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The Quality of Risk Disclosure: Evidence from Infrastructure Industry in Indonesia

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ABSTRACT

The objective of this study was to analyze the quality of mandatory and voluntary risk disclosure in Indonesia during the period of 2011 and 2012. The risk disclosure quality is defined as the quality of risk information that are disclosed by firms in term of relative quantity (adjusted by type of sub-industry and firm size), depthness (the potential impact of risk disclosed on firm's future performance), the coverage within every type of risk, and the outlook profile of firm's risk management. This study used samples of 48 firm-years of infrastructure companies that were listed in Indonesia Stock Exchange. Infrastructure industry was chosen due to the strategic role of this industry to support the acceleration and expansion of Indonesia's economic development. By using a descriptive qualitative method, the result showed that firms were still emphasizing on relative quantity dimension compared to the other three dimensions: coverage, depth, and outlook profile of firm risk management. In addition, the quality of mandatory risk disclosure was better than voluntary risk disclosure either for depth, coverage, or an outlook profile of firm risk management dimension. In other words, financial risk items (mandatory risk disclosure items) have better quality rather than non-financial risk items (voluntary risk disclosure items).

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1. Introduction

Infrastructure development is one of the top priority in Indonesia's development plans. It was stated in Master Plan for the Acceleration and Expansion of Indonesian Economic Development for 2011-2025. It is such an opportunity as well as a challenge for the infrastructure industry in Indonesia, because Indonesia has a relatively higher political and business instability condition. As disclosed by Euro monitor International (2014), the business risk environment index in Indonesia is relatively high compared to other countries. Indonesia's rank index was 159 out of 203 countries in the world or placed 36 out of 47

regional countries in 2012, in terms of the index of political stability and absence of violence. In terms of the ease of doing business index, Indonesia placed 120 out of 189 countries that were surveyed in early 2014. It means that the bureaucracy of running business in Indonesia is relatively high.

For those reasons above, infrastructure firms are required to have a good ability in managing risk, both internal and external risks. Internal risks include operational risk, compliance risk, and the risk of internal control weaknesses that are closely related to the reliability of financial reporting

systems. External risks include country risk factors and competitive risk.

Therefore, firms are required to communicate those risks, especially with external parties, including investors and creditors who are interested to assess the firm risk. Risk disclosure can be used as a medium to communicate the risks that are managed by firms. Risk disclosure reduces the asymmetry information between firm and investors that can increase liquidity of the stock price and decrease cost of capital (ICAEW, 2011; Kim & Verrecchia, 2001; Diamond & Verrecchia, 1991; Healy & Palepu, 2001). The spirit of risk disclosure is in-line with future reporting criteria that should be forward-looking, non-financial, and soft information. The risk information is needed by investors to assess the ability of firms in addressing the changes of their business environments (Beattie, 2000).

The regulation regarding risk disclosure in Indonesia is still limited to the financial risk due the existence of risk exposure that arises from the used of financial derivative instruments. Meanwhile, firms also should manage another kind of risk, including the business, integrity, strategic, environmental risk, etc. The more comprehensive, the more likely the benefits that can be obtained by the firms. Therefore, there is a demand to investigate the risk disclosure quality in Indonesia, especially for firms who are engaged in the infrastructure industry.

Previous studies in Indonesia conducted by Syabani & Siregar (2013) and Wulandari & Djuminah (2013) were analyzed only the quantity of risk disclosure and used a number of words as a proxy to measure risk disclosure quality. In fact, the number of words alone did not capture other dimensions of quality disclosures, such as the coverage of disclosure, the depth, and the outlook profile of firm risk management (Beretta & Bozzolan, 2004; Beattie, McInnes, & Fearnley, 2004).

Therefore, the objective of this study was to analyze the risk disclosure quality of firms who

were listed on the Indonesia Stock Exchange and are engaged in the infrastructure industry. This study used four dimensions of quality risk disclosures that had been not used yet in the study of Syabani & Siregar (2013) and Wulandari & Djuminah (2013), which are relative quantity, coverage, depth, and outlook profile of firm risk management dimensions. By using these four dimensions, the study aimed to be able capturing the more comprehensive quality dimensions of risk disclosure (Beretta & Bozzolan, 2004; Miihkinen, 2012).

This study used a descriptive qualitative method to analyze firms' risk disclosures quality. The data obtained from the firms' annual report were analyzed by using a semi-objective approach to create a single index amount that represents the quality of risk disclosure, including textual and mechanistic analysis. The relative quantity of risk disclosure represented the mechanistic approach, while the coverage, depthness, and the outlook profile of firm risk management represented textual analysis approach (Beattie et al., 2004; Beretta & Bozzolan, 2004; Miihkinen, 2012).

In general, this study found that the quality of mandatory risk disclosure had a better score compared to the voluntary risk disclosure. Firms were still emphasizing on the number of risk information (relative quantity dimension), but disclosed a few regarding the impact of the risk disclosed to firms' future performance (depthness dimension) and how firms managed their risk (outlook profile of risk management dimension). The coverage among risk items also still low.

2. Literature Review and Hypothesis Development

The Analysis of Risk Disclosure Quality

In this study, risk disclosure is defined as a communication tool of information strategies of firm, characteristics, business operation, and external factors of firm that could potentially have an impact on firm in the future of (Beretta & Bozzolan, 2004). Studies for risk analysis

emphasizes on the impact of uncertainty that can be managed by firms. Therefore, the study of risk disclosure was to analyze the information regarding firm's opportunities or prospects, threat

(hazard), danger (harm) or the exposure of the firm disclosed that have potential impact on firm in the future (Linsley & Shrives, 2006).

Table 1
Items of Risk Disclosure

No.	Items of Risk	Indicators	References
A. Mandatory Disclosure Items			
1.	Financial Risk	• Credit Liquidity • Market (commodity/present value) • Interest rate • Exchange rate • Contingent Risk	• Bapepam-LK No. KEP-347/BL/2012 • PSAK No. 60 (Revisi 2010). • PSAK 57 (Revisi 2009) • Linsley & Shrives (2006)
B. Voluntary Disclosure Items			
1.	Operations risk	• Customer satisfaction • Product development • Efficiency and performance • Sourcing • Stock obsolescence and shrinkage • Product and service failure • Environmental • Health and safety • Brand name erosion	Linsley & Shrives, (2006)
2.	Empowerment risk	• Leadership and management • Outsourcing • Performance incentives • Change readiness • Communications	Linsley & Shrives (2006)
3.	Information processing and technology risk	• Integrity • Access • Availability • Infrastructure	Linsley & Shrives (2006)
4.	Integrity risk	• Management and employee fraud • Illegal acts • Reputation	Linsley & Shrives (2006)
5.	Strategic risk	• Environmental scan • Industry • Business portfolio • Competitors • Pricing • Valuation • Planning • Life cycle • Performance measurement • Regulatory • Sovereign and political	Linsley & Shrives (2006)

Analysis of risk disclosure in the study included both mandatory that covers financial items and voluntary risk that covers non-financial items which are disclosed in the firm's annual

report (Table 1). The objective of this study, including mandatory risk items was to evaluate risk disclosure regulation that had an effective date at the end of 2011 and 2012. The categories of risk

items in this study were adopted from Linsley & Shrives (2006) as used by Geraldina et al. (2015). The reason in choosing their study was because of their components were based on ICAEW guidelines risk disclosure framework, enhanced the framework of Beretta & Bozzolan (2004), and adopted by many researchers with few of modification.

In addition, this study used semi-objective analysis by using two approaches which was suggested by Beattie et al. (2004) to the analysis of risk disclosure quality, textual and form-oriented (mechanistic) analysis. Mechanistic approach was conducted by considering the number of sentences that disclose about risk information, while textual analysis was conducted by analyzing the content of sentences that disclose about risk information. Textual analysis was also known as thematic or linguistics analysis.

This study used both mechanistic and textual analysis to analyze the risk disclosure quality. This study used four dimensions of risk disclosure quality, that were: (i) the relative quantity of risk disclosure, (ii) coverage, (iii) depthness, and (iv) the outlook profile of firm risk management. The relative quantity of risk disclosure represented the mechanistic approach, while the coverage, depthness, and the outlook profile of firm risk management represented textual analysis approach (Beattie et al., 2004; Beretta & Bozzolan, 2004; Miihkinen, 2012).

The dimension of relative quantity of risk disclosure was the actual number of firm risk disclosure adjusted by the size and complexity or the industry where the firm operates (Beattie et al., 2004; Beretta & Bozzolan, 2004). The greater relative quantity of risk disclosure of a firm, the higher the risk disclosure quality. Dimension of coverage of risk disclosure captures the concentration of disclosure among risk categories. The higher coverage of disclosure means risk disclosure are not concentrated in a particular type of risk, then the higher the quality of a firm risk disclosure (Beattie et al., 2004; Miihkinen, 2012).

The dimension of depthness of risk disclosure capture the quantitative and qualitative of the economic impact of the risk on firms future performance (Beretta & Bozzolan, 2004; Miihkinen, 2012). The economic impact of these risks can be positive or negative. Dimension of outlook profile of firm risk management was used to capture how management communicates the approach in managing firm risk management. This dimension could be assessed from the current management expectations of future performance and operation of the firm regarding the risk are managed by the firm, the actions or programs or policy taken to address those risks (Beretta & Bozzolan, 2004; Miihkinen, 2012).

Therefore, this study combined the dimensions to measure the risk disclosure quality which were previously conducted by Beretta and Bozzolan (2004) and Miihkinen (2012). Beretta & Bozzolan (2004) used only three dimensions, namely: relative quantity, depth, and outlook profile of firm risk management, but did not use the coverage dimension in measuring risk disclosure quality as proposed by Beattie et al. (2004). Meanwhile, Miihkinen (2012) used four dimensions by adding coverage dimension to measure risk disclosure quality, but did not use relative quantity dimension as used by Beretta and Bozzolan (2004).

3. Research Method

Data and Sample

This study used 48 of 72 published annual reports of infrastructure firms which were listed on the Indonesian Stock Exchange period 2011-2012 as the samples. Infrastructure development has been a priority in the Master plan for the acceleration and expansion of Indonesia's economic development since 2011, thus providing an opportunity for infrastructure firms to increase their investment. On the other hand, they must have ability in managing risk that could harm their firms in the future. Therefore, risk disclosure can

be a medium to communicate the risk that are managed by firms to investors.

16 annual reports were not available and 8 of them could not be used due to the type of files which were not readable by the software. The selection of the period of study was associated with two mandatory risk disclosure regulation which has effective in 2011 and 2012. They are PSAK 57 (Revised 2009) regarding accounting standard on risk contingency, PSAK60 (2010) regarding accounting standard on risk of financial instrument disclosure that was regulated under Bapepam-LK No. KEP-347/BL/2012. The disclosure of contingent risk was included due to this disclosure has potential impact on the firm's cash flow in the future.

Data Analysis Methods

This study used of descriptive qualitative methods to analyze the data of risk disclosures in each firm's annual report. The information was analyzed using semi-objectively approach by considering the form-oriented (mechanistic aspects) and textual analysis. In addition, the data were analyzed by comparing the time periods between 2011 and 2012 to address the differences in the application of mandatory risk disclosure. This study also used four dimensions to analyze risk disclosures quality, relative quantity, coverage, depth, and outlook profile of firm risk management. To identify the risk information that was disclosed by firms in their annual reports, this study used NVivo 10 to identify, classify, and summarize sentences which are contained on risk information.

$$D_{ij,t} = \beta_0 + \beta_j IND_j + \beta_{k+1} LnSIZE_{ij,t} + \varepsilon_{ij,t} \quad (1)$$

The dimension of relative quantity of disclosure (RQT) is the actual quantity of risk disclosure sentences that are adjusted relative to the size of the firm and the industry where the firm operates (Bozzolan, 2004). The greater relative quantity of risk disclosure of a firm, the higher the risk disclosure quality. RQT is measured by

residual value after estimating the number of firms in the same subindustry (IND) and the natural logarithm of the total assets of the firm (LnSIZE) to the actual number of sentences of the firm's risk disclosure as shown in equation 1 below.

Dimension of coverage of disclosure captures concentration or distribution between each category of risk disclosure. The more distribute means risk disclosure are not concentrated in a particular type of risk, the higher quality of firms' risk disclosure (Beattie et al., 2004; Miihkinen, 2012). The dimension was measured by the Herfindahl index as shown in equation 2 below (Miihkinen, 2012).

$$Cov_{i,t} = \left[\frac{(1/H)}{Total\ numbers\ of\ risk\ items} \right] \quad (2)$$

H is a Herfindahl index obtained from equation 3 as follows:

$$H = \sum_{i=1}^n P_i^2 \quad (3)$$

P_i is the proportion of the number of sentences on the topic of risk disclosures with the total number of sentences of risk disclosure. $1/H$ is used to demonstrate the greater number of the Herfindahl index, the more extensive the distribution of risk disclosure among topics. This study adjusted the formula of Miihkinen (2012) by sorting the value of the Herfindahl index into percentile values, so-called Coverage Rank (Cov_Rank). This procedure was done in order to create the output value of the coverage - dimension is identical to the three other dimensions which are expressed in the form of a number of sentences. So the value would be in the range of 1-10.

The dimension of depth (DPT) captures the economic impact of the risk which are disclosed by a firm on the future performance of a firm, both quantitatively and qualitatively (Beretta & Bozzolan, 2004; Miihkinen, 2012). The dimension was measured by the natural logarithm of the total number of sentences that reveal the expected

economic impact which are affecting the future performance of the firm as shown in equation 4 follows:

$$DPT_{i,t} = \sum_{j=1}^{k_j} IMPACT_{ij,t} \quad (4)$$

DPT_i is the depthness of risk disclosure index for the firm i in year t ; k_j is the number of sentences of risk disclosure in the firm's annual report j ; $IMPACT_{ij,t}$ is given a value of 2 if the sentence of j is expressed quantitatively in the annual report the firm i in the year t and contains the impact of risk to the firm's future performance, given a value of 1 if the risk disclosure is expressed qualitatively, and a value of 0 if the sentence of j is not expressed either quantitatively or qualitatively.

The dimension of outlook profile (OPR) was used to capture the way of manager communicates the approach which is adopted in managing firm's risk. The dimension appeared from the manager's expectation regarding current risk exposure on future operation and performance of a firm, the actions or policies or programs were taken to address the risk (Beretta & Bozzolan, 2004; Miihkinen, 2012).

$$OPR_{i,t} = \frac{1}{rfl_i} \sum_{j=1}^{k_j} ACP_{ij} \quad (5)$$

OPR_i is an outlook profile index of firm i ; rfl_i is the number of sentences of risk are disclosed by the firm i ; k_j is the number of sentences of risk disclosure in the firm's annual report j ; ACP_{ij} is given a value of 1 if the sentence of j in the annual report of firm j is containing with information relating to the actions or policies or programs are taken to address the risk, and given a value of 0 if otherwise.

The four dimensions of risk disclosure quality above were composed to create a risk disclosure index (RDQI). The indexes were analyzed separately either for mandatory risk disclosure (RDQI_Mand) or voluntary risk disclosure (RDQI_Vol). Mandatory risk disclosure covered financial risk items, while voluntary risk disclosed covered non-financial risk items as presented in Table 1.

$$RDQI_{i,t} = \frac{1}{4} (RQT_{i,t} + COV_RANK_{i,t} + DPT_{i,t} + OPR_{i,t}) \quad (6)$$

4. Result and Discussion Descriptive Statistics

Table 2 presents the descriptive statistics of the risk items and risk quality dimension of the mandatory risk disclosure. Based on the minimum value in Table 2, the data show that several observations did not disclose the six items of the mandatory risk disclosure, neither credit risk, liquidity, market prices, interest rates, foreign exchange rates (currency), or contingent risk item (cash). Of the six items of those mandatory risk disclosures, the mean value of currency risk's item has the highest score, amounting around 3.69 (4) sentences. Therefore, the currency risk will be discussed further in the next section.

Another interesting finding is the mean value of the actual quantity of risk disclosure (MAND_D) is different from the mean value of the relative quantity of risk disclosure (ABSRQT), respectively are 15.65 (16) and 7.25 (7) sentences. This finding indicates the possibility of firm's discretion in disclosing the number of sentences of risk that is influenced by the type of industry where a firm operates and the size of a firm.

Table 2
Descriptive Statistics of Mandatory Risk Disclosure Items

Risk Disclosure Dimensions/Items	N	Minimum	Maximum	Mean	Std. Deviation
CREDIT	48	0	10	3.00	2.35
LIQ	48	0	10	2.63	2.19
MARKET	48	0	6	1.02	1.21
INTEREST	48	0	12	3.04	2.56
CURRENCY	48	0	19	3.69	3.97

CASH	48	0	29	2.27	5.21
MAND_D	48	0	47	15.65	11.83
TA (Million Rp)	48	2,835,511	111,000,000,000	14,859,567,726.44	23,758,432,507.72
SUBIND	48	3	20	11.21	7.59
ABSRQT	48	.30	27.47	7.25	5.72
DPT	48	0	45	9.88	9.87
COV	48	0.00	.94	.61	0.22
COV_RANK	48	1	10	5.60	2.80
OPR	48	0	21	5.42	3.94
RDQI_MAND	48	3.45	99.47	28.15	16.92

Items of mandatory risk disclosures consist of: (1) credit risk (CREDIT); (2) liquidity (LIQ); (3) the market price (MARKET); (4) interest rate (INTEREST); (5) the change of foreign exchange risk (CURRENCY), and (6) contingent risk (CASH). The five items are measured by the number of sentences which are disclosed by a firm, either is expressed qualitatively, quantitatively, or none both of them. MANDATORY_D is actual sentences of the total number of the six items of the mandatory risk disclosure.

RDQI_MAND is mandatory risk disclosure quality index which is composed by using 4 dimensions, namely: (1) the number of relative quantity of risk disclosure (ABSRQT); (2) depth (DPT); (3) scope/concentration of risk disclosure (COV_RANK); and (4) the outlook profile of risk management (OPR). ABSRQT dimension is measured by the residual value of the quantity relative model, obtained after estimating variable natural logarithm of TA and SUBIND on variable MAND_D. SUBIND is number of firms who compete in the same sub industry. DPT dimension is measured by giving value of 1 if the sentence of the six items of risk is disclosed qualitatively, giving value of 2 if disclosed quantitatively, and giving value of 0 if the sentence is disclosed risk but do not express both way. COV_RANK dimension is measured by forming 10 portfolios (percentile rank) of Herfindahl index for those six items of risk disclosure. OPR dimension is measured by giving a value of 1 if a firm discloses the actions or policies or programs are taken to address the risk, and given value of 0 if otherwise.

Meanwhile, the dimension of depth (DPT) and the OPT are zero respectively. It can be concluded that there were firms who did not disclose those six items of mandatory risk disclosure which discloses the impact of those risks on future firm's performance, neither qualitatively or quantitatively. In addition, there were firms who did not disclose the actions or policies or programs taken to mitigate those six items of risk. The minimum, maximum, and mean value of COV_RANK dimension are respectively 0,10, and 5.60. The findings suggested that risk disclosure among the six items was fairly distributed among one item to another. The mean value of mandatory risk disclosure quality index (RDQI_MAND) is 28.15 (28) sentences. The lowest value is 3:45 sentences and the highest is 99.47, each of them belongs to PT Steady Safe Tbk. and PT Indosat Tbk.

Table 3 presents the descriptive statistics of the risk items and risk quality dimension of the voluntary risk disclosure. Based on the minimum value in Table 3, the data show that there were observations who did not disclose the five items

of the voluntary risk disclosure items: business risk, empowerment, technology and information, integrity, and strategy items. The mean value of strategy's risk item has the highest score compared to others, amounting to 18.65 (19) sentences. Therefore, this item will be discussed further in the next section.

The findings on voluntary disclosure risk (VOL_D) werere identical to mandatory risk disclosure. The mean value of the actual quantity of voluntary risk disclosure (VOL_D) was different with the value of risk disclosure (ABSRQT), respectively 45.44 (46) and 24.68 (25) sentences. Similarly, the minimum value of the dimension of depth (DPT) and OPT are zero as found in mandatory risk disclosure. Thus, we can conclude that there are firms who did not disclose the five items of voluntary risk disclosure which is expressing the impact of those risks on future firm's performance, neither qualitatively or quantitatively. In addition, there are firms who did not disclose the actions or policies or programs are taken to mitigate those five items of risk. The minimum, maximum, and

mean value of COV_RANK dimension are respectively 0, 10, and 5:58. The findings suggested that risk disclosure among the five items is fairly distributed among one item to another. The mean value of mandatory risk disclosure quality index (RDQI_VOL) is 49.47 (50) sentences. The lowest value is 9:45 sentences and the highest is 151.88, each of them belongs to PT Mitra International Resources Tbk. and PT Telecommunications Indonesia (Persero) Tbk.

From the both descriptive statistics, in general, it can be concluded that firms who engaged in the infrastructure industry have considered the four dimensions of risk disclosure quality. Firms still emphasize on the number of

sentences of risk disclosure, have not yet provided more information on the impact of the mandatory or voluntary risk disclosure on the firms' future performance, either qualitatively or quantitatively. However, the risk's information is more disclosed quantitatively rather than qualitatively for mandatory risk disclosure items, but opposite finding for voluntary risk disclosure items. Similarly, the coverage or distribution among risk items for mandatory or voluntary risk disclosure items is not too high or medium. The good news is some firms have disclosed the outlook profile of risk management for voluntary risk disclosure items, although there are some firms did not.

Table 3
Descriptive Statistics of Voluntary Risk Disclosure Items

Variables	N	Minimum	Maximum	Mean	Std. Deviation
BUSINESS	48	0	48	12.92	11.43
EMPOWER	48	0	13	2.33	2.82
IT	48	0	13	1.79	2.87
INTEGRITY	48	0	54	9.75	11.92
STRATEGY	48	0	67	18.65	17.65
VOL_D	48	0	162	45.44	41.73
TA (Million Rupiah)	48	2,835,511.00	111,000,000,000.00	14,859,567,726.44	23,758,432,507.72
SUBIND	48	3.00	20.00	11.21	7.59
ABSRQT	48	0.26	75.88	24.68	18.70
DPT	48	0	71.00	12.52	16.62
COV	48	0	0.82	0.55	0.18
COV_RANK	48	1.00	10.00	5.58	2.81
OPR	48	0	69.00	6.69	12.89
RDQI_VOL	48	9.45	151.88	49.47	35.89

Items of voluntary risk disclosure consists of: (1) business risk (BUSINESS); (2) empowerment (EMPOWER); (3) and information technology (IT); (4) integrity (INTEGRITY); and (5) strategy (STRATEGY). The five items are measured by the number of sentences which are disclosed by a firm, either is expressed qualitatively, quantitatively, or none both of them. VOLUNTARY_D is actual sentences of the total number of the five items of the voluntary risk disclosure.

RDQI_VOL is voluntary risk disclosure quality index which is composed by using 4 dimensions, namely: (1) the number of relative quantity of risk disclosure (ABSRQT); (2) depth (DPT); (3) scope/concentration of risk disclosure (COV_RANK); and (4) the outlook profile of risk management (OPR). ABSRQT dimension is measured by the residual value of the quantity relative model, obtained after estimating variable natural logarithm of TA and SUBIND on variable VOL_D. SUBIND is number of firms who compete in the same sub industry. DPT dimension is measured by giving value of 1 if the sentence of the six items of risk is disclosed qualitatively, giving value of 2 if disclosed quantitatively, and giving value of 0 if the sentence is disclosed risk but do not express both way. COV_RANK dimension is measured by forming 10 portfolios (percentile rank) of Herfindahl index for those six items of risk disclosure. OPR dimension is measured by giving a value of 1 if a firm discloses the actions or policies or programs are taken to address the risk, and given value of 0 if otherwise.

The Quality of Mandatory Risk Disclosure Items

The Dimension of Relative Quantity of Risk Disclosure (ABSRQT)

Table 4 presents the test result of homogeneity of variance for four quality dimensions of risk disclosure and the risk disclosure quality index between 2011 and 2012. The test was conducted as a prerequisite before conduct One Way Anova test that is assuming there is equal variation among the two groups. The result showed that there was equal variation of data of 2011 and 2012 for each variable, except

for the OPR dimension of voluntary risk disclosure. The OPR dimension is only one dimension which is composing the RDQI_VOL index and the variation of RDQI_VOL is equal between data in 2011 and 2012 period, so the One Way Anova test is still continued.

Table 5 presents the result of One Way Anova Test. By using alpha 5%, the result showed that there is no difference in four quality dimensions of risk disclosure and the risk disclosure quality index between the period 2011 and 2012 for mandatory items.

Table 4
Homogeneity of Variance Test

Variables	Mandatory Risk Disclosure		Voluntary Risk Disclosure	
	Levene Statistic	Sig.	Levene Statistic	Sig.
ABSRQT	3.777	.058	1.794	.187
DPT	1.183	.282	.042	.838
COV_RANK	.010	.919	.000	1.000
OPR	1.130	.293	4.268	.044
RDQI_MAND	.669	.418		
RDQI_VOL			1.701	.199

Table 5
Risk Disclosure Quality Between 2011-2012 Period

Variables		Mean Square	F	Sig.
ABSRQT	Between Groups	121.716	3.958	.053
	Within Groups	30.753		
DPT	Between Groups	75.000	.766	.386
	Within Groups	97.962		
COVARIANCE_R	Between Groups	.021	.003	.959
	Within Groups	7.988		
OPR	Between Groups	.083	.005	.943
	Within Groups	15.861		
RDQI_MAND	Between Groups	7.889	.027	.870
	Within Groups	292.225		

The result indicated that the difference of the effective period of the implementation for mandatory risk disclosures was not significantly different. The possible explanation for this result was there was a possibility of early adoption for PSAK No. 60 (Revised 2010) and regulation issued by Bapepam-LK No. KEP-347/BL/2012 regarding the disclosure of financial risk. Thus, we can conclude that it would not be a problem including contingency risk items under PSAK No.

57 (Revised 2009) which was becoming effective starting January 1, 2011.

As explained earlier, the dimensions of relative quantity (ABSRQT) reflect the firm's discretion in disclosing mandatory risk items after considering the environment where the firm operates and the size of the firm. The chart 1 shows that score of ABSRQT in 2012 was lower than shows in 2011, whereas the actual quantity (MAND_D) as shown on the chart 2 is found contrary.

Chart 1

The Comparison of Mandatory Risk Disclosure Quality Index for the 2011 & 2012 Period

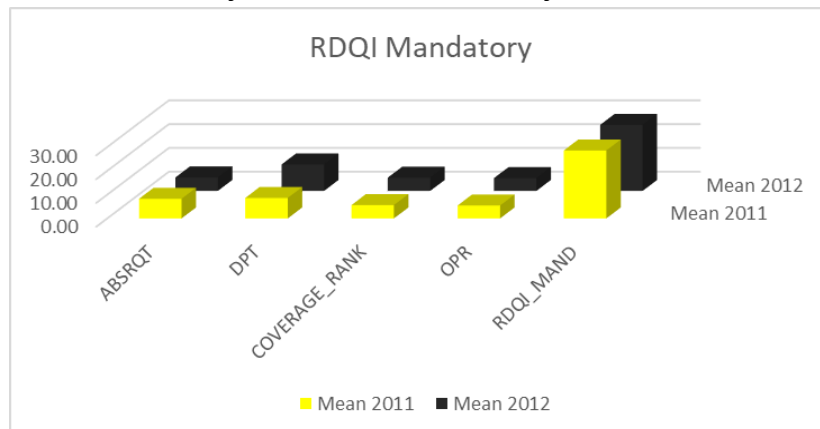
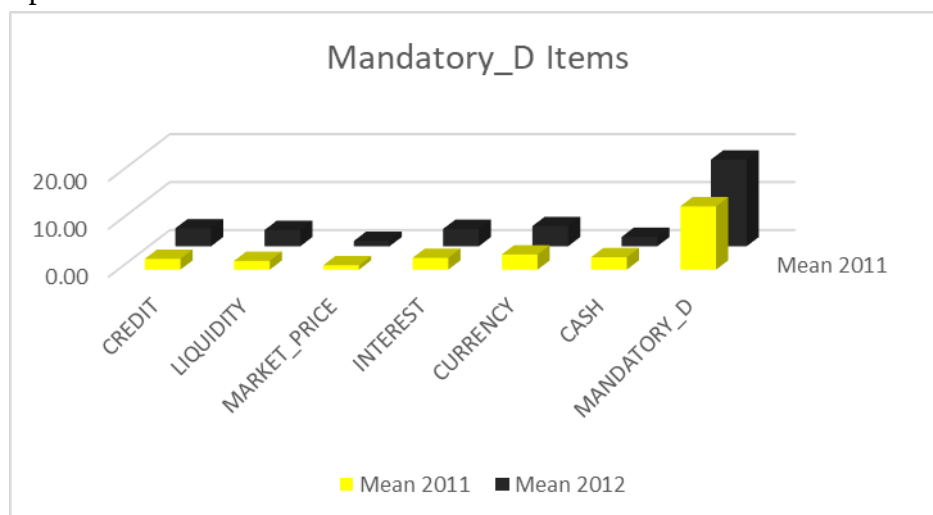


Chart 2

The Comparison of Actual Number of Risk Disclosure Items for the 2011 & 2012 Period



The Dimension of Depth of Risk Disclosures (DPT)

The dimension of depth (DPT) reflects the impact of risk which disclosed by firms on future performance, qualitatively or quantitatively. Qualitative disclosure is identified in sentences that are contained positive or negative impact of the risk managed by a firm on a firm's future performance. The chart 1 shows the mean value of DPT greater in 2012 compared to 2011 period, although the difference was not significant, as presented in Table 5. The mean value of DPT in 2011 and 2012 period, respectively were 8.63 and 11:13 sentences.

Since the currency item has the highest score compared to five other mandatory risk items, this

item will explore more rather than other items. Figure 1 and 2 showed the disclosure of the currency risk for either in 2011 or 2012 was still emphasizing to disclose risk without adding qualitative and quantitative information to the disclosure's sentences. In addition, the firms provided more quantitative rather than qualitative information.

This finding at least showed an indication regarding the possibility of firms trying to increase the quantitative information to comply with regulations of financial risk disclosure (PSAK No. 60, 2010 and Bapepam-LK No. KEP-347/BL/2012). The qualitative impact was often expressed by firms, mainly due to risk exposure of

currency risk has a negative impact and harms the firms.

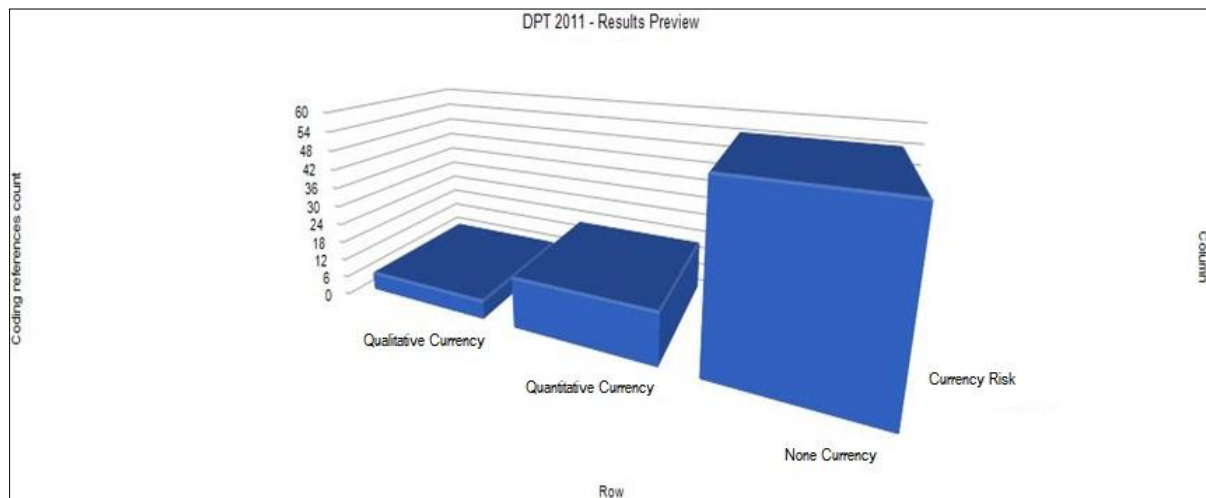


Figure1

The Dimension of Depth of Currency Risk for the 2011 Period

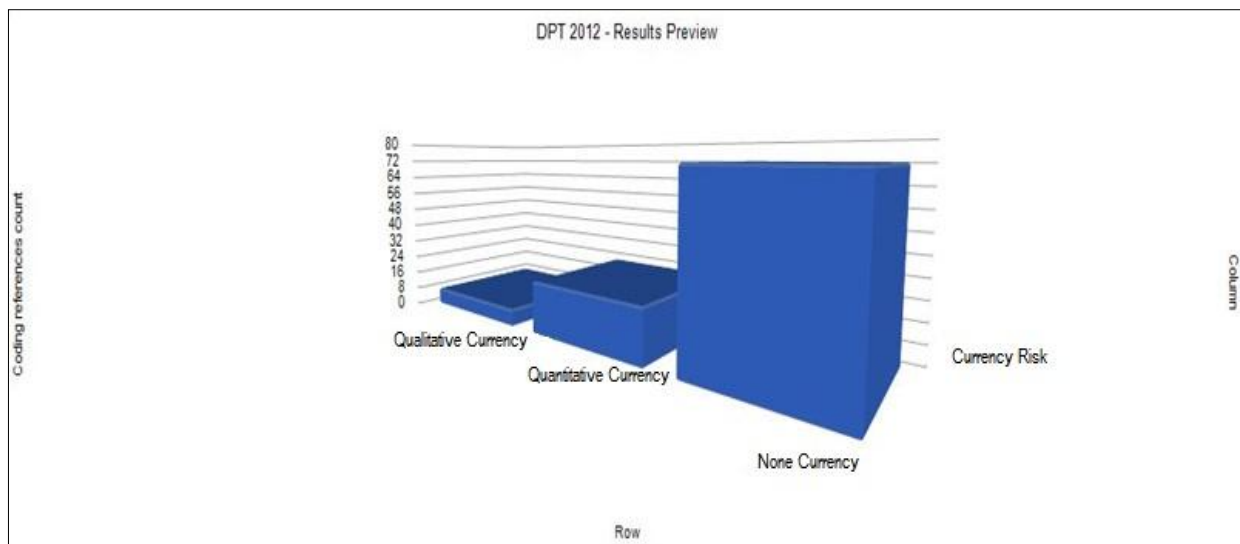


Figure 2

The Dimension of Depth of Currency Risk for the 2012 Period

To investigate the narrative disclosure of the currency risk item during the periods, this study identified 50 most frequent words found in the narrative of currency risk disclosure sentences. The bigger the font size, the more often the word found in the currency risk disclosure sentences. Figure 3 and 4 show the identical words. The common words show on both words-clouds are (in Bahasa): “*risiko, perusahaan, perubahan,*

liabilitas (kewajiban), eksposur, amerika, serikat, dan keuangan”. In English, those words mean: risk, firm, change, liabilities, exposure, America, united, and financial. Both word clouds convey messages that firms in the infrastructure industry had a problem in managing the exposure risk of foreign exchange rate, particularly the US Dollar (USD). This happens due to firms have liabilities in term of USD.



Words-Cloud of Currency Risk Disclosure Item for the 2011 Period



Words-Cloud of Currency Risk Disclosure Item for the 2012 Period

The Dimension of Coverage of Risk Disclosure
(COV_RANK)

Chart 2 shows the distribution of disclosure among the six mandatory risk items. The pattern of distribution between 2011 and 2012 period was identical. Currency risk and interest rate risk item, respectively placed the first and the second rank during the two periods. The last position belongs to market price risk during the two periods. The three other items, namely credit risk, liquidity, and contingent risk placed different ranks in both periods. However, the difference between the

numbers of sentence of risk disclosure among those three items was not too wide from one item to another.

The Dimension of Outlook Profile of Risk Management (OPR)

The dimension of outlook profile of risk management (OPR) indicates the existence of plans, policies, actions, or programs taken to mitigate risk. Chart 1 shows that the mean values of OPR in 2011 and 2012 period were almost equal, which was amounting about 5 sentences and the difference was not significant, as presented in Table 5.

Based on Table 2, there were firms who did not disclose information about an outlook profile of risk management (OPR). For the 2011 period, they were PT Wintermar Offshore Marine Tbk, PT Steady Safe Tbk, and PT Jasa Marga (Persero) Tbk. All firms disclose information about an outlook profile of risk management (OPR) for the period 2012.

The similar procedure was conducted as previous section to explore how the firms disclose their OPR (figures of words cloud and words trees are not presented). There were identical words presented on words cloud of 2011 and 2012, such as words (in Bahasa): “*risiko, dengan, perusahaan, kebijakan, melakukan, mengelola, manajemen, kredit, likuiditas, eksposur, pinjaman, kontrak, lindung, etc*”. In English, those words mean: risk, with, firms, policies, conduct, manage, management, credit, liquidity, exposure, loans, contracts, hedging, etc. Those words convey a message that the firms have policies, actions, or programs to mitigate: (i) the credit risk, specifically associated with customers, (ii) foreign exchange risk by conducting hedging contract, and (iii) liquidity risk.

Based on word-trees (the figures are not visualized) shows that firms generally have written

policies or guidelines regarding financial risk management, especially credit risk, liquidity, interest rate, and foreign exchange risk (currency risk). Firms conducted swap contracts to manage interest rate risk and hedging contracts to manage foreign exchange risk. Firms also conducted monitoring on customer credit's balance to mitigate credit risk, only having transaction with particular parties, and impose the limit of the amount of credit which has been approved by authorities. To mitigate the liquidity risk, firms maintain their cash sufficiently by analyzing the availability of cash flow, monitoring actual cash flows, and maintaining adequate savings.

The Quality of Voluntary Risk Disclosure Items *The Dimension of Relative Quantity of Voluntary Risk Disclosure (ABSRQT)*

Chart 3 and chart 4 respectively show the comparison of four dimensions and the composite index of voluntary risk disclosure as well as the actual number of sentences for five each item of voluntary risk disclosure. It is similar to the finding on mandatory risk disclosure, there was a difference between ABSRQT value and the actual amount of voluntary risk disclosure items (VOL_D). In this case, ABSRQT value was lower than VOL_D during both periods and ABSRQT value was lower for 2012 compared to 2011 period, as shown in chart 3 and chart 4. These findings confirmed the previous findings that the use of different measures to capture quantity dimension could create the opposite result. Of the five items of those voluntary risk disclosures, from the mean value of each item of risk, the mean value of the strategic risk item has the highest score, amounting around 18.65 (9) sentences. Therefore, the strategic risk is discussed further in the next section.

Chart 3

The Comparison of Voluntary Risk Disclosure Quality Index for the 2011 & 2012 Period

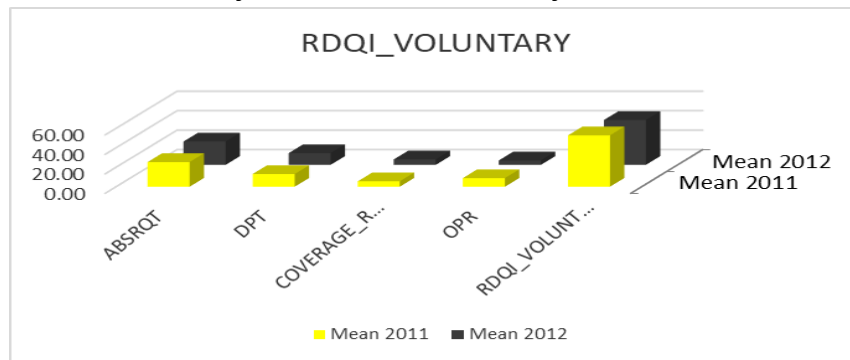
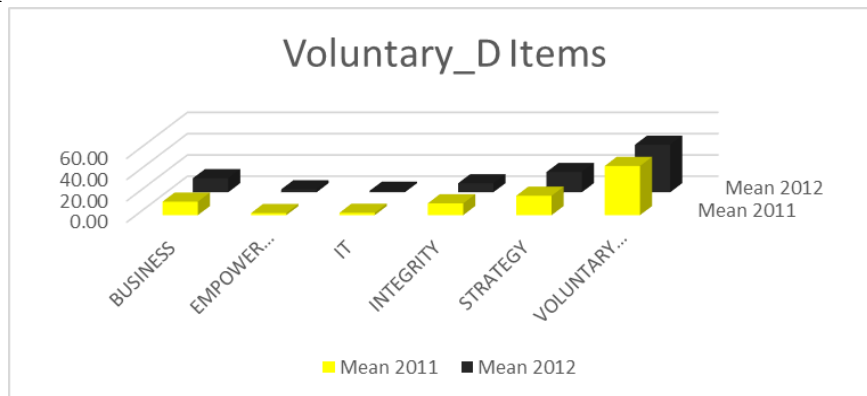


Chart 4

The Comparison of Actual Number of Risk Disclosure Items for the 2011 & 2012 Period



The Dimension of Depth of Voluntary Risk Disclosure (DPT)

Chart 3 shows the mean value of DPT was greater for 2011 rather than 2012 period, although the difference was not significant, as presented in Table 5. The mean value of DPT for 2011 and 2012 periods were respectively 13:04 and 12 sentences. As an illustration, the strategic risk was the item of risk that is most disclosed by firms both in 2011 and 2012 period. Similar to the currency risk disclosure in the mandatory disclosure items, strategic risk disclosure during both periods is still emphasizing on the number of sentences without adding qualitative and quantitative information. However, firms provided more qualitative rather than quantitative information. This finding is not surprisingly because voluntary risk disclosure items are non-financial risk disclosure. It is not as easy as

financial risk items to disclose the voluntary risk disclosure quantitatively.

The similar procedure was conducted as previous section to explore the narratives of strategic risk disclosure during both periods (figures are not shown). Based on the pattern of both word clouds (figures are not presented), the focus of strategic risk disclosure that was managed by firms was different for the 2011 and 2012 period. The most frequent words disclosed as risk strategy for the 2011 period were (in Bahasa): “*peraturan, pemerintah, regulasi, Andes (Andean), kebijakan, dampak, perseroan, perusahaan, negatif, operasional, pembangunan, mendapatkan, risiko, Indonesia, etc.*”. Those words mean (in English): regulatory, government, regulation, laws, policy impact, firm, negative, operations, development, obtains, risk, Indonesia, etc. Those words conveyed a message that firms who were in the infrastructure industry managed

regulation risk or government policy risk regarding to the firm's operation or development of Indonesia that may affect the firm negatively in 2011. The finding supports (the chart is not presented) that regulation's risk indicator (*Risiko Regulasi*) as one of the most strategic risk which was disclosed by firm in 2011.

On the other hand, the most frequent words disclosed as risk strategy for the 2012 period were (in Bahasa): "*dengan, perusahaan, indonesia, bisnis, peluang, pertumbuhan, layanan, dampak, negatif, prospek, investasi, pendapatan, risiko, etc.*". Those words mean (in English): firm, Indonesia, business, opportunity, growth, service, impact, negative, prospect, investment, income, risk, etc. Those words conveyed a message firms who engaged in the infrastructure industry manage risk which were closely linked to prospects, growth, and investment opportunities which may affect the firm's business in 2012 negatively. Those words were usually found in the narrative of plan indicator as one of indicator for strategic risk. This finding supports (chart is not presented) that plan risk indicator (*Risiko Perencanaan*) as one of the most strategic risk disclosed by firm in 2012.

Based on word trees (figures are not shown), words that were related to the regulation or government policy found on branch of word tree on telecommunications group, Ministry of Energy and Mineral Resources, and MP3EI (Master Plan for the Acceleration and Expansion of Indonesian Economic Development). It indicates that there are regulatory or government policy's risk managed by firms who are engaged in sub-industry of telecommunications, energy, and construction (sub-industry of toll road, airport, harbor & allied products).

Sub-industry of telecommunication has a problem with some regulatory risk, such as changes in regulation of interconnection services which is issued by Ministry of Information and Communication, the telecommunication's tower regulation risk, and the risk premium message's

regulation. Based on the policy of the Ministry of Information and Communication in 2011, the rate of interconnection services has fallen around 1.5% to 3%. The new regulation of telecommunication tower allows competitors to utilize tower, which is owned by telecommunications operator. The competitors who do not have their own tower take advance over firms who have a large network of tower enjoy huge potential cost savings, while the tower owner had already invested heavily to build the towers. Both of these regulations negatively affecting firms' margin and market share.

On the other hand, sub-industry of toll road, airport, harbor & allied production gain facilities from new regulation. One of program of MP3EI in 2011 (Master Plan for the Acceleration and Expansion of Indonesian Economic Development), which is disclosed by firms in their annual report is the accelerated development of highway infrastructure and electricity infrastructure, either by increasing the number of power plants or expanding electricity transmission network. To support the MP3EI program, House of Representative has legalized regulation regarding land acquisition for public used in 2011. The regulation of "Land Acquisition Act" strengthen the legal basis by providing clearer and measurable mechanism in the process of land acquisition.

To encourage the achievement program of MP3EI, Ministry of Energy and Mineral Resources has strategic planning in 2011, including:

- 1) Setting regulation to solve the problem regarding shortage of supply of natural gas for State Owned Electricity Firm and domestic industry's need. The program is under supervision of Ministry of Energy and Mineral Resources.
- 2) Supporting the development of floating terminal for Liquefied Natural Gas in areas which have difficulty in accessing the supply

of the gas. The program is under supervision of Ministry of State Owned Firms.

The objective of the programs is to increase the supply of natural gas as well as the exploration activities, so have an impact on the change of business climate in the natural gas industry.

The words-tree for strategic risk item for 2012 period (figure is not presented) describes narration of sentences such as potential, opportunity, growth prospects and investment that firms should consider in planning strategy. The planning strategy better customers based, focus on business expansion, operational cost efficiencies, and build synergy with related parties.

The Dimension of Coverage of Risk Disclosure (COV_RANK)

Dimension coverage for the voluntary risk disclosure items do not much different from the mandatory risk disclosure items as shown on Chart 4.3. The mean value of COV_RANK for the 2011 and 2012 period is equal around 5:58 sentences. The difference is not significant as presented in Table 5. It tells that the distribution of risk disclosure between voluntary risk disclosure items is medium too.

Chart 4 shows the distribution of the disclosure among five voluntary risk items. The pattern of distribution in 2011 and 2012 was similar. The first, second, and third ranks (first group) were placed by respectively strategy, risk item, business risk, and integrity for both periods. The fourth and the fifth rank (second group) alternately occupied in both periods, respectively, are information technology risk and empowerment risk item. It looks like there were large gap regarding the number of sentences of voluntary risk disclosure items between first and second groups.

Based on the distribution among the five items of voluntary risk disclosure and across each sub-item (indicator) for each item in 2011 and 2012, sub-item of strategic risk item looks better than four other voluntary risk disclosure items

(information processing and technology risk, empowerment, integrity, and business risk) in terms of the dimension of relative quantity and coverage (figures are not presented).

The Dimension of Outlook Profile of Risk Management (OPR)

Chart 3 shows that the mean value of OPR in 2011 was higher than 2012, respectively 8.83 and 4:54 sentences. However, the difference was not significant, as presented in Table 5. Not all the firms disclose the outlook of risk management during the periods. The similar procedure is conducted as previous section to explore the narrative of strategic risk disclosure during both periods, then create words-cloud and words-tree (figures are not presented).

There are some similar words on words-cloud for the period 2011 and 2012, such as (in Bahasa): “*risiko, dengan, perusahaan, kebijakan, melakukan, mengelola, manajemen, pengembangan, lingkungan, evaluasi, sistem, karyawan, prosedur, etc*”. In English, those words mean: risk, with, firms, policies, conduct, manage, management, development, environment, evaluation, systems, employees, procedures, etc. It conveys messages that the firms have policies, actions, or program to mitigate environmental risk, resources (human resources/employee), and reputation (control).

After exploring the words-tree for the period 2011 and 2012, to mitigate human resources/employee’s risk, firms conduct workshops (training) and regular performance evaluations. To mitigate reputation and control risk, firms conduct monitoring mechanism of corporate governance by having an adequate internal control system and risk management systems. The firms disclose mitigation on reputation risk by disclosing such as policies, evaluation, and technical activities are taken by firms.

5. Conclusions, Limitations, and Recommendations

The objective of this study was to analyze the quality of mandatory and voluntary risk-disclosure infrastructure listed-firms during the period 2011 and 2012. The risk disclosure quality used four dimensions, namely: the relative quantity, depth, coverage (distribution), and outlook profile of risk management. This study found that firms had considered those four dimensions of quality to disclose their risk, either for mandatory and voluntary risk disclosures.

The dimension of relative quantity of mandatory and voluntary risk disclosures provided a more dynamic result in explaining the quantity of sentences disclosed by firms compared to the actual quantity of disclosure sentence itself. The result indicated that industry competition and the size of a firm affects the firm's discretion in disclosing the amount of risk sentences, either mandatory or voluntary.

The firms were still emphasizing on the quantity of sentences (the dimension of relative quantity) rather than three other dimensions. The disclosure information was lack of qualitative and quantitative information regarding the effect of risk which are disclosed by the firms to future performance (the depth dimension). However, quantitative information discloses more rather than qualitative information for mandatory risk disclosure items. The finding was not surprising, since the mandatory risk disclosure items were financial risk items while voluntary risk disclosure items were non-financial items. Thus, qualitative information discloses more rather than quantitative information for voluntary risk disclosure items.

The coverage among risk disclosure items was medium. For mandatory risk disclosure items, the highest score of the actual number of disclosures was currency risk. While for voluntary risk disclosure items, the highest score of the actual number of disclosures was strategy risk. The distribution among sub-items (indicators) of

strategic risk was the highest than any other of voluntary disclosure risk items.

The outlook profile of risk management for mandatory risk disclosure items was better than the voluntary risk disclosure items. In 2011, there were three firms who did not disclose the outlook profile of risk management for mandatory risk disclosure items and there were 6 firms who did not disclose the outlook profile of risk management for voluntary risk disclosure items. In 2012, all the firms disclosed the outlook profile of risk management for mandatory risk disclosure items, but there were eight firms who did not disclose the outlook profile of risk management for voluntary risk disclosure items.

In other words, this study found that mandatory risk disclosure has better quality compared to voluntary risk disclosure. Firms were still emphasizing on the number of risk information (relative quantity dimension), but disclose a few regarding the impact of the risk disclosed to firms' future performance (depth dimension) and how firms manage their risk (outlook profile of risk management dimension). The coverage among risk items also still low.

These findings provided some practical implications for firms and regulators. In order to increase risk disclosure quality in the future, firms are suggested to increase the depth, coverage, and outlook profile of risk management in their annual reports.

For regulators, this study encourages the regulators to regulate disclosure of non-financial risk items as has been done for the financial industry in Indonesia. Some countries, such as Germany, Britain, and Japan have already regulated the non-financial risk disclosure items. To regulate non-financial risk disclosure items can be done gradually by giving priority to strategy and business risk items. Both risk items have better quality compared to any other of voluntary risk items, so it will easier for firms to implement the regulation. However, aspects of the depth and

the outlook for a risk management profile of both types of voluntary risk is still inadequate.

This study did not consider the level of accuracy dimension to measure voluntary risk disclosure quality which covers non-financial risk items. The level accuracy dimension provides information regarding the association of non-financial risk information on firm's future cash flows. The more accurate, the more confident for investor to predict the impact of non-financial risk information on the level of firm's future cash flows. Therefore, future studies are suggested to consider this limitation.

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APPENDIX

Appendix: Sample of Words Tree of Currency Risk Disclosure Item for the 2011 Period

