



# Enhancing firm value: The role of enterprise risk management, intellectual capital, and corporate social responsibility

*Mejora del valor empresarial: el papel de la gestión de riesgos empresariales, el capital intelectual y la responsabilidad social corporativa*

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## Abstract

For the company, the firm value shows how effectively the company's performance is achieved. While for investors, it is an indicator of how the market values the company. The high firm value indicates good company performance, giving a positive signal to investment decisions. This research aims to examine the effect of enterprise risk management (ERM), intellectual capital (IC), and corporate social responsibility (CSR) on firm value (FV). The technique analysis used Structural Equation Model with Partial Least Squares (SEM-PLS) to process 162 annual reports from 54 manufacturing companies listed on the Indonesia Stock Exchange in 2018-2020. The research results indicated that ERM, IC, and CSR positively affected FV. The higher ERM, IC, and CSR values, the higher the FV. The originality of this research is in the research model that proved the effect of ERM, IC, and CSR disclosures on increasing FV. This research contributes to ERM, IC, CSR and FV literature. The ERM mechanism can help management identify and unlock synergies by aggregating and sharing all company data and risk factors and evaluating them in a consolidated format. It is supported by the company's intangible assets, namely IC and the implementation of CSR activities. Thus, manufacturing companies should always be committed to managing ERM, IC, and CSR. The government needs to consistently encourage the

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implementation of ERM through mitigating risk activities (COSO ERM and ISO 31000) and improve social disclosure regulations through GRI (Global Reporting Initiative), ISO (International Organization for Standardization) 26000, and SDGs (Sustainable Development Goals) to achieve the company's sustainability in the future.

*JEL Code:* G32, M14, Q56

*Keywords:* enterprise risk management; intellectual capital; corporate social responsibility; firm value

## Resumen

Para la empresa, el valor de la empresa muestra con qué eficacia se logra el desempeño de la empresa. Mientras que para los inversores, es un indicador de cómo el mercado valora a la empresa. El alto valor de la empresa indica un buen desempeño de la empresa, dando una señal positiva a las decisiones de inversión. Esta investigación tiene como objetivo examinar el efecto de la gestión de riesgos empresariales (ERM), el capital intelectual (CI) y la responsabilidad social corporativa (RSE) sobre el valor de la empresa (FV). El análisis de la técnica utilizó el modelo de ecuaciones estructurales con mínimos cuadrados parciales (SEM-PLS) para procesar 162 informes anuales de 54 empresas manufactureras que cotizan en la Bolsa de Valores de Indonesia en 2018-2020. Los resultados de la investigación indicaron que ERM, IC y CSR afectaron positivamente el FV. Cuanto más altos sean los valores de ERM, IC y CSR, mayor será el FV. La originalidad de esta investigación está en el modelo de investigación que demostró el efecto de las divulgaciones de ERM, IC y RSE en el aumento del FV. Esta investigación contribuye a la literatura sobre ERM, IC, CSR y FV. El mecanismo ERM puede ayudar a la gerencia a identificar y desbloquear sinergias agregando y compartiendo todos los datos y factores de riesgo de la empresa y evaluándolos en un formato consolidado. Está respaldado por los activos intangibles de la empresa, a saber, la CI y la implementación de actividades de RSE. Por lo tanto, las empresas manufactureras siempre deben comprometerse a gestionar la ERM, la CI y la RSE. El gobierno debe fomentar consistentemente la implementación de ERM a través de actividades de mitigación de riesgos (COSO ERM e ISO 31000) y mejorar las regulaciones de divulgación social a través de GRI (Global Reporting Initiative), ISO (Organización Internacional de Normalización) 26000 y SDG (Objetivos de Desarrollo Sostenible). para lograr la sostenibilidad de la empresa en el futuro.

*Código JEL:* G32, M14, Q56

*Palabras clave:* gestión de riesgos empresariales; capital intelectual; responsabilidad social corporativa; valor de la empresa

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## Introduction

An entity is built to optimize the entity's wealth or in the form of company value (Wong et al., 2021). According to Mohammad and Wasiuzzaman (2021), company value is the investor's view of the organization's prosperity. Maximizing company value can be used to increase shareholder ownership. High company value reflects maximum shareholder prosperity (Brigham & Houston, 201). According to signal theory, when a company's performance is shown to investors as a prospect for the company in the future, shareholders can receive signals based on the information provided by the company. This information is essential because it can provide an overview of the company's past, present, or future and

can be used as consideration for shareholder investment decisions. Companies will compete to provide open information about their business activities to provide an excellent image to stakeholders. One of the pieces of information disclosed is economic conditions.

The economic conditions of a country affect the income and expenses of a company's business, which directly impacts each business's performance and value. A strong economy can create jobs and increase the high compensation paid to employees, and vice versa. Data from the Central Statistics Agency reported the Indonesian economy from 2018 to 2020, as seen in the image below:

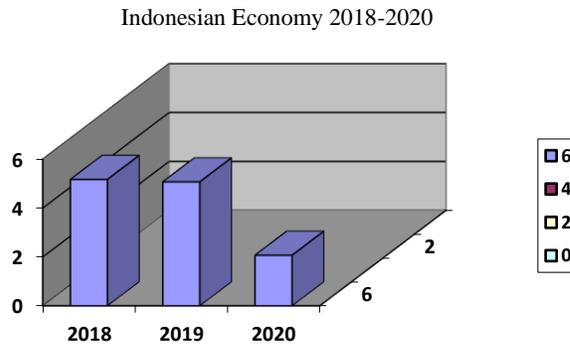


Figure 1: Indonesian Economy 2018-2020  
Source: <https://www.bps.go.id/pressrelease.html>

The data above shows that the Indonesian economy in 2018-2020 experienced a decline from the previous year. The economic downturn is getting bigger, especially in 2020, due to Indonesia's increasing number of Covid-19 cases. The increasing number of Covid-19 cases also impacts the decline in stock prices of companies listed on the Indonesia Stock Exchange, especially the stock prices of manufacturing companies. It can be seen in the following graph:

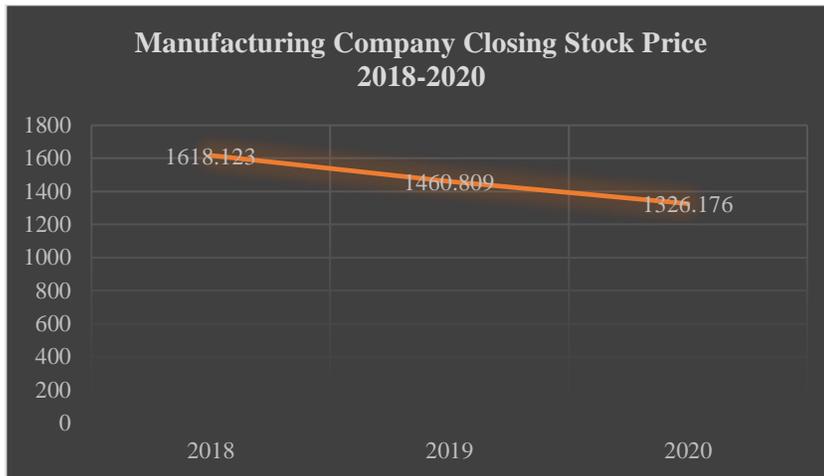


Figure 2: Manufacturing Company Closing Stock Price 2018-2020

The company's stock price listed on the Indonesia Stock Exchange reflects the firm value, where the higher the company's stock price, the higher the firm value. This condition indicates that stock price movements can influence investors and shareholders in making investment decisions. Enterprise risk management (ERM) is one of the considerations for investors in investing their capital. It is due to the implementation of ERM to help the company monitor risk throughout its activities. Therefore, the company can plan its strategy and provide value to stakeholders (Chairman C Siregar, 2021). Companies that can control their risks well will make shareholders and investors more confident to invest their capital in the company. It will increase the firm's value.

Several previous studies, such as financial performance, are considered capable of influencing company value. Research conducted by Ergun et al. (2022) explains that financial performance significantly influences company value. Likewise, research conducted by Assih et al. (2023) and Asni & Agustia states that there is a positive and significant influence on financial performance with company value. This is in contrast to research from Hirdinis (2019), which explains that profitability does not significantly affect company value.

Another factor that influences company value is good corporate governance. Research according to Chouaibi (2023) explains that a corporate governance relationship consisting of board gender diversity and CEO ownership positively influences company value. However, it is inversely proportional to corporate governance in terms of board size and ownership concentration, which negatively influences company value. Pablo Martin (2016) found that ownership concentration significantly affects company value. Dian et al. (2023) stated that good corporate governance can influence the value of companies in Vietnam. Bhatia Singh illustrates that firm size can increase company value. Azaro et al. (2019) found

that firm size does not significantly influence company value, as well as research by Hirdinis (2019), who also has the same opinion that there is no relationship between firm size and company value. Riiba et al. (2020) and Tamayo (2013) state that companies that carry out CSR can influence company value, but this is different from research conducted by Elkosry (2016), which states that CSR has a significant negative effect on company value.

Most previous research only focused on financial performance, corporate governance, firm size, and CSR. There are differences in the results of the research above because of several differences, such as the samples used in different countries, namely several ASEAN and European countries, and the industries used in several studies, which are also different. It can be concluded that the results of financial performance. Corporate governance, firm size, and CSR on company value cannot be generalized to all the same objects. Few studies highlight the relationship between ERM, IC, and CSR, which can increase the company value of manufacturing companies in Indonesia. Hence, this research wants to determine further the relationship to what extent ERM, IC, and CSR can increase company value.

ERM is essential in the context of maximizing company value. ERM helps companies manage risks strategically, minimize potentially detrimental risks, and exploit opportunities optimally. Applying ERM in companies can be used to face uncertain business conditions and rapid world developments through a top-down risk management approach. ERM allows companies to identify, evaluate, and integrate risks in the company's strategic plan, thereby strengthening the overall oversight of the company's risk management process. Thus, ERM becomes mandatory for companies in a complex business environment.

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CSR disclosure is a significant concern for companies to remain competitive and relevant (Grubor et al., 2020). This is because CSR activities can build the company's image and reputation. Thus, this can increase the company's value in the market (Bardos et al., 2020). Therefore, companies constantly strive to optimize and report CSR activities sustainably, ultimately providing benefits for the future. The effectiveness of CSR disclosure in protecting a company's reputation is also an essential phenomenon of concern to researchers.

Several previous studies showed different results. Increasing the firm value can be done through the disclosure of ERM (Anton, 2018; Iswajuni et al., 2018; Phan et al., 2020; Chairani & Siregar, 2021; Meskovic & Zaimovic, 2021); IC disclosure (Nuryaman, 2015; Anifowose et al., 2018; Ahmed et al., 2019; Nguyen & Doan, 2020; Salvi et al., 2020); and CSR disclosure (Kamaliah, 2020; Hendratama & Huang, 2021; Lee & Choi, 2021; Qiu et al., 2021; Seth & Mahenthiran, 2022). Unfortunately, the disclosure of ERM (Sayilir & Farhan, 2017); IC disclosure (Agomor, 2021); and CSR disclosure (Worokinasih & Zaini, 2020; Berkman et al. 2020; Su et al, 2020; Goncalves et al., 2022) did not affect increasing the firm value.

Based on the existing phenomena and research gaps, this research examined the effect of ERM, IC, and CSR on manufacturing companies listed on the Indonesia Stock Exchange. The selection of manufacturing companies as research objects was based on various reasons. First, manufacturing companies are large-scale companies when compared to other companies. Thus, they can make comparisons between one company and another. Second, manufacturing companies are one of the sectors expected to have bright prospects in the future. Manufacturing companies are the most strategic sector to profit from investing. Third, the number of companies included in the manufacturing companies' category is more than other companies. Fourth, the stocks of manufacturing companies are more in demand by investors than those of other companies. Fifth, manufacturing companies, in carrying out their business activities, produce waste that impacts environmental pollution problems. Government regulations do not bind sixth manufacturing companies, and manufacturing companies are one of the assets with an essential role in development. In the era of free competition, manufacturing companies must be more effective in publishing their financial statements where their users are interested.

This study contributes to the literature in three ways: first, it can be a reference for company management controlling risk, managing knowledge assets, and implementing social activities properly. Second, this study used the Structural Equation Model with Partial Least Squares to process 162 annual reports from 54 manufacturing companies listed on the Indonesia Stock Exchange in 2018-2020. Third, this study used manufacturing companies' objects on the Indonesian Stock Exchange (ISE). Manufacturing companies are sectors with a wide variety and scope and a larger scale so that the tests can be compared from one company to another. Fourth, the research results can help company management identify and unlock synergies by combining and sharing all company data and risk factors and evaluating them in a consolidated format to achieve future sustainability.

Lastly, this research consisted of several parts. The introduction section has been elaborated on and disclosed. The literature section has been reviewed, and hypotheses developed in the next section. The methodology section has been explained, the results section is discussed, and the conclusions section is presented.

## **Literature review**

### *Signaling theory*

Signaling theory emphasizes the importance of information released by the company on investment decisions of parties outside the company. Investors in the capital market need complete, relevant, accurate, and timely information as an analytical tool to make investment decisions (Tandelilin, 2010). The completeness of the information the company must present according to signal theory is quite important because of many factors other than financial reports. Under the principles and framework of risk management, the application of enterprise risk management provides a positive signal for investors to continue investing in the company (Ismanu et al., 2021). The relationship between firm value and ERM can be influenced by signaling theory because how a company manages its risks can signal investors about its quality and prospects, thereby impacting its value.

The relationship between IC and company value in signaling theory is based on the idea that a company's value is determined by its ability to signal or convey information about its assets, profits, and financial policies to investors. IC includes the knowledge, skills, and experience of a company's employees, which is an essential aspect of company value because it can influence the company's ability to signal and attract investors. Factors such as company size, company growth, and IC have been shown to significantly impact financial performance, affecting company value.

Signal theory can provide a strong theoretical basis to explain the disclosure value of corporate social responsibility on the company (Seth & Mahenthiran, 2022). Signaling theory states that CSR practices can act as signals to stakeholders, influencing evaluations of a company's potential value. The strength of these signals may vary in different institutional environments, and the effectiveness of CSR disclosure may increase firm value through the mediating role of investor sentiment. Therefore, the relationship between CSR practices and firm value is influenced by the signaling effects of CSR, which may vary based on the institutional environment and the level of information circulation.

### **Enterprise risk management**

Enterprise risk management (ERM) is a process that integrates or combines all types of risks and uses integrated tools and techniques to mitigate risks and to communicate across lines or business levels compared to traditional risk management (Sayilir and Farhan, 2017; Iswajuni, et al, 2018; Farrell and Gallagher, 2019). The purpose of ERM is to create added value in every organization's activity on an

ongoing basis. In addition, implementing ERM can assist companies in making decisions regarding activities that must be carried out to do business activities with measurable risks. The ERM Disclosure consists of 108 items covering eight dimensions based on the ERM framework issued by COSO (Committee of Sponsoring Organizations of the Treadway Commission). According to COSO, ERM is a process affected by management, the board of directors, and other personnel that determines strategy and covers the organization (Iswajuni et al., 2018).

## **Intellectual capital**

Intellectual capital (IC) is the company's intangible assets in knowledge, information, experience, discovery, innovation, market share, and community-owned by human resources and company organizations (Nuryaman, 2015). A company's intellectual capital aims to create a framework to describe all the company's resources and how they interact to create value (Gil, 2017). Experts in intellectual capital divide intellectual capital into three dimensions: human capital, structural capital, and relational capital. Intellectual capital is recognized as a strategic asset for the company's sustainability in a high-competition era (Ahmed et al., 2019). Moreover, investors prefer companies with better intellectual capital efficiency. Gradually, the importance of intellectual capital has grown. Therefore, it is clear to analyze the dynamics of intellectual capital and its effect on business performance.

## **Corporate social responsibility**

Corporate social responsibility (CSR) is the company's commitment to improving community welfare through good business practices and contributing through some of its resources (Kamaliah, 2020). CSR disclosures provide information about the company's unobservable and intangible attributes that affect stakeholders, including customers, suppliers, and governments (Seth & Mahenthiran, 2022). CSR activities can positively affect the market perception of products by enhancing the company's image and reputation. Furthermore, CSR is intended to send a positive signal about the quality and type of company. Companies involved in CSR will also engage in activities that benefit both backward and advanced stakeholders, contributing to the company's productivity by supporting and developing sustainable relationships (Lee & Choi, 2021).

## **Firm value**

Firm value is the value needed by investors to make decisions about their investments which are reflected in the company's stock price (Kamaliah, 2020). As a company manager, a manager must act under the owner's and shareholders' desire to improve their welfare. The increase in owners' and shareholders' welfare can be reflected in the increase in the stock market (Iswajuni et al., 2018). The firm's value maximizes shareholders' wealth if the company's stock price increases. The higher the stock price, the higher the shareholder wealth. Several ratios are used to measure a company's market value, including price-earnings ratio (PER), market-to-book ratio, market-to-sales ratio, Tobin's Q, and price or cash flow ratio. Each ratio provides information for management and investors on different matters. One of the ratios assessed to provide the best information is Tobin's Q ((Sayilir and Farhan, 2017; Iswajuni, et al, 2018; Farrell and Gallagher, 2019).

## **Enterprise risk management and firm value**

Enterprise risk management (ERM) is a process that identifies, assesses, and manages individual risks (for example, currency risk, interest rate risk, reputation risk, and legal risk) within a coordinated and strategic framework (Anton, 2018). ERM can be seen as a portfolio view of all the risks faced by the company. An enterprise risk management application under the principles and risk management frameworks provides a positive signal for investors to continue investing in the company (Ismanu et al., 2021). The more optimal the company controls risk, the better the investor's view of the company. This reason makes more investors interested in investing. As a result, it increases the firm value and relates to the previous findings by Anton (2018), Iswajuni et al. 2018; Phan et al., 2020; Chairani & Siregar, 2021; Meskovic & Zaimovic, 2021). Previous research stated that enterprise risk management positively affects firm value.

H1: Enterprise risk management increases firm value.

## **Intellectual capital and firm value**

Intellectual capital (IC) aims to create a framework to describe all the company's resources and how they interact to create value (Gil, 2017). If three intellectual resources, such as human capital, structural capital, and relational capital, are utilized optimally, it will excel intellectual capital in the company. The company's advantages in intellectual capital create a good signal for investors. Moreover, intellectual capital will make it easier for superior companies to fulfill the interests of all stakeholders, including

investors (Nuryaman, 2015). Investors in the capital market will show appreciation for the superiority of the company's intellectual capital by increasing demand for the company's shares. It will create an impact on increasing the firm value. Nuryaman (2015); Anifowose et al. (2018); Ahmed et al. (2019); Nguyen and Doan (2020); Salvi et al. (2020) proved that there is a positive result between intellectual capital and firm value.

H2: Intellectual capital increases firm value.

## **Corporate social responsibility and firm value**

CSR as a business commitment to contribute to sustainable economic development through collaboration with employees, their families, local communities, and the public is expected to improve the quality of life that is beneficial for business and development (Kamaliah, 2020). The more contributions made by the company to society and the environment, the public's trust in the company will increase. As a result, CSR can provide a positive signal for investors who will invest their capital in the company. A good relationship between the company and investors increases the firm's value equity because strategic CSR practices provide resources that encourage positive behavior (Lee & Choi, 2021). Kamaliah (2020); Hendratama and Huang (2021); Lee and Choi (2021); Qiu et al. (2021); Seth and Mahenthiran (2022) revealed that CSR disclosure has a positive effect on firm value.

H3: Corporate social responsibility increases firm value.

## **Methodology**

The population in this research were all companies listed on the Indonesia Stock Exchange in 2018-2020 ([www.idx.co.id](http://www.idx.co.id)). The researchers used a purposive sampling method with the following criteria:

1. Manufacturing companies listed on the Indonesia Stock Exchange in 2018-2020.
2. Manufacturing companies that used the rupiah currency in their financial statements.
3. Manufacturing companies that did not suffer losses during the research year.
4. Manufacturing companies that provided complete data related to research variables.

Based on these criteria, the sample in this research was 54 manufacturing companies on the Indonesia Stock Exchange in the 2018-2020 period, with 162 financial statement data and annual reports.

This research used 2 variables: the independent variables (ERM, IC, and CSR) and the dependent variable (firm value). ERM is a process that integrates or combines all types of risks. It uses integrated tools and techniques to mitigate risks and to communicate across lines or business levels compared to traditional risk management (Sayilir and Farhan, 2017; Iswajuni, et al, 2018; Farrell and

Gallagher, 2019). IC is considered an asset in knowledge-based companies (Gunawan & Tartila, 2017); CSR is the company's commitment to improving community welfare through good business practices and contributions through some of its resources (Kamaliah, 2020). Firm value is the value needed by investors to make decisions about their investments which are reflected in the company's stock price (Kamaliah, 2020). Measurements for each variable are shown in Indicator and Variables below:

Variables	Indicator	
Enterprise Risk Management	$ERMDI = \frac{\sum_{ij} Ditem}{\sum_{ij} ADItem}$	1
Intellectual Capital	$ICDI = \frac{\sum_{ij} Ditem}{\sum_{ij} ADItem}$	2
Corporate Social Responsibility	$CSRDI = \frac{\text{Total CSR company disclosure}}{\text{Total CSR disclosure according to GRI}}$	3
Firm Value	$\text{Tobin's } Q = \frac{EMV + D}{EBV + D}$	4

Note:

- Σij D item : Total ERM item score disclosed
- Σij AD item : Total ERM item that should be disclosed
- Σij D item : Total IC item score disclosed
- Σij AD item : Total IC Items that should be disclosed
- EMV : (Equity Market Value or Closing price x number of outstanding shares)
- EBV : (Equity Book Value or total assets of the company – total liabilities)
- D : Debt or Book value of total debt.

All data were analyzed using SEM-PLS (Structural Equation Modeling based on Partial Least Square) with SmartPLS 3.0 application. The reason for using SmartPLS is (1) it can automatically estimate p-values for path coefficients. It can be seen that most other PLS software only gives the T value so that the user must compare it with the table T value or look for the p-value again; (2) can provide several indicators of model fit that can be useful for comparing the best model between different models. The resulting fit indicators include the R-squared average (ARS), average path coefficient (APC), and average variance inflation factor (AVIF); and (3) can provide output value of indirect effect and total effect along with p-value, standard error, and effect size (Hair et al., 2017), with the following equation:

- a. Outer Model Equation

- Exogenous latent variable 1

$$X_1 = \lambda X_1 \xi_1 + \delta_1 \tag{1}$$

- Exogenous latent variable 2

$$X_2 = \lambda X_2 \xi_2 + \delta_2 \tag{2}$$

- Exogenous latent variable 3

$$X_3 = \lambda X_3 \xi_3 + \delta_3 \tag{3}$$

- Endogenous latent variables

$$Y = \lambda Y \eta + \varepsilon \tag{4}$$

- b. Inner Model Equation

$$\eta = \gamma_1 \xi_1 + \gamma_2 \xi_2 + \gamma_3 \xi_3 + \varsigma \tag{5}$$

Note:

$X_1$  : ERMDI

$X_2$  : ICDI

$X_3$  : CSRDI

$Y$  : Torbin's Q

$\lambda X_1$  : Outer Loading of Enterprise Risk Management

$\lambda X_2$  : Outer Loading of Intellectual Capital

$\lambda X_3$  : Outer Loading of Corporate Social Responsibility

$\lambda Y$  : Outer Loading of Firm Value

$\xi_1$  : Enterprise Risk Management

$\xi_2$  : Intellectual Capital

$\xi_3$  : Corporate Social Responsibility

$\eta$  : Firm Value

$\gamma_1$  : Path Coefficient for Enterprise Risk Management on Firm Value

$\gamma_2$  : Path Coefficient for Intellectual Capital on Firm Value

$\gamma_3$  : Path Coefficient for Corporate Social Responsibility on Firm Value

$\delta$  : Noise Exogenous Latent Variable

$\varepsilon$  : Noise Endogenous Latent Variable

$\varsigma$  : Residual Value.

## Results and discussion

### *Descriptive statistical analysis*

Table 1 shows the results processed by descriptive statistical tests with 162 data. The minimum value for enterprise risk management was in 2019, while the maximum was in 2020. Meanwhile, the median value for enterprise risk management was 0.759. Of the 162 samples used in manufacturing companies in Indonesia, the majority have implemented ERM; namely, around 78% of companies with the highest value have implemented a systematic approach to manage risks and exploit opportunities related to achieving organizational goals, namely increasing the company's value.

The minimum value of intellectual capital was in 2018, while the maximum was in 2020. Meanwhile, the median value of intellectual capital was 0.333. The application of IC in manufacturing companies used as samples for this research averages 63% of the maximum value. It is concluded that IC is considered necessary because it focuses on several areas, such as human capital, information capital, brand awareness, and instructional capital, which can maximize company value.

The minimum value for corporate social responsibility was in 2018, while the maximum was in 2020. Meanwhile, the median value for corporate social responsibility was 0.044. The average value is 0.0045, 57% of the maximum value. Most of them have implemented CSR well. The company's awareness of CSR disclosure illustrates how the company contributes to maintaining a balance of economic, environmental, and social interests while meeting the expectations of shareholders and stakeholders.

The minimum firm value was in 2018, while the maximum was in 2018. Meanwhile, the median value of the firm value was 1.161. The average firm value is 2.246, 12.7% of the maximum value. It means that of the 162 samples used, the company value is said to have not been maximized. The mean value of enterprise risk management, intellectual capital, corporate social responsibility, and firm value showed a more excellent value than the standard deviation value. It means that there is no data deviation in the research.

Table 1  
 Descriptive Statistical Analysis

Variables	N	Min	Max	Mean	Median	Standard Deviation
Enterprise Risk Management	162	0.518	0.972	0.760	0.759	0.092
Intellectual Capital		0.278	0.528	0.341	0.333	0.012
Corporate Social Responsibility		0.022	0.077	0.045	0.044	0.012
Firm Value		0.363	17.678	2.246	1.161	2.895

Source: Data processed with SmartPLS (2022)

## Results of the measurement model (outer model)

### *Convergent validity*

The convergent validity test is related to the principle that the manifest variables of a construct should be highly correlated. The reflexive indicator can be seen from the loading factor value for each construct indicator. The rule of thumb is used to assess convergent validity. The rule is that the loading factor value must be greater than 0.7. Another method to measure convergent validity is the Average Variance Extracted (AVE). If the AVE value of each variable has a value above 0.5, it has met the convergent validity criteria (Hair et al., 2017). The results of convergent validity measurement can be seen in Table 2 through the outer loadings value, which had a value greater than 0.70. Therefore, each variable has been proven to have an excellent convergent validity value. Thus, the requirements for convergent validity have been met. Meanwhile, the average variance extracted (AVE) value showed that the AVE value had a value greater than 0.50. It proves that all constructs can be said to be good. Therefore, all constructs can meet the validity requirements.

Table 2  
 Convergent Validity

		Enterprise Management	Risk	Intellectual Capital	Corporate Responsibility	Social	Firm Value
Enterprise Management	Risk	1.000					
Intellectual Capital				1.000			
Corporate Responsibility	Social				1.000		
Firm Value							1.000
Average Variance Extracted (AVE)		1.000		1.000	1.000		1.000

Source: Data processed with SmartPLS (2022)

### *Discriminant validity*

The results of discriminant validity measurement can be seen in Table 3 through the cross-loadings value. Each construct with its indicators has a higher cross-loading value than the others. Therefore, the constructs in this research could predict their indicators better than others.

Table 3  
 Discriminant Validity

	Enterprise Risk Management	Risk	Intellectual Capital	Corporate Social Responsibility	Social	Firm Value
Enterprise Risk Management	1.000					
Risk	-0.915	1.000				
Intellectual Capital	-0.915		1.000			
Corporate Social Responsibility	0.889		-0.784	1.000		
Firm Value	0.709		-0.567	0.787	1.000	

Source: Data processed with SmartPLS (2022)

### Reliability

The results of the reliability measurement can be seen in Table 4 through the composite reliability and Cronbach's alpha value. The value of each construct was more significant than 0.70. It proves that all constructs can be said to be good. Therefore, all the constructs can meet the reliability requirements.

Table 4  
 Reliability

	Composite Reliability	Cronbach's Alpha
Enterprise Risk Management	1.000	1.000
Intellectual Capital	1.000	1.000
Corporate Social Responsibility	1.000	1.000
Firm Value	1.000	1.000

Source: Data processed with SmartPLS (2022)

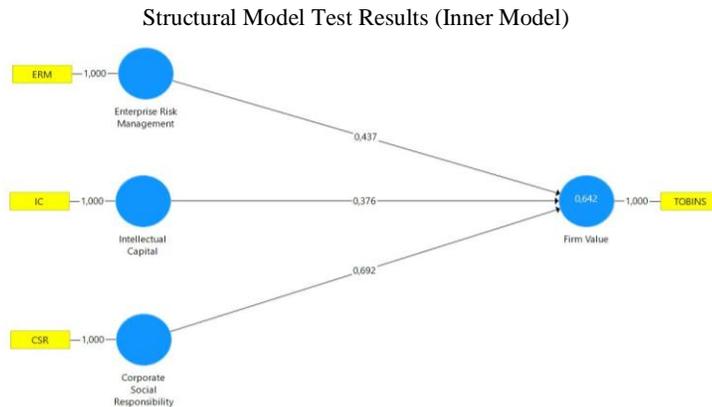


Figure 3. Structural Model Test Results  
 Source: Data processed with SmartPLS (2022)

## Coefficient of determination ( $R^2$ )

The results of the coefficient of determination R Square measurement in table 5 show that the firm value variable can be explained by the enterprise risk management, intellectual capital and corporate social responsibility by 64.2%. Meanwhile, 35.8% is explained by other variables outside the variables in this research.

Table 5  
 Coefficient of Determination ( $R^2$ )

	R Square	R Square Adjusted
Firm Value	0.642	0.635

Source: Data processed with SmartPLS (2022)

## Path coefficient

The results of the path coefficient measurement in Table 6 obtained the relationship between enterprise risk management and the firm value has a positive original sample value of 0.437 and P values of 0.003 (P values<0.05). Therefore, the first hypothesis is accepted (which states that enterprise risk management positively and significantly affects firm value). Furthermore, the relationship between intellectual capital and the firm value has a positive original sample value of 0.376 and P values of 0.001 (P values<0.05). Therefore, the second hypothesis is accepted (which states that intellectual capital has a positive and significant effect on firm value). Besides, the relationship between corporate social responsibility and firm value has a positive original sample value of 0.692 and P values of 0.000 (P values<0.05). Therefore, the third hypothesis is accepted (which states that corporate social responsibility has a positive and significant effect on firm value).

Table 6  
 Path Coefficient

	Original Sample	Sample Mean	Standard Deviation	T Statistics ( O/STDEV )	P Values	Results
Enterprise Risk Management → Firm Value	0.437	0.444	0.145	3.020	0.003	H <sub>1</sub> Accepted
Intellectual Capital → Firm Value	0.376	0.370	0.112	3.346	0.001	H <sub>2</sub> Accepted
Corporate Social Responsibility → Firm Value	0.692	0.684	0.095	7.313	0.000	H <sub>3</sub> Accepted

Source: Data processed with SmartPLS (2022)

## **Enterprise risk management and firm value**

The test results in this research indicated that enterprise risk management positively and significantly affects firm value. It shows that enterprise risk management can help management make corporate strategies to achieve goals, especially in providing added value to shareholders. Moreover, enterprise risk management is helpful in various aspects, such as better risk-return decisions, more efficient capital allocation, increased stock prices, and so on (Farrell & Gallagher, 2019). The benefits of enterprise risk management can be a good signal for shareholders and potential investors. Therefore, enterprise risk management optimally provides a good impact on the company and increases the firm value. This result is in line with previous research, which stated that enterprise risk management has a positive effect on firm value (Anton, 2018; Iswajuni et al., 2018; Phan et al., 2020; Chairani & Siregar, 2021; Meskovic & Zaimovic, 2021). Contrary, it is different from the research conducted by Sayilir and Farhan (2017), that enterprise risk management is negative but not significant to firm value.

## **Intellectual capital and firm value**

The test results in this research indicated that intellectual capital has a positive and significant effect on firm value. Companies with intellectual capital with capability, competence, and high commitment will increase productivity and efficiency individually and collectively. The optimal intellectual capital makes the company able to generate higher profits. In line with Nguyen and Doan (2020), business profits are based on companies creating knowledge and turning that knowledge into value. The advantages of the company's intellectual capital become an attraction for investors, so they are interested in investing their capital, increasing the firm's value. This result is in line with previous research, which stated that intellectual capital has a positive and significant effect on firm value (Nuryaman, 2015; Anifowose et al., 2018; Ahmed et al., 2019; Nguyen & Doan, 2020; Salvi et al., 2020). Unlike the research conducted by Agomor (2021), which showed that there is no effect of intellectual capital on Tobin's q, which is a proxy for firm value.

## **Corporate social responsibility and firm value**

The test results in this research indicated that corporate social responsibility has a positive and significant effect on firm value. Companies that pay attention to corporate social responsibility can improve the company's reputation and increase the firm value. Corporate social responsibility can be expensive, but it

has strategic implications and has become a competitive advantage for companies in various industries (Bardos et al., 2020). The corporate social responsibility disclosure provides signals to stakeholders and potential investors regarding the company's contribution to its social activities. Therefore, the company seeks to report its corporate social responsibility activities transparently, in more detail, and completely. This transparent disclosure increases investors' demand for company shares, thereby increasing the firm value. This result is in line with previous research, which stated that corporate social responsibility has a positive and significant effect on firm value (Kamaliah, 2020; Hendratama & Huang, 2021; Lee & Choi, 2021; Qiu et al., 2021; Seth & Mahenthiran, 2022). It is different from the research conducted by Worokinasih & Zaini (2020), which stated that there is no significant effect between corporate social responsibility to firm value.

## **Conclusions**

Based on the analysis conducted on 54 manufacturing companies in the 2018-2020 period with 162 financial statement data and annual reports, the results showed that ERM, IC, and CSR positively affected firm value. Manufacturing companies that can optimize ERM, IC, and CSR can be a distinct advantage in the eyes of investors, where these advantages will have an impact in the future. Moreover, investors will be interested in investing their shares in the company; thus, they can increase stock prices, impacting firm value.

This study has several implications for the role of ERM, IC, and CSR in increasing firm value. First, this study can be a reference for manufacturing companies in Indonesia to increase firm value through the ERM mechanism, IC management, and CSR implementation. Therefore, implementing a corporate risk management program is important for manufacturing companies because it can help companies identify and manage the risks they face. The application of risk management can also be used as an analogy for increasing the value of a company, while the implementation of IC management can provide benefits to company value for manufacturing companies. Research shows that IC is an important resource for companies and that its effective management can create value, improve performance, and provide long-term competitive advantage. Manufacturing companies with high IC are expected to have better liquidity, risk management systems and financial performance. while implementing CSR can maximize shareholder capital, company reputation, and long-term company survival. It can attract investors to invest to be a benchmark for investing and the company's sustainability. Second, for the government, this study can be used as a reference basis for making regulations related to ERM and CSR, especially in manufacturing companies in Indonesia. Third, for investors, this study can be used as a guide in making the right decisions related to investing in the company. Investors are currently oriented not only

to the company's financial performance but also to look at the company's social performance. Companies not only publish information on the financial performance of business organizations (financial statements only) but also all information related to COSO ERM (i.e. internal environment, Target setting, Event identification, Risk assessment, Risk treatment, Control activities, Information and communication, Monitoring); IC (i.e. Human capital, Structural capital (or organizational capital), Relational (customer) capital).

Meanwhile, this research has some limitations, namely, the research sample was limited to manufacturing companies, These findings are only relevant to these findings, so they cannot be generalized to other sectors and companies. The low form of corporate responsibility in social activities. It affected the low score of CSR disclosure, and the results could not be generalized to other companies. Therefore, future research needs to expand the sample contributing to CSR activities and disclosures environmental responsibility, ethical responsibility, philanthropic responsibility, and economic responsibility.

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## Annex

Table A1

No	Name (Year)	Title	Financial Performance	GCG	Firm Size	CSR	IC	ERM
1	Mahmut Aydoğmuş, Güzhan Gülay, Korkmaz Ergun (2022)	Impact of ESG performance on firm value and profitability						
2.	Harmono Harmono, Sugeng Haryanto, Grahita Chandrarin, Prihat Assih (2023)	Financial Performance and Ownership Structure: Influence on Firm Value Through Leverage	Financial Performance has positive and significant					
3.	Nur Asni, Dian Agustia (2021)	The mediating role of financial performance in the relationship between green innovation and firm value: evidence from ASEAN countries	on firm value					
4	Hanan BenFatma, Jamel Chouaibi (2023)	Corporate governance and firm		board gender diversity				

		value: a study on European financial institutions		and CEO ownership are positively related to the firm value. board size and ownership concentration are negatively related.
5	Giang Tra Thi Dang(B), Anh Nguyen Huu, and Thao Phuong Nguyen (2023)	Impact of Corporate Governance on Firm Value: Empirical Evidence from Vietnam		GCG positively impacts on firm value
6	Paolo Saona, Pablo San Martin (2016)	Determinants of firm value in Latin America : an analysis of firm attributes and institutional factors		Ownership Concentration are significant drivers of the market value of the firm
7	Shikha Bhatia & Nidhi Singh (2021)	Dynamics of capital structure and firm value of Indian listed firms: a PLS-SEM approach		The most significant variables that influence firm's value were seen to be firm's growth followed by firm's size.
8	Hirdinis M. (2019)	Capital Structure and Firm	Profitability has no	firm size has a

		Size on Firm Value Moderated by Profitability	significant effect on firm value	significant negative effect on firm value
9	Khoirin Azaro, Ludfi Djajanto, Padma Adriana Sari (2019)	The Influence of Financial Ratios and Firm Size on Firm Value		firm size do not have significant influence on firm value
10	Hatem Rjiba, Abderrahman Jahanmane, Ilyes Abid (2020)	Corporate social responsibility and firm value: Guiding through economic policy uncertainty		CSR commitment on firm value
11	Hassan Hafez Elkosry (2016)	Corporate Social Responsibility and Firm Value: An Empirical Study of an Emerging Economy.		CSR has a insignificant negative effect on firm value
12	Henri Servaes and Ane Tamayo (2013)	The Impact of Corporate Social Responsibility on Firm Value: The Role of Customer Awareness		CSR activities can add value to the firm
13	Nuryaman (2015)	The Influence of Intellectual		the intellectual capital

		l Capital on The Firm's Value with The Financial Performance as Intervening Variable			has a positive effect on firm value
14	Thapenes Roy, Sari Yuniarti, Nanik Sisharini, Sunarjo Sunarjo, Nurhidayah Yahya (2023)	Does Profitability Matter in the Relationship between Intellectual Capital and Firm Value?			value-added capital employed and structural capital value added had a significant effect on firm value. In contrast, value-added human capital had no effect on firm value.
15	Sirinuch Nimtrakon (2015)	The relationship between intellectual capital, firms' market value and financial performance: Empirical evidence from the ASEAN			positive relationship between IC and firm value
16	Iswajuni Iswajuni, Arina Manasikana, Soegeng Soetedjo (2018)	The effect of enterprise risk management (ERM) on firm value in	ROA size of the company have a significant positive	size of the company have a significant positive	ERM, of the company have a significant positive

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manufactu ring companies listed on Indonesian Stock Exchange year 2010- 2013	effect on the firm value	effect on the firm value	effect on the firm value
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