]. Stakeholders include investors, creditors, suppliers, consumers, governments, and communities that are influenced by the company. Stakeholder theory describes the relationship between an entity and the environment in which it operates [22] so that the company can operate and become a sustainable company.

Sustainable growth is a concept where companies are able to achieve optimal growth as a sustainable company [23]. Sustainable growth is important and has become a major interest for stakeholders and analysts [24]. The company's sustainable growth capabilities play an important role in supporting sustainable national economic development and long-term business development [25].

2.2 Hypothesis development

2.2.1 Corporate governance and sustainable growth

Corporate governance defines the role of the board of directors as a leader that has a role in setting the organization, protecting a firm by directing its operational activity, and supporting its decision-making [26]. Corporate governance is a control system applied to achieve maximum performance without dissuising its stakeholders, and this implementation will determine the company’s management practices within the company [27]. In this study, corporate governance was measured from the perspective of the board of directors for its important role in controlling all aspects of management in the company. Boards of directors have an important role in strategy identification, which is needed in the decision-making process. The board of directors typically determines general business management and sustainability strategies that integrate each other to support the company’s goals, which in turn guide operational decisions and strategic matters.

In general, corporate governance is the most important aspect of a company’s sustainability. A study by [28] shows that the board of directors has an important role in enhancing sustainability performance. The role of the board of directors in the company can determine its long-term sustainability because of its role in setting the company’s strategic aspects. A study by [29] shows that board size, as a measurement of corporate governance, has a positive effect on a company’s sustainable growth. The higher board of directors can increase the company’s sustainable growth. Based on these arguments, hypothesis 1 (H1) is formulated as below:

**H1. Corporate governance positively influences sustainable growth.**

2.2.2 The moderating effect of innovation efficiency in the relationship between corporate governance and sustainable growth

A company’s sustainable growth is affected by financial indicators, employees, equity structures, and other company governance factors that must be considered when pursuing sustainable growth [30]. The board of directors, one of the corporate governance factors, plays a central role in internal mechanisms to set strategic aspects of a company and monitor its corporate management effectively [31]. Companies must be able to optimize the function of corporate governance mechanisms to increase their sustainable growth by optimizing the use of efficiency in their operations, especially innovation efficiency. The essence of efficiency is the allocation of inputs to produce maximum output so that maximum profit with minimum costs can be achieved and improve the company's ability to be sustainable. Optimal innovation efficiency can increase the company's ability to maintain sustainable growth. Based on these arguments, hypothesis 2 (H2) is formulated as below:

**H2. Innovation efficiency strengthens corporate governance's influence on sustainable growth.**

2.3 Research model

The model for this research can be described in the equation below (1):

\[ SG = \rho_1 \text{DIRECTOR} + \rho_2 \text{IE*DIRECTOR} \]

Explanation:
- SG = Sustainable Growth,
- DIRECTOR = Board of Directors,
- IE = Innovation Efficiency.

3 Methodology

This research is a causal study to examine factors that are causing a problem and test the effect of corporate governance on sustainable growth and the influence of innovation efficiency as a moderating factor in the relationship between these variables. The analytical technique used in this research was Partial Least Squares (PLS-SEM) using WarpPLS 8.0 software. The sample of this study included 44 samples collected from manufacturing companies listed on the Indonesian Stock Exchange for the 2017-2021 period. The data in this study was secondary data collected from financial statements that were published on www.idx.com and categorized as quantitative data. The sampling selection used in this study was purposive sampling, as below (Table 1):
The sustainable growth rate is measured as below (2), (3), (4) [2]:

\[
SG = \frac{ROE \times Retention Ratio}{Net Income}
\]
\[
ROE = \frac{Total Equity}{Net Income}
\]
\[
Retention Ratio = \frac{Retained Earnings}{Net Income}
\]

3.2 Corporate governance
The board of directors typically determines general business management and sustainability strategies that integrate each other to support the company’s goals, which in turn guide operational decisions and strategic matters. The board of directors is measured as below (5):

\[
Board of Directors = \sum Number of members of the board of directors
\]

3.3 Innovation efficiency
The moderating variable in this study is innovation efficiency (IE). Innovation efficiency measurement uses the stochastic frontier analysis (SFA) method to measure the input-output combination, which is the gross operating revenue of enterprises as the output, then the number of employees and R&D expenditure as the input. Stochastic Frontier Analysis (SFA) is a parametric approach to measuring efficiency that considers stochastic noise in the data. SFA output produces an efficiency score in the range of 0 to 1. The higher the score, the higher the company’s efficiency based on the input-output formulation processed.

4 Result and discussion
4.1 Descriptive data explanation
Based on the descriptive statistics in Table 2, it can be seen that the standard deviation score for the board of directors was 1.95, which was smaller than the average score of 0.69, which indicates that the board of directors data in this research is relatively less varied. The innovation efficiency has a standard deviation score of 0.41, which is smaller than the average score of 0.69, which indicates that the innovation efficiency data in this research is relatively less varied. The sustainable growth standard deviation of 0.32 was smaller than the average score of 0.54, which indicates that the sustainable growth data in this research is relatively less varied. The data description in this study shows less varied data for variables, which can be explained by the fact that this object only includes manufacturing companies in Indonesia that have fairly similar characteristics.

Table 1 Sampling selection

<table>
<thead>
<tr>
<th>Number</th>
<th>Purposive Sampling</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Manufacturing companies listed on the Indonesian Stock Exchange during the 2017–2021 period</td>
<td>154</td>
</tr>
<tr>
<td>2.</td>
<td>Companies that do not provide the indicator data required in this study during the 2017–2021 period</td>
<td>(110)</td>
</tr>
</tbody>
</table>

Number of samples that meet the criteria 44
Year of observation 5
Total sample in this study during the year of observation 220

The measurement and operational aspects of variables in this study can be explained as follows:

4.2 Model fit
The first stage is to analyze whether this research model complies with the criteria of goodness of fit. Based on the model of fit indicators output that is summarized in Table 3, it can be seen that the six indicators used in this study are satisfying, and it can be concluded that this model is fit based on the significant P value at the 0.05 level on the three indicators APC, ARS, and AARS. This model also has no collinearity issues based on the path coefficients of the two indicators, AVIF and AFVIF. Another indicator is the criteria for GoF value = 0.520, which means that the predictive powers of the model are categorized as large because the value is higher than 0.36.

Table 2 Descriptive statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Max.</th>
<th>Min.</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board of directors</td>
<td>10</td>
<td>3</td>
<td>6</td>
<td>1.95</td>
</tr>
<tr>
<td>Innovation Efficiency</td>
<td>1</td>
<td>0.04</td>
<td>0.69</td>
<td>0.41</td>
</tr>
<tr>
<td>Sustainable Growth</td>
<td>1.33</td>
<td>0.01</td>
<td>0.54</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Table 3 Model fit

<table>
<thead>
<tr>
<th>Model fit</th>
<th>Value</th>
<th>Sign.</th>
<th>Rule of thumb</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Path Coefficient</td>
<td>0.434</td>
<td>P &lt; 0.001</td>
<td>P &lt; 0.05</td>
<td>Satisfy</td>
</tr>
<tr>
<td>Average R-Square</td>
<td>0.270</td>
<td>P &lt; 0.001</td>
<td>P &lt; 0.05</td>
<td>Satisfy</td>
</tr>
<tr>
<td>Average Adjusted R-Squared</td>
<td>0.246</td>
<td>P &lt; 0.001</td>
<td>P &lt; 0.05</td>
<td>Satisfy</td>
</tr>
<tr>
<td>Average Variance Inflation Factor</td>
<td>3.944</td>
<td>≤5, ideally ≤ 3.3</td>
<td>Satisfy</td>
<td></td>
</tr>
<tr>
<td>Average Full Collinearity VIF</td>
<td>2.120</td>
<td>≤5, ideally ≤ 3.3</td>
<td>Satisfy</td>
<td></td>
</tr>
<tr>
<td>Tenenhaus GoF</td>
<td>0.520</td>
<td>Small ≥ 0.1</td>
<td>Medium ≥ 0.25</td>
<td>Large ≥ 0.36</td>
</tr>
</tbody>
</table>
4.3 Explanatory power

The next stage is to evaluate the model’s explanatory power. Based on the latent variable coefficients that are summarized in Table 4, the coefficient of R-Squared determination is 0.270, which shows that 27% of the variation of the endogenous variable (sustainable growth) can be explained by the exogenous variables corporate governance (board of directors) and moderating innovation efficiency, while the remaining 73% can be explained by other variables outside this model. Another explanatory power indicator is the value of Q-Squared, which has a value of 0.250; this value is larger than 0. This shows that this model has predictive relevance. Another indicator of explanatory power is the effect size. The effect size value of the board of directors at 0.375, or 37.5%, means that the absolute value of the individual contributions of the board of directors to the R-Squared value of the sustainable growth variable is considered medium from a practical point of view. The effect size value of IE*DIRECTOR at 0.075, or 7.5%, means that the absolute value of the individual contributions of innovation efficiency moderation to the R-Squared value of the sustainable growth variable is considered weak from a practical point of view.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Path coefficients</th>
<th>Explanation</th>
<th>Rule of thumb</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECTOR</td>
<td>0.345</td>
<td>Medium</td>
<td>&gt; 0.02 weak</td>
</tr>
<tr>
<td>IE*DIRECTOR</td>
<td>0.075</td>
<td>Weak</td>
<td>&gt; 0.35 large</td>
</tr>
</tbody>
</table>

4.4 Path coefficients and P-values

The next stage is to evaluate the path coefficients and P-value values from the output summarized in Table 5. The path coefficient of the corporate governance variable (DIRECTOR) is 0.676 and significant with P < 0.001, and the path coefficient of the moderating variable, which is the interaction of innovation efficiency with corporate governance (IE*DIRECTOR), is 0.192 and significant with P = 0.017.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Path coefficients</th>
<th>P-value</th>
<th>Rule of thumb</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECTOR</td>
<td>0.676</td>
<td>&lt;0.001</td>
<td>P &lt; 0.05</td>
<td>Accepted</td>
</tr>
<tr>
<td>IE*DIRECTOR</td>
<td>0.192</td>
<td>0.017</td>
<td>P &lt; 0.05</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

5 Conclusions

5.1 Conclusion

Based on the path diagram, the board of directors has a positive and significant effect on sustainable growth. It can be seen from the path coefficient of the board of directors variable, which is 0.68 positive with P < 0.001, that hypothesis 1 (H1) is accepted. The board of directors positively affects sustainable growth. This significant effect can be explained by the fact that the board of directors has a crucial role in enhancing sustainability. The important role of the board of directors in the company's strategy can determine the long-term sustainability of the company. The innovation efficiency will determine the sustainability of the company, as can be seen in Figure 1, where the interaction of innovation efficiency with the board of directors (IE*DIRECTOR) score is 0.19 and significant with P = 0.017 < 0.05. Thus, hypothesis 2 (H2) is accepted. Innovation efficiency strengthens the positive effect of corporate governance proxied by the board of directors on sustainable growth.

Figure 1 Path diagram

Efficiency in the company is needed to ensure the implementation of strategic plans [32]. Furthermore, the company should include the aspect of innovation at all decision-making levels. It can be highlighted that optimal innovation efficiency can improve the company's ability to maintain sustainable growth. The input and output formulation in this study assesses the efficiency of human resources, which is covered by the number of employees and the company's allocation to research and development. When these factors are efficiently managed, which contributes to the company's revenue, the company maintains its sustainability. The more efficient a company's management of its resources, including its number of employees and research and development allocation, the greater its ability to maintain its sustainability. This aspect can be part of the management of the flow of the company's business activities.

This study demonstrates the importance of the role of the board of directors and innovation efficiency in terms of sustainable growth and implies theories and practices. From the point of view of theory implication, this research contributes to a stakeholder theory study that focuses on...
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how the company continues to maintain its business activities. In practice, company management should optimize the role of the board of directors in their function of business strategy. Companies should also maintain awareness about the importance of innovation efficiency in their business operations to increase their sustainability. Innovations that can be implemented include improvements in the manufacturing process. The company should also produce more varied products. The board of directors, which has an important role in strategic planning, determines the company's sustainability. It is important to consider the efficiency of human resource management and aspects of research and development to support the company in achieving optimal revenue. This study indicates that if the board size is larger, it can increase the company's ability to maintain sustainability. The role of innovation efficiency strengthens this relationship. This means that the larger the board, supported by innovation efficiency, the greater the company's ability to maintain its sustainability.

The limitation of this study is that the year of observation only consisted of 5 years from the 2017-2021 period, so further research can expand the number of years of observations. This research topic is particularly interesting and opens a direction for future research with regard to the ongoing debate of sustainable growth. The efficiency approach in this study only uses SFA; future research can consider the use of data envelopment analysis (DEA) and explore the input-output formulation based on firm characteristics in various industries.

References


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