“Enterprise risk-based management disclosures and firm value of Indonesian finance companies”

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ENTERPRISE RISK-BASED MANAGEMENT DISCLOSURES AND FIRM VALUE OF INDONESIAN FINANCE COMPANIES

Abstract

Rapid changes in business transactions and technology development have made risk-based management a significant issue for business entities. The ability in managing risk would lead to a better firm value. This study investigates the effect of enterprise risk-based management disclosures (ERMD) and intellectual capital (IC) on firm value. It also tests the moderating effect of profitability on the relationship ERMD and IC with firm value. It examines the annual reports of 49 finance firms listed on the Indonesia Stock Exchange (IDX). The data cover three years, from 2016 to 2018. It employs panel data regression to test the hypotheses. The results show that the effect of ERMD and IC on firm value is partially and positively moderated by profitability. The findings show that the application of ERDM and IC can increase firm value. The originality of this study is that profitability can moderate the effect of ERMD and IC on firm value. The increase of ERMD and IC management within the company must be balanced with profitability to raise capital from outside the company to increase firm value.

Keywords enterprise risk management, intellectual capital, profitability, firm value, stock prices

JEL Classification M21, O34, G32

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INTRODUCTION

The stock price of a firm reflects its market value. An increase in stock prices means an increase in shareholders' wealth. Managers have to manage the firm well to make investors willing to buy the stocks. Thus, shareholders' wealth will increase if the stock price increases (Ross et al., 2013). In other words, the stock price reflects directly the value of the firm. Salvatore (2011) asserts that an increase in stock prices is identical to an increase in the value of a firm and, therefore, an increase in shareholder wealth. The management of the firm has to bring up the stock price and so the market value of the firm.

The market value of public firms' shares is determined by demand and supply in the market. Share prices reflect the results of investor analysis of management policies, firm performance, risk management, as well as information that has been disclosed by the firm to the public (Yang & Zhao, 2017). Thus, potential investors shall be provided with timely and reliable information to be able to properly value the firm. They will be attracted to the high quality and prospective firm.

Managing substantial risk well, which is then stated in financial reporting, can maximize firm value. However, risk management must be comprehensive as the management will face the uncertainty that can endanger the sustainability of the firm (Fridson & Alvarez, 2011). The risk may cause significant losses, and in some situations, the firm

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may go bankrupt. An increase in uncertainty faced by the firms requires them to implement risk management holistically. So, realizing good risk management becomes a management need for a firm to keep sustainable, as well as the firms' efforts to increase the value. Corporate risk management is part of the strategy of the business and aims to protect and increase shareholder value (Hyot & Lienberg, 2011).

The difference of opinion regarding Enterprise Risk Management (ERM) is a fundamental pattern for portfolio risk management associated with various aspects, such as distribution systems, supply chains, information technology, human resources or corporate governance. McShane et al. (2011) contend that the purpose of ERM is to systematically understand the interdependencies and associations between risks. Hoyt and Liebenberg (2011) assert that ERM encourages the increase of firm value by reducing earnings volatility and stock prices. ERM can reduce costs from external capital, create synergies, and increase capital efficiency between different risk management activities. ERM is considered to be important because it shows transparency to stakeholders, which can increase public trust in the firm so that the firm value can also increase (Savitri, 2016). ERM is believed to be more pronounced in the financial sectors as they are exposed to domestic, regional, and international factors.

Risk management among Indonesian companies has been of great concern. The evidence shows that many Indonesian large firms have been hit severely and some were collapsed when the economic crisis hit the country. Indonesia has been hit by two major economic crises, the 1998 financial crisis, and the 2008 global financial meltdown. The financial sector is among the sectors harshly hit by the crisis. Although the stock market has recovered, the volatility of the stock prices of the financial sector is considered to be high. For example, the stock prices of firms in the financial sectors have dropped significantly during the first semester of 2018. Some large banks' stocks decreased by more than 1 percent, such as BMRI (2.28 percent), BBNI (1.37 percent), and BBCA (1.14 percent), but some had a relatively small drop of 0.3 percent (BBRI) or 0.4 percent (BBTN). The evidence indicates that a bank is sensitive to risk exposures.

Those fluctuations show the instability of the firm value due to the threat of globalization and free markets that occur in the international economy. The increase of firm value should underlie all decisions taken by firm management. It relates to the application of corporate risk management. Firms need to manage risk well because technological changes, globalization, and the development of business transactions such as hedging cause the harder challenges faced by firms in dealing with risks (Beasley et al., 2005). The Indonesian's Statement of Financial Accounting Standard (SFAS) No. 60 (Revised in 2015) and the Decree of the Head of Financial Institution and Stock Market Supervisory Agency No. Kep-431/BL/2012 require firms to present an explanation of risks that may affect business sustainability and the efforts that have been made to manage these risks. For commercial banks, risk management practices must include information on various types of risks, such as operational, credit, strategic, market, liquidity, legal, and compliance risks. These are all based on the provisions of the Indonesian Financial Services Authority (FSA) decree No. 18/POJK.03/2016 (FSA, 2016).

Firm value increase is also influenced by intellectual capital. As the intensity of competition is increasing along with the development of information technology, firms need innovation to change the business pattern from the traditional era to the modern era, or so-called knowledge-based economy, which is knowledge or intellectual capital, to play an essential role in bringing up firm value (Sawarjuwono & Kadir, 2003). There is strong evidence that stakeholders are interested in intangible assets (Amran et al., 2009). Intellectual capital is used as an approach to assess and measure intangible assets. Intellectual capital leads investors and shareholders to give a better assessment of the organizational value and the firm's ability to generate added value and sustainable competitive advantage, thereby increasing firm value (Yang & Zhao, 2017).

Many studies on firm value have been conducted. Yet there is still inconsistency in findings. For example, Silva et al. (2018), McShane et al. (2011), Panaretou (2014), and Bontis et al. (2000) document that

risk management disclosures affect firm value. In contrast, Bertinetti (2013) and Sorin (2018) find that risk management disclosure does not affect firm value.

However, the effect of IC on firm value is still mixed. For example, Bontis et al. (2000) and Yang and Zhao (2017) find that IC positively affects firm value. On the other hand, it does not affect firm value (Bertinetti, 2013). However, in practice, there are still many firms that have not maximized their intellectual capital. To overcome this inconsistency, a contingency approach is implemented by adding other variables that can affect firm value (Landau & Everitt, 2003).

Following Landau and Everitt (2003), this study includes profitability in the analysis. Fridson and Alvarez (2011) assert that profitability shows the ability of firms to generate profits. Profitability is the ratio of management effectiveness based on the returns caused by sales and investment. Profitability can affect firm value because firms can predict the amount of cash flow in the future, so that makes investors interested in investing, which then increases the firm value. The novelty of this research is that whether profitability can moderate the relationship between ERMD and IC on firm value.

Thus, the aim of this study is to analyze the effect of ERM and IC on firm value. It also examines if profitability moderates the relationship between ERMD and IC on firm value. It uses a total of 147 firms over a three-year period. It shows that risk management disclosure affects firm value. Intellectual capital affects firm value. It also documents that profitability strengthens the relationship between ERMD and IC on firm value.

1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The Indonesian Financial Accounting Standards No. 60 (Revised in 2015) requires firms to be aware of risks that may arise because paragraph 31 explains that the information provided by an entity should enable report users to appraise the nature and scope of risks from financial instruments. It must be able to identify the exposes of the entity at the end of the reporting period. It is not uncommon that financial and non-financial information is essential to the firm. Stakeholder theory states that stakeholders become a driving force for a firm to present information in the firm's annual report, and help management to minimize the impact of losses that may be caused (Freeman, 2004). This is also consistent with signaling theory, according to which information in risk management disclosures is a manifestation of the firm's commitment to risk management, so it can be used as a positive signal to generate good news and influence market reactions. So, investors can appraise the firm's prospects in achieving the expected goals. Investors believe that high-quality firms will be willing to make enterprise risk management disclosures broader and more specific (Bontis et al., 2000).

Risk management disclosure will increase firm value because of the firm's efforts to meet the information needs required by stakeholders and plays an important role in maintaining firm stability. This ensures that the firm's internal control is maintained, which positively affects stakeholders and encourages the market to offer the firm high prices so that the firm's value is high (Baxter et al., 2013). Silva et al. (2018) find that enterprise risk management disclosure affected firm value. The hypothesis to be tested is that: Enterprise risk-based management disclosure positively affects firm value.

Intellectual capital is defined as intangible assets. It also relates to knowledge, experience, information, and intellectual property that can be used to create wealth and attain a competitive advantage (Bontis et al., 2000). The resulting competitive advantage reflects the higher value of the firm than other firms (Chen et al., 2005). The concept of intellectual capital implies that competitive advantage and value creation are obtained by maximizing the utilization of intellectual capital components.

The resource-based theory states that a firm will gain a competitive advantage if it can utilize its existing resources. These resources entail intellectu-

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al, human, physical, and structural capital so that the firm realizes the importance of intellectual capital (Barney, 1991). Chen et al. (2005) contend that intellectual capital could determine the firm market value. Intellectual capital is perceived to be an essential strategic asset for achieving business sustainability. The maximum utilization of intellectual capital will increase the perception of the market to firm value. Yang and Zhao (2017) find that intellectual capital affects firm value, which means that the higher the intellectual capital allocated by a firm, the greater the firm value will be. Thus, the hypothesis to be examined is intellectual capital positively affects firm value.

Risk-based management information is one of the information needed by stakeholders. Implementation of risk management in a firm can help to control the activities of the management so that the firm can minimize fraud that can harm it and the stakeholders (Bontis et al., 2000). According to Florio and Leoni (2017), risk management can manage risks effectively. In investing, investors will surely understand the risks faced by the firm, as well as the income they will receive. Risk information can increase firm value, and the market will provide a higher score for firms that have high profitability. Bertinetti et al. (2013) show that profitability can moderate the effect of risk management disclosure on firm value. Accordingly, the proposed hypothesis is that: Profitability moderates the effect of enterprise risk management disclosure on firm value.

Intellectual capital is intangible, whilst intellectual assets are related to intellectual property, information, experience, and knowledge that can be utilized to create wealth and achieve a competitive advantage (Bontis et al., 2000). Furthermore, intellectual capital can be viewed as packaged useful knowledge. This illustrates the role of intellectual capital as a package of knowledge that is useful for the management and the achievement of firm goals. High profitability can lead firms to develop capabilities and motivate their employees to innovate and have systems and structures that can support the firm so that the firm has quality human resources to strengthen the influence of intellectual capital on firm value (Krause & Tse, 2016). Krause and Tse (2016) find that profitability can moderate the effect of intellectual capital on firm value. Thus, the study proposes the following hypothesis: Profitability moderates the effect of intellectual capital on firm value.

2. METHODS

This study examines financial sector firms listed on the Indonesia Stock Exchange between 2016 and 2018. The final sample consists of 49 firms that met the following criteria: (1) they must be in the financial sector; (2) they have issued consecutive financial statements during the observation period; and (3) they have disclosed the risk management.

Firm value is the market value of the debt and equity of a firm. Firm value can be reflected in the firm's share price, which means that a high share price indicates a high firm value (Hoyt & Liebenberg, 2011). Tobin's *Q* is used as a proxy for firm value and is measured using the following formula (Silva et al., 2018):

$$Tobin's\ Q = \frac{EMV + D}{EBV + D}, \quad (1)$$

where EMV is Equity Market Value measured by multiplying the closing price with the number of listed shares at the end of the year, D is the book value of the firm's total debt, and EBV is the book value of total equity.

$$ERMDI = \frac{\sum ijDItem}{\sum ijADItem}, \quad (2)$$

where $ERMDI$ is ERM Disclosure Index, $\sum ijDItem$ is the total score of ERM items disclosed, and $\sum ijADItem$ is total ERM items that should be disclosed.

Intellectual capital is decomposed by three elements. These are human, structural, and customer capital, which is interrelated with knowledge and technology to provide value for the firm in the form of competitive advantage (Sawarjuwono & Kadir, 2003). Intellectual capital is measured using a model developed by Pulic (2004), which is a Value Added Intellectual Coefficient (VAICTM) calculated using the following formula:

$$VAIC = VACA + VAHU + STVA, \quad (3)$$

where $VACA$ is value-added capital employees, $STVA$ is structure capital value-added, and $VAHU$ is value-added human capital.

Profitability is the firm's ability to generate profits. According to Chen et al. (2005), profitability is measured as Return on Assets (ROA). ROA is measured as the ratio between earnings after tax and total assets.

3. RESULTS

3.1. Descriptive analysis

Table 1 shows the results of descriptive statistical analysis. As shown in the table, the average Tobin's *Q* is greater than one. This means that the market values the firms above their book values. The index of ERM disclosures has an average value of 81.3 percent, reflecting that the firms under study have relatively high disclosures in terms of their risk management. The average value of the intellectual capital variable is 3.776, which means that the level of efficiency ensures a safe business and workplace. According to Pulic (2004), if the VAIC value is above 2.50, it indicates a successful business performance. The samples have recorded an average value of return on assets of 2.68, which is a good sign that the firms can profit from the assets they use.

Table 1. Descriptive statistics of variables (*n* = 147 firm years)

Description	Tobin's *Q*	ERMDI	VAIC	ROA
Mean	1.532	0.813	3.775	0.026
Median	1.385	0.814	3.875	0.018
Maximum	3.583	0.944	6.918	0.117
Minimum	0.251	0.481	0.112	0.000
Std. Dev.	0.721	0.074	1.673	0.026

Notes: Tobin's *Q* = Firm Value, ERMDI = Enterprise Risk Management Disclosures, VAIC = Intellectual Capital, and ROA = Profitability.

3.2. Selection of a panel data regression model

Panel data regression research requires a prior selection of the test model, namely whether to use the common effect, fixed effect, or random effect models. There are three stages of the test commonly used, namely the Chow, the Hausman, and the Lagrange tests. The Chow test is the first step to determine the testing model, whether the test will use the common effect or fixed-effect model. If the Chow test results are significant, then the chosen model is fixed-effect, but if the result is not significant, then the common effect is selected as the chosen model. Table 2 presents the results of the Chow test.

Table 2. Chow test results

Model	Prob. value	Hypothesis	Conclusion
Multiple regression	0.0000	H_a accepted	Fixed Effect Model (FEM)
MRA	0.0000	H_a accepted	Fixed Effect Model (FEM)

Table 2 shows that the probability of cross-sectional chi-square regression of multiple panel data regression and MRA regression are significant at 0.000 and 0.000. Thus, the selected model is a fixed effect.

The second stage test is the Hausman test. The test is performed to determine the fixed effects and random effects. If the Hausman test results are significant, then the model to choose is the fixed effect. However, if the results are not significant, then the model to choose is the random effect. Table 3 shows the results of the Hausman test.

Table 3. Hausman test results

Model	Prob. value	Hypothesis	Conclusion
Multiple regression	0.5827	H_0 accepted	Random Effect Model (REM)
Interaction Regression (MRA)	0.3681	H_0 accepted	Random Effect Model (REM)

As shown in Table 3, the probability of cross-section regression of panel data and MRA regression are 0.5827 and 0.3681, respectively. The figures are greater than the alpha of 0.05. Thus, H0 is accepted. The suitable method for both models and the best technique for conducting regression tests is the random effect model.

The third stage is the Lagrange test to obtain the most suitable model. That is whether to continue using the random effect or common effect model.

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This stage is executed because the results differ between stages 1 and 2. If the Lagrange test results are significant, the selected model is a random effect, but if the result is not significant, then the selected model is the common effect. Table 4 presents the results.

Table 4. Lagrange multiplier test results

Model	Prob. value	Hypothesis	Conclusion
Multiple regression	0.000	H_a accepted	Random Effect Model (REM)
MRA	0.000	H_a accepted	Random Effect Model (REM)

Table 4 shows that the probability of multiple regression panel data and MRA regression are significant at 0.000 and 0.000. The suitable method for both models and the best technique for conducting regression tests is the random effect model. The random-effect model is selected considering the results of the Chow, the Hausman, and the Lagrange multiplier tests.

3.3. Regression analysis

3.3.1. Multiple regression analysis on panel data

Table 5 summarizes the results of the random effect. As shown in Table 5, ERMD has a positive and significant effect on firm value. Value-added intellectual capital has also a positive and significant effect on firm value. Thus, both independent variables positively affect the value of the firm, indicating that investors will value the firm higher when the firms disclose more risk management and have higher value-added intellectual capital.

Table 5. Random effect model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	1.757	0.609	–2.885	0.004
ERMDI	3.059	0.755	4.051	0.000
VAIC	0.212	0.025	8.360	0.000

3.3.2. Panel data regression analysis with moderation

The random effect model is chosen to test the hypotheses, taking into account the results of the Chow, the Hausman, and the Lagrange multiplier tests. The results are shown in Table 6.

Table 6. Panel data regression analysis with moderation

Variable	Coefficient	Std. Error	*t*-Statistic	Prob.
Constant	1.907	0.605	–3.152	0.002
ERMDI	3.002	0.747	4.017	0.000
VAIC	0.264	0.034	7.749	0.000
ERMDI*ROA	7.741	3.787	2.044	0.042
VAIC*ROA	1.711	0.767	2.230	0.027

Table 6 shows that profitability can moderate the relationship between ERMD and firm value ($p = 0.042$). Likewise, the interaction of intellectual capital (IC) variables with profitability is also significant ($p = 0.027$). This means that profitability can moderate the relationship between intellectual capital (IC) and firm value.

4. DISCUSSION

The study documents that ERMD affects firm value. Stakeholder theory states that stakeholders become the driving force for a firm to present information in the annual report and help the management to minimize the impact of losses (Freeman, 2004). This means that the higher the firm risk level, the more disclosure of risk information is to be presented by the firm because management requires to explain the causes of risk, the impacts caused, and the way the firm manages risk (Linsley & Shrives, 2006). ERM information provides the stakeholders with a form of good commitment from management regarding how to manage the risk. Therefore, ERM disclosure is regarded as a good and positive signal that enables investors to assess the firm's prospects through ERM information (Sorin, 2018).

Given its nature, the financial sector firm always tries to continuously improve compliance with risk management disclosures. The findings reported in the current study indicate that, in general, financial sector firms have implemented ERM disclosures. They are aware of the importance of implementing risk management in supporting the achievement of corporate goals to attract stakeholders, especially investors to find out the ERM information as a basis for investment decision analysis.

Stakeholders can also assess the firm's prospects through ERM information. Investors positively

evaluate firms that disclose the broader implementation of ERM because greater disclosure items also indicate that the firm has a better commitment to risk management. The presentation of information on risk management disclosures of financial sector firms is in accordance with the FSA Regulation No. 18 / POJK.03 /2016, which contains minimum risk management practices that must include credit, liquidity, strategic, market, operational, compliance, and legal risks. In this study, financial firms have revealed these risks. The result reported in this study is similar to Hoyt and Liebenberg (2011), Bontis et al. (2000), and Meulbroek (2002), who state that ERM disclosures affect firm value. Yet, it is in contrast to Tahir and Razali (2011) and Panaretou (2014), who report that ERMD does not affect firm value.

There is strong evidence suggesting that IC affects firm value. Intellectual capital is a potential source that can create added value and maximize firm value. The wealth of investors as part of firm stakeholders can be achieved if they invest in a firm that can produce high performance, which will be able to provide high dividends to investors and also provide benefits for other stakeholders. Every investor always expects high profits as the return on investment so that he/she will appraise shares of firms at a higher price that can create higher performance. This attracts stakeholders to get information about ownership and a firm's intellectual capital management (Bontis et al. 2000).

The results also show that financial sector firms maximize the use of intellectual capital to create added value. Investors, as part of stakeholders, appraise financial sector firms that have high intellectual capital at a high cost. Investors believe that intellectual capital in a firm maximizes firm performance. This belief encourages investors to trade their stocks, which then increases the market value of the shares in the firm and the firm value. These results are in line with Chen et al. (2005), Krause and Tse (2016), Baxter et al. (2013), and Silva et al. (2018), who report that IC affects firm value. This means that the higher the IC allocated by the firm, the more the firm value will increase. On the contrary, Bertinetti (2013) and Sorin (2018) suggest that IC does not affect firm value.

Profitability can moderate the effect of risk management disclosures on firm value. ERMD is needed by stakeholders since it provides information about risk management. Risk management implementation in a firm can help control management activities so that it can minimize fraud that can harm the firm and stakeholders. Risk management can effectively manage risk. In investing, investors will surely understand the risks faced by the firm, as well as the income they will receive (Bontis et al., 2000).

The results show that profitability strengthens the relationship between ERMD and firm value in the financial sector. Investors appraise firms that have high profitability at a high value. Firms with high profitability are believed to have a better chance of generating profits. Investors will surely understand the risks faced by the firm, as well as the income they will receive. The results reported in the study are in line with Krause and Tse (2016), who find that profitability can moderate the influence of risk management on firm value. In contrast, Bertinetti (2013) reports that profitability cannot moderate the effect of risk management on firm value.

Profitability can moderate the effect of IC on firm value. It indicates that good and high profitability will strengthen the relationship of IC with firm value. Intellectual capital plays an important role in creating firm value, which is reflected in the firm's stock price (Chen et al., 2005). The investors' response reflects the firm value. This is because the stock price is formed by the demand and supply in the market. Investors will consider the profitability of the firm in making investment decisions. Managing various aspects of the assets appropriately can generate value-added for the firm to increase productivity and profits.

The study shows that profitability strengthens the relationship between IC and firm value in the financial sector as high productivity and profits in the financial sector indicate that the firm has a good performance, which will get a positive response in the market. A positive signal from an organization or investor is expected to get a positive market impact, which then provides competitive advantages of high value for firms. Effective and efficient management of IC will further stim-

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ulate investors' interest in investing in financial sector firms. Investors will appraise a higher value to firms that have higher IC management, which will result in increasing firm value. High profitability and IC can strengthen investors' desire to invest in financial sector firms. This result is consistent with Krause and Tse (2016), Panaretou (2014), and Tahir and Razali (2011), who find that profitability can moderate the effect of IC on firm value. In contrast, Baxter et al. (2013) and Silva (2018) show that IC does not affect firm value.

CONCLUSION

This study analyzes the effect of ERM and IC on firm value using profitability as a moderating variable. Risk management disclosures can affect the value of the firm because the risk information, such as credit risk and compliance risk, disclosed by financial sector firms are needed by the investors. Intellectual capital affects firm value since financial sector firms can utilize their intellectual resources, human capital, and capital structure well to improve firm performance, which then attracts investors to invest and increase firm value. Profitability can moderate the effect of ERMD and IC on the firm value. The utilization of assets and intellectual resources in the firm must be managed effectively so that it has a competitive advantage and investors are more interested in the firm given the high profitability prospect. Investors will be more interested in a firm with high profitability.

Disclosure of risk management shows the firm's readiness to face and manage existing risks. The intellectual capital owned by the firm will certainly provide a higher commitment related to stakeholder trust concerning the firm's sustainability. Further study can measure ERMD using different methods, such as using questionnaires or the ISO 31000 risk management standards. Also, it is suggested to add other independent variables to see the relationship with firm value, such as environmental disclosure. For the firm's management, this research can be a reference in making appropriate policies and information that will help control decision-making regarding the implementation of the firm's value. Management must focus on improving performance through factors that can increase firm value. This is to ensure that firms that can manage risk well can achieve their goals, meet the returns expected by investors, and the firm's intellectual capital reflects secured the prospects of the firm.

AUTHOR CONTRIBUTIONS

Conceptualization: Enni Savitri.
Data curation: Enni Savitri, Tatang Ary Gumanti, Nelly Yulinda.
Formal Analysis: Enni Savitri, Tatang Ary Gumanti, Nelly Yulinda.
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Visualization: Enni Savitri.
Writing – original draft: Enni Savitri, Tatang Ary Gumanti.
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