

Determinants of Risk Disclosure Level: Case of Indonesia

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Abstract: *This research aims to examine the determinants of risk disclosure level of public listed firms in Indonesia Stock Exchange. Risk disclosure level is divided into three types, i.e., mandatory, voluntary, and total risk disclosure. The results show that generally firm size and product or service diversification has a positive effect on risk disclosure level, whereas geographic diversification positively affects only voluntary risk disclosure. Based on industry type, firms in certain sectors such as infrastructure, mining, agriculture, and property, have a higher level of risk disclosure than miscellaneous industries.*

Keywords: *Risk Disclosure, Firm Size, Leverage, Profitability, Firm Diversification*

Abstrak: *This research aims to examine the determinants of risk disclosure level of public listed firms in Indonesia Stock Exchange. Risk disclosure level is divided into three types, i.e., mandatory, voluntary, and total risk disclosure. The results show that generally firm size and product or service diversification has a positive effect on risk disclosure level, whereas geographic diversification positively affects only voluntary risk disclosure. Based on industry type, firms in certain sectors such as infrastructure, mining, agriculture, and property, have a higher level of risk disclosure than miscellaneous industries.*

Kata Kunci: *Risk Disclosure, Firm Size, Leverage, Profitability, Firm Diversification*

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1. Introduction

For the last two decades, cases and scandals involving large firms like Enron had increased international public awareness toward the importance of comprehensive, reliable, and relevant reporting system to reduce asymmetric information. One of the main aspects that are currently under the scrutiny is the ability of firms' reports in informing their risk exposure to their stakeholders. On the other side, researches related to risk disclosures or reporting has been relatively limited, especially in Indonesia. Most of the published articles are studies from European countries. Linsley & Shrives (2005) research risk reporting in non-financial public firms in the UK that were listed in FTSE 100 for the year 2001, when the debates on risk reporting started arising especially after the issuance of discussion documents about risk reporting by Institute of Chartered Accountants in England and Wales (ICAEW) for the year 1997. The results of their research are strategic risks the most reported and the level of risk does not affect risk reporting.

Linsley & Shrives (2006) continued their research and examined two additional variables that represent an environmental risk. The result of this research shows the consistent result with their previous study for the same variables used. Meanwhile, the other variables have a positive correlation with risk disclosures.

Helbok and Wagner (2006) took larger samples in North America, Asia, and Europe but only focused on the relation of equity ratio and profitability toward operational risk reporting. The result shows that both variables affect risk disclosures negatively. Risk disclosures for financial sectors also conducted by Horing & Grundl (2011) on insurance firms in Europe and reveal that firm size, risk level, ownership dispersion, cross-listing, and bancassurance activities have a positive effect while profitability has a negative effect toward risk disclosures.

One of the few researches conducted in Asia was done by Amran et al. (2008) related to risk management disclosure in 100 public firms listed in Bursa Malaysia by taking several independent variables into account, i.e. firm size, leverage, product diversification, geographic diversification, and industry type using content analysis structured by Linsley & Shrives (2005). Firm size is proven to have a positive effect,

while leverage and diversification level do not. For industry type, infrastructure and technology sectors tend to disclose more risk information.

Research in Malaysia was again conducted by Ismail & Rahman (2011) on 150 non-financial public firms in Bursa Malaysia as further development of the former researches done by Amran et al. (2008) and Abraham & Cox (2007) related to ownership and board characteristics. This research also divides risk disclosures into mandatory, voluntary, and total disclosures. The findings from this researches are there is a significant effect of institutional investors, board education background, firm size and industry type of industrial products and plantation on risk disclosures.

We have not found similar research in Indonesia. Hence our research will extend previous investigations using Indonesia setting. Our research is focused on non-financial public firms for the year 2010. Non-financial public firms are selected since there is no regulation related to risk disclosures in specific and comprehensive form, and the related rules are not yet as tight as in banking and financial institutions. This research is also aimed to understand how far the risk reporting practices in Indonesia is. Meanwhile, the year selected for the study is 2010 because previous research by Kajuter and Winkler (2003) indicates that an upward trend or risk is reporting over the years. By using a sample from a recent period, it is expected that the result can be more significant and representative to the current condition.

2. Literature Review and Hypotheses Development

Firm size has been perceived as the most affecting variable when it comes to company's disclosure level. As the size of the company increases, stakeholders involved are also getting much more significant. Firms have higher pressure for disclosing information to meet the expectation and supervision from increasing parties of interest. Firms with larger size also have higher resources to be able to disclose more information. Related to risk disclosures, Linsley & Shrives (2006), Abraham & Cox (2007) and Amran et al. (2008) find that firm size has a positive and significant effect on risk disclosures.

H₁: Firm size has a positive effect on risk disclosure level.

Leverage is also commonly used in researches related to disclosures. Based on stakeholder theory, firms are expected to improve their risk disclosures as a justification and explanation on what has happened within the firms. A large proportion of debt in capital structure can also encourage creditors to demand more disclosures on related risk information (Ahn & Lee, 2004 within Amran et al., 2008).

H₂: Leverage level has a positive effect on risk disclosure level.

Diversification can also increase the probability of encountering new risk exposures (Frenkel et al., 2000). Firm diversification is divided into two parts, product/service diversification, and geographic diversification. With the additions of product types or doing geographic diversification, firms should exercise more efforts to achieve their target. This diversification effort can also increase the risk of failure or bankruptcy on a particular business segment or geographic location. Hendriksen & Breda (1992) states that the demand and need for more disclosures as diversification level increases are caused by the increasing variety of growth trend, operation variability, and risks within each geographic and business segment that cannot be aggregately evaluated.

In line with signaling theory, management will try to disclose adequate information to ensure the trust of shareholders toward the improving ability to manage risks caused by diversification and to show the performance of each business and geographic segment. For this reason, company diversification will tend to increase risk disclosure or, in other words, has a positive effect.

H₃: Product/service diversification has a positive effect on risk disclosure level.

H₄: Geographic diversification has a positive effect on risk disclosure level.

Profitability shows the firm's capability in managing the company, generating capital, and safeguarding the value equity at its best. Firms with high profitability will reduce risk disclosures to avoid negative perceptions, while firms with low profitability will try to disclose more about their risk management as a mean of justification and responsibility toward all the stakeholders regarding all the risks and

uncertainties faced by the firms. Helbok & Wagner (2006) and Horing & Grundl (2011) find the negative effect of profitability on risk disclosure level.

H₅: Profitability has a negative effect on risk disclosure level.

Industry type differences bring the company into different characteristics and risk levels that in turn, will affect risk disclosures for each industry. Amran et al. (2008) find that specific industries tend to have higher risk disclosures, in line with findings of Watson et al. (2002) who find that industry type is an important indicator to explain voluntary risk disclosures (Abraham & Cox, 2007). Ahmed & Courtis (1999) also suggests that different industry classifications used in research can explain the variety of testing results.

H₆: Industry type has a significant effect on risk disclosure level.

3. Research Design

Model used in this research is adapted and modified Helbok & Wagner (2006) and Amran et al. (2008):

$$DISC_i = \alpha_0 + \beta_1 SIZE_i + \beta_2 LEV_i + \beta_3 DIPROD_i + \beta_4 DISEG_i + \beta_5 PROF_i + \sum_{n=1}^7 (IND)_i + \varepsilon_i$$

DISC : risk disclosure level of a company:

1. mandatory risk disclosures (*MANDATORY*)
2. voluntary risk disclosures (*VOLUNTARY*)
3. total risk disclosures (*TOTAL*)

SIZE : firm size

LEV : leverage

DIPROD : production diversification

DISEG : geographic diversification

PROF : profitability

IND : industry types based on the Indonesia Stock Exchange excluding financial sectors.

4. Risk Disclosure Level

The dependent variable is measured using content analysis, i.e., by identifying sentences and counting words as a proxy. Word count method was used by Helbok & Wagner (2006) and also Abraham & Cox (2007). Selection of words and not sentences is based on some considerations. The sentence is still used as the basis for coding or identification. Identification of sentence is perceived as a reliable method for disclosure (Milne & Adler, 1999), that was also conducted by Beretta & Bozzolan (2004) and Linsley & Shrives (2006). However, unlike Beretta & Bozzolan (2004) and Linsley & Shrives (2006), the input used is some words within sentences. Milne & Adler (1999) within Abraham & Cox (2007) state that the use of the word can improve precision in measurement, although the selection on word or sentence will not materially differ eventually. This method is also selected because of technical consideration to simplify the calculation and input process.

Content analysis is also conducted only on the Indonesian version of the reports. Calculation of some words was done by converting or copying contents of identified risk disclosures within annual and financial reports into the format of Microsoft Word that has word count feature.

To obtain the relevant number of words that can be input into the model, identification of sentences indicating risk disclosures based on specific criteria was made beforehand, and the number of words was then counted. Within this research, risk disclosure is the disclosure that indicates there's an existence of risk within the company, directly (by mentioning the word 'risk' explicitly) or indirectly (based on evaluation criteria). Risk disclosures related to policy, organization structure and general procedures that are vague are not included as risk disclosures within this research since they cannot give specific information on the risks faced by the firms.

The dependent variables will be divided into three, i.e., mandatory, voluntary, and total disclosures as follows:

- a) Mandatory Risk Disclosure: obtained from identification and calculation of risk disclosures using the content above analysis, based on Indonesia accounting standards (PSAK 50 *Financial Instruments: Presentation and*

Disclosure) and Indonesia Capital Market Supervisory Agency (Bapepam-LK) regulation that explicitly state risk disclosure rules for Indonesian firms.

- b) Voluntary Risk Disclosure: obtained from identification and calculation of risk disclosures with the content above analysis, excluded from mandatory risk disclosures. Identification process and calculation for voluntary risk disclosures were done thoroughly on the narrative sections within annual and financial reports. Aligned with Abraham & Cox (2007), keywords are used to maintain the validity and consistency of risk disclosure identification. The keywords include: '*ketidakpastian*' (uncertainty), '*dampak*' (impact), '*peluang*' (opportunity), '*tantangan*' (challenge), '*ancaman*' (threat), '*bahaya*' (danger), '*prospek*' (prospect), etc., with the respective derivatives. Thorough identification was made repeatedly.

We divide risk into six main categories (Appendix 1). In each category, there are several risk types. With this model as a basis, coding on a sentence from a narrative or non-financial section in the annual or financial report indicating risk disclosures was then performed.

- c) Total Risk Disclosure is the sum of mandatory and voluntary risk disclosures that were done beforehand.

Independent Variables

- a) Firm Size: natural logarithm of total assets (Ismail & Rahman, 2011).
- b) Leverage: total liabilities/total assets (Amran et al., 2008).
- c) Production Diversification: entropy index (Apostu, 2010).
- d) Geographic Diversification: 1 if firms that have significant operations in other countries (geographically diversified) and 0 if otherwise.
- e) Profitability: Return on Equity (ROE) (Horing & Grundl, 2011).
- f) Industry Types: based on Amran et al. (2008), industry types are operated using dummy variable by giving the score of 1 if the company is within specific related industry and 0 if not categorized in the rest of industry types. The industry types are based on the Indonesia Stock Exchange classification

excluding the financial sectors. There are 8 industry sectors: agriculture (IAGRI), mining (*IMIN*), basic industries and chemicals (*IBAS*), consumer goods (*ICON*), property, real estate, construction (*IPROP*), infrastructure, utilities, transportation (*IINF*), trading, service, investment (*ITRA*), and Miscellaneous industries (*IMISC*). *IMISC* is used as the base industry.

5. Sample Selection

Our samples are the non-financial public firms listed in Indonesia Stock Exchange for the year 2010. We focus on large firms because these firms are assumed to have more stakeholders that supervise the performance of the firms, hence resulted in more comprehensive reports and disclosures for them (Linsley & Shrides, 2006 and Abraham & Cox, 2007). Based on the sample selection criteria, we have 89 firms as our samples.

6. Results

Table 2 is the summary for descriptive statistics analysis. Average total risk disclosure is 1,999 words, with mandatory risk disclosure amounting 1,444 words, far higher than voluntary risk disclosures with the average of 555 words. From total samples, 30% (27 firms) have risk disclosure level above the average for mandatory risk disclosure category, while for voluntary and total disclosure, the percentage is 38% (38 firms) and 31% (28 firms) respectively.

Table 2
Descriptive Statistics

Variable	Maximum	Minimum	Mean	Std Dev
MANDATORY	12,298	204	1,444	1,640
VOLUNTARY	1,993	105	555	391
TOTALDISC	13,233	433	1,999	1,829
SIZE (Rp Milyar)	99,758	336	10,782	16,538
LEV	0.9146	0.0049	0.4640	0.1724
PROF	0.8124	-0.2466	0.1484	0.1548
DIPROD	1.8168	0.0000	0.5607	0.4120

MANDATORY = mandatory risk disclosure level with number of words as proxy, VOLUNTARY = voluntary risk disclosure level with number of words as proxy, TOTALDISC = mandatory plus voluntary risk disclosure level, SIZE = total assets, LEV = leverage, PROF = return on equity, DIPROD = entropy index, DISEG = 1 if firms that have significant operations in other countries (geographically diversified) and 0 if otherwise

Generally, Indosat (total 13,233) and Telekomunikasi Indonesia (total 11,859) become two firms with the highest risk disclosure level, far exceeding other firms' risk disclosure level. This may occur because both firms are also listed in New York Stock Exchange, enforcing them to oblige the Securities and Exchange Commission (SEC) Form 20-F. Not only it causes more disclosures, but the rules also make the contents of their disclosures more comprehensive. Therefore, we will have additional testing to exclude both firms to find out how much the effect of those firms is on the results, which will be explained in a later section of this paper.

Firms within mining and infrastructure sectors tend to disclose risks and the related mitigations much more than other sectors do. This is aligned with the characteristics of those two sectors. Mining and infrastructure are known to be industries that require a huge amount of investments, and this makes them have high-risk, high return profile. The scale of both industries is also relatively higher than other industries. Consequently, there are more stakeholders involved within operational and strategic activities of those firms, ranging from the government to the related societies. This increases the supervisions of those firms that in turn, can increase the higher demand for reporting—resulting in higher risk disclosure level.

For the mandatory risk disclosure proportion, the average risk disclosures based on Bapepam-LK Regulation (800 words, 52% is higher than the average risk disclosures based on PSAK No. 50 (697 words, 48%). This is because the scope of risk disclosures based on Bapepam-LK Regulation is broader to narrate in annual reports compared to PSAK No. 50 that is limited to financial risks that are generally elaborated in notes to financial statements. The characteristics of the industries

included in this research are also one of the causes why there are fewer disclosures on PSAK No. 50 since financial institutions having more financial instruments with its risks are excluded.

Table 3 Results

$$DISC_i = \alpha_0 + \beta_1 SIZE_i + \beta_2 LEV_i + \beta_3 DIPROD_i + \beta_4 DISEG_i + \beta_5 PROF_i + \sum_{n=1}^7 (IND)_i + \varepsilon_i$$

Variable	Expected Sign	Mandatory			Voluntary			Total		
		Coeff.	t-statistics	Prob.	Coeff.	t-statistics	Prob.	Coeff.	t-statistics	Prob.
C		0.5867	0.3776	0.7067	1.8075	1.0055	0.3178	1.5784	0.97469	0.3328
SIZE	+	0.2116	3.85	0.0001 ***	0.1145	1.7668	0.0407 **	0.1814	3.07226	0.0015 ***
LEV	+	-0.162	-0.4406	0.3304	-0.127	-0.2978	0.3834	-0.107	-0.2971	0.3836
PROF	-	-0.037	-0.085	0.4663	0.3958	0.9537	0.1717	0.0995	0.2636	0.3964
DIPROD	+	0.3663	2.2004	0.0154 **	0.3633	2.1182	0.0187 **	0.3796	2.47655	0.0078 ***
DISEG	+	-0.016	-0.0897	0.4644	0.5076	2.8559	0.0028 ***	0.1305	0.77555	0.2202
IAGRI		0.4413	1.1707	0.2454	0.7092	2.0123	0.0477 **	0.5954	2.241	0.0279 **
IMIN		0.2301	0.6795	0.4989	1.0269	5.9059	0 ***	0.5237	2.47966	0.0154 **
IBAS		0.0406	0.1233	0.9022	0.2932	1.3337	0.1863	0.1313	0.52549	0.6008
ICON		-0.299	-0.8893	0.3767	-0.073	-0.3788	0.7059	-0.177	-0.8469	0.3997
IPROP		-0.111	-0.3056	0.7607	0.5391	2.3694	0.0204 **	0.1088	0.411	0.6822
IINF		0.6384	1.6894	0.0952 *	0.7981	2.9875	0.0038 ***	0.7629	2.70009	0.0085 ***
ITRA		0.0998	0.2862	0.7755	0.4083	1.8251	0.0719 *	0.219	0.96842	0.3359
Adjusted R-squared				0.2760			0.2848			0.3592
F-Statistic				3.7949			3.9201			5.1113
Prob (F-Statistic)				0.0002 ***			0.0001 ***			0.0000 ***

DISC = risk disclosure level with number of words as proxy, SIZE = total assets, LEV = leverage, PROF = return on equity, DIPROD = entropy index, DISEG = 1 if firms that have significant operations in other countries (geographically diversified) and 0 if otherwise, IAGRI (agriculture), IMIN (mining), IBAS (basic industry)

& chemicals), ICON (consumer goods), IPROP (property, real estate, building construction), IINF (infrastructure, utilities, transportation), ITRA (trading, services, investment)

***, **, * significant at 1%, 5%, 10%

Total risk disclosures involuntary category are 49,415 words consisting of 21,647 for strategic risks (43.81%), 19,984 for operational risks (40.44%), 5,971 for financial risks (12.08%), 1,107 for empowerment risks (2.24%), 554 for information and technology (1.12%), and 152 for integrity risks (0.31%) that are related to fraud or illegal acts jeopardizing firms' reputation. These findings are quite similar to Linsley & Shrivs (2006), where three highest risk disclosures fall into strategic, operational, and financial risks. The difference exists in the following categories, where integrity, empowerment, and information and technology risks become three risks with the lowest disclosures.

For strategic risks, the most common disclosures are related to environmental scan (32.01%) which is related to global condition analysis including uncertainties in the macro environment related to the firms. Meanwhile, for operational risks, the most frequently discussed disclosures are related to sourcing (42.53%) which is closely associated with daily operations. Firm size has a significant positive effect on mandatory, voluntary, and total risk disclosures (H1 is not rejected). The larger the size of a firm, the more disclosures the firms will provide as they have more resources to produce more comprehensive reports. This result is consistent with Linsley & Shrivs (2005), Linsley & Shrivs (2006), Abraham & Cox (2007), Amran et al. (2008), Horing & Grundl (2011), and Ismail & Rahman (2011).

The result also shows that leverage does not have a significant effect on risk disclosure level. This finding is similar to Abraham & Cox (2007), Amran et al. (2008), and also Ismail & Rahman (2011). Firms with high leverage do not necessarily have the burden to disclose their risk management highly. This may occur because there are other media besides disclosures that are used to communicate relevant information to the parties of interest (Ahmed & Courtis, 1999) or there are other sources of information implying risk information, such as in websites, stock exchanges announcements and through mass media. Firms are also able to communicate their risks directly to the parties related to their liabilities—such as a bank. On the other hand, firms with lower leverage still have the potential to disclose their risk information openly either because of the prevailing regulations or as a voluntary deed to their stakeholders.

Production diversification has a positive effect on risk disclosures. This finding supports Frenkel et al. (2000) which suggests that the diversification performed by the company will increase their exposures to new risks. Consequently, demands and needs of disclosures will also peak since the growth trend, operational variability, and each geographic and segment's risk are different and cannot be aggregately evaluated (Hendriksen & Breda, 1992). Related to the signaling theory, risk disclosure is intended as a means to show the improved ability in handling risks caused by diversification to all stakeholders.

Meanwhile, geographic diversification only has a positive effect on voluntary risk disclosures. This shows that, generally, risk disclosures related to the geographic area are least likely to be presented. Risk disclosures associated with the geographic area are more related to environmental condition and local regulations that are elaborated in general terms voluntarily, spread about in many

sections within the annual reports. This is different with risk disclosures related to product segmentation that are highly elaborated in a specific and special manner within certain parts in annual reports, either voluntarily or related to mandatory disclosures, such as within the operational and performance review section related to Bapepam-LK regulations. From our samples, firms that are diversified geographically only form for about 48.33% or less than a half.

For profitability, the result shows that profitability does not affect any risk disclosures. Firms with low profitability or perceived as having a higher probability of failure do not necessarily have a higher incentive to report their risks and how they manage those risks to guard their credibility and public expectations. On the other side, firms with low profitability have incentives to conceal the negative information.

This is in line with the finding from Ahmed & Courtis (1999) that profitability has no association with disclosure level within the annual report, consistent with Abraham & Cox (2007) as well. The probable cause is that disclosures within annual reports are not the only media that can be used by the firms to convey information to the public, including information related to the risks owned by the firms with low profitability.

For an industry type, generally, it can be concluded that the infrastructure industry has the most dominant effect on risk disclosure level, followed by the mining sector. For infrastructure, this is consistent with the finding from Amran et al. (2008) which states that this industry is the determining for risk disclosures in Malaysia. Firms which characteristics are more susceptible to higher risk exposure, such as those in infrastructure, will have more information to disclose.

From the descriptive statistics, Indosat and Telekomunikasi Indonesia have risk disclosures that are far higher than the other firms included in observation. This may raise a conjecture on the existence of bias within the research results caused by the inclusion of both firms. To comprehend how far the effect of those two firms to the research, sensitivity analysis was performed by comparing the primary results with results excluding these two firms (Table 4).

Table 3 Sensitivity Results

$$DISC_i = \alpha_0 + \beta_1 SIZE_i + \beta_2 LEV_i + \beta_3 DIPROD_i + \beta_4 DISEG_i + \beta_5 PROF_i + \sum_{n=1}^7 (IND)_i + \varepsilon_i$$

		Mandatory			Voluntary					Total			
Variable	Expected Sign	Coeff.	t- statistic	Prob.		Coeff.	t- statistic	Prob.		Coeff.	t- statistic	Prob.	
C		2.2926	1.5129	0.1346		2.6448	1.3704	0.1747		3.1252	2.20248	0.0307	
SIZE	+	0.1517	2.8333	0.003	***	0.0852	1.2337	0.1106	**	0.1271	2.42452	0.0089	***
LEV	+	-0.119	-0.3471	0.3648		-0.088	-0.2013	0.4205		-0.068	-0.1807	0.4286	
PROF	-	-0.11	-0.2698	0.3941		0.3354	0.7708	0.2217		0.0321	0.08617	0.4658	
DIPROD	+	0.273	1.7368	0.0433	**	0.3129	1.8612	0.0334	**	0.2947	2.08566	0.0203	***
DISEG	+	0.0828	0.4855	0.3144		0.5527	2.9623	0.0021	***	0.2203	1.40335	0.0824	
IAGRI		0.4176	1.1939	0.2363		0.6928	1.9238	0.0582	**	0.5737	2.15301	0.0346	**
IMIN		0.2592	0.825	0.412		1.0382	6.0726	0	***	0.5499	2.73988	0.0077	**
IBAS		0.0137	0.0447	0.9644		0.2761	1.2753	0.2062		0.1067	0.45349	0.6515	
ICON		-0.245	-0.7838	0.4357		-0.045	-0.2365	0.8137		-0.128	-0.7068	0.4819	
IPROP		-0.041	-0.1206	0.9043		0.5686	2.4793	0.0154	**	0.1725	0.70107	0.4855	
IINF		0.462	1.3049	0.196		0.7086	2.6139	0.0108	***	0.6028	2.39957	0.0189	***
ITRA		0.1798	0.5549	0.5806		0.4449	1.9501	0.0549	*	0.2914	1.40885	0.1631	
Adjusted R-squared				0.1404				0.2696				0.2715	
F-Statistic				2.1707				3.6451				3.6714	
Prob (F-Statistic)				0.0219	**			0.0003	***			0.0002	***

DISC = risk disclosure level with number of words as proxy, SIZE = total assets, LEV = leverage, PROF = return on equity, DIPROD = entropy index, DISEG = 1 if firms that have significant operations in other countries (geographically diversified) and 0 if otherwise, IAGRI (agriculture), IMIN (mining), IBAS (basic industry & chemicals), ICON (consumer goods), IPROP (property, real estate, building construction), IINF (infrastructure, utilities, transportation), ITRA (trading, services, investment)

***, **, * significant at 1%, 5%, 10%

All of the regression results in Table 3 show only a slight change from the main regression results. By excluding two extreme observations that have far more risk disclosures caused by a dual-listing factor, firm size and product and geographic diversification still have a positive association with risk disclosure level. Meanwhile, certain types of industry, such as mining and infrastructure, significantly disclose more risk information than the other industries. This shows that different industry type creates the difference in risk disclosure level.

7. Conclusion

Mandatory risk disclosures are generally more disclosed than voluntary risk disclosures. For voluntary risk disclosures, risk categories that are most dominantly disclosed are strategic and operational risks. While the highest risk disclosures are generally owned by firms in mining and infrastructure, utilities and transportation sector.

Firm size has a positive correlation with all risk disclosures – mandatory, voluntary, and total. This indicates that risk disclosures will increase as the firm is getting larger. This is caused by the increasing demand for information transparency as the stakeholders involved are rising as well—supported by the improving ability of the firms to spend more reporting expenses to produce more comprehensive reports as demanded.

Product or service diversifications have a positive association with risk disclosures. As the production segments increase, risk area will multiply and demand disclosures related to the evaluation of each risk will grow as well. This is because the evaluation cannot be performed aggregately considering the characteristics and risk variability of each segment tend to be different from each other. Meanwhile, geographic diversification has a positive association only with voluntary risk disclosures. Geographically-diversified firms tend to disclose their risk information voluntarily and spread about within their annual and financial reports, and generally,

not specifically elaborate risk disclosures affected by geographic area. This is different from the disclosures related to product segment diversification.

For the industry types, infrastructure, utilities, transportation becomes the industry with the most risk disclosures. Industry sectors that are also affecting the increasing risk disclosure level are mining, agriculture, property, real estate, and construction and trading, services, and investment. This means that firms within those sectors have higher disclosure level than miscellaneous industries used as the base industry within this research.

Further study may identify other variables, in addition to firm size, leverage level, profitability, production and geographic diversifications, and industry types, and examine the association with risk disclosure level. Our study has a limitation regarding testing the risk disclosure quantity by using word count. There is subjectivity involved in the content analysis process. Further research can also examine the qualitative aspect of risk disclosures in Indonesia, similar to that of Beretta & Bozzolan (2004), with more number of observations and periods.

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Appendix 1:
Risk Types on Each Category for Voluntary Risk Disclosures

No	Risk Category	Risk Type
1	Financial risk	Interest risk
		Exchange risk
		Commodity
		Liquidity
		Credit
2	Operations risk	Customer satisfaction
		Products development
		Efficiency and performance
		Sourcing
		Stock obsolescence and shrinking
		Product and service failure
		Environment
		Health and safety
3	Empowerment risk	Brand name erosion
		Leadership and management
		Outsourcing
		Performance incentives
		Change readiness
4	Information processing and technology risk	Communications
		Integrity
		Access
		Availability
5	Integrity risk	Infrastructure
		Management and employee fraud
		Illegal acts
6	Strategic risk	Reputation
		Environmental scan
		Industry
		Business portfolio
		Competitors
		Pricing
		Valuation

No	Risk Category	Risk Type
		Planning
		Lifecycle
		Performance measurement
		Regulatory
		Sovereign and political

Source: Linsley & Shrives (2005)