ACRN Journal of Finance and Risk Perspectives
Vol. 1, Issue 2, p. 1-16, Dez. 2012
ISSN 2305-7394

QUALITY AND DETERMINANTS OF RISK REPORTING - EVIDENCE FROM GERMANY AND AUSTRIA

Susanne Leitner-Hanetseder[1]

[1]Department of Accounting and Auditing, Kepler University of Linz, Austria

Abstract. *While risk reporting disclosures have been required in Germany since 1999, equal requirements have become mandatory in Austria and all member states of the European Union only since 2005. The analysis conducted includes the risk reporting disclosures of all non-financial companies listed in the German prime stock market (DAX-30) and Austrian prime stock market (ATX). The purpose of this study is to investigate information quality of risk reporting disclosures within the annual reports of Austrian and German listed companies by using a scoring model. As most industries (except finance industry) have been affected by the financial crisis in the second half of 2008, also the risk reporting could be affected by the financial crisis. To identify the impact of the financial crisis on risk reporting the study analysis the risk reporting disclosures of the financial years 2007 and 2008. Based on these data, also a multiple regression model was used to identify specific determinants on information quality of risk reporting disclosures. The findings indicate that information quality of risk reporting increases over time and index and quantity of risk information disclosures are a determinant for the information quality of risk reporting.*

KEYWORDS: *risk reporting, scoring model, regression model, quantity of risk reporting disclosures, quality of risk reporting disclosures*

Framework of Risk Reporting in Germany and Austria

The German and Austrian Commercial Code requires a management report (the so called *Lagebericht*) by individual entities classified as companies with limited liability in § 289 dHGB (German Commericial Code) and § 243 UGB (Austrian Commerical Code) as well as by groups in § 315 dHGB and § 267 UGB. In Germany/Austria risk reporting is a mandatory part of the management report since 1999/2005 and shall include a description of the principal risks and uncertainties of a company. However, neither the German/Austrian Commerical Code nor the corresponding legislation material specifies the risk reporting requirements. This was left to the private standard-setters of Germany and Austria. Since the transformation of the Fair Value Directive (2001/65/EC) German and Austrian entities are also required to disclose financial risk management objectives and policies and the entity's exposure to price risk, credit risk, liquidity risk and cash flow risk. With the introduction of the new German legislation (BilMoG) and modernisation of the Austrian GAAP (URÄG 2008), companies have to

describe the main features of the group's internal control and risk management in relation to the process for preparing (consolidated) accounts since 2009.

Empirical Study

Population and Data

The study conducted explores risk reporting disclosures for the years 2007 and 2008 by analysing a sample of 43 German and Austrian group accounts. The target population of this survey are listed companies in the German and Austrian prime stock market (DAX-30 and ATX). Financial institutions are excluded from the population. The reasons for the exclusion are twofold: First, risk reporting of financial institutions is not comparable to other industries. Second, the finance industry had been affected by the current crisis several months before other industries and including these companies would have reduced the comparability and subsequently the validity of the findings. Finally, the current target population includes 26 companies which are listed in the German prime stock market DAX-30 and 17 companies which are listed in the Austrian prime stock market ATX.

By comparing companies which are listed in the prime German stock market (DAX-30) and prime Austrian stock market the study analyses whether there is an influence on the quality of risk reporting according to the country index and size of a company. As table 1 shows the total assets and sales of DAX-30 companies are on average higher than ATX companies. Also the BRAVAIS-PEARSON CORRELATION COEFFICIENT shows a significant correlation between total assets (r_{pb} = 0,485) or sales (r_{pb} = 0,533) and the index a company is listed in.

Table 1: Total assets and sales of German and Austrian publicly traded companies

Companies listed in ATX		
	total assets	**sales**
n	17	17
Mean	4.797.200.000,00	4.247.400.000,00
Std. Deviation	5.870.590.000,00	6.599.720.000,00
Min.	3.086.301,00	3.609.812,00
Max.	21.400.000.000,00	25.500.000.000,00
25%-Quantil	552.450.000,00	468.380.000,00
Median	1.735.300.000,00	1.731.200.000,00
75 %-Quantil	8.645.600.000,00	4.457.500.000,00
Companies listed in DAX-30		
	total assets	**Sales**
n	26	26
Mean	62.845.000.000,00	36.921.000.000,00

Std. Deviation	67.014.200.000,00	32.877.600.000,00
Min.	3.470.000.000,00	2.460.000.000,00
Max.	263.000.000.000,00	114.000.000.000,00
Companies listed in DAX-30		
25%-Quantil	14.665.000.000,00	10.752.000.000,00
Median	28.824.000.000,00	19.908.000.000,00
75 %-Quantil	106.600.000.000,00	61.826.000.000,00

Parameters of the Scoring Model

In order to evaluate the quality of risk reporting disclosures of German and Austrian listed companies in the DAX-30 and ATX a scoring model was used. This scoring model equates to the greatest possible extent to the scoring model of Ewelt et al. (2009) and meets the criteria of the recommendations of the private standard setting bodies in Austria and Germany. In the following scoring model, the quality of risk reporting is determined by 5 parameters (form, disclosure of risk management, disclosure of overall risks, disclosure of individual risks and disclosure of financial risks) which are analyzed by several research questions (see table 2).

Table 2: Scoring model

Parameter	Research questions:
I. Form	1. Is the risk report disclosed in a self-contained section of the management report and is the risk report marked by a headline? 2. Is the risk report excluded from the reporting of prospects? 3. Are rewards presented outside the risk report? 4. Has the risk report a clear structure? 5. Are risks separated into adequate categories and types? 6. Are financial risks presented in the risk report?
II. Risk management	1. Does the risk report include the forecasting horizon? 2. Does the risk report include a definition of „risk" and „risk management"? 3. Does the risk report include the objectives and the strategy to achieve the objectives?

		4. Are disclosures about the risk communication understandable?
		5. Are there any disclosures about the company's implementation of risk management?
		6. Is the process of risk management demonstrated?
		7. Are the methods to identify risks presented?
		8. Are there any disclosures concerning the tasks of risk management and the internal review process?
		9. Does the risk report explain materiality in context to risks?
III. overall risk		1. Are risks which may lead to an insolvency presented or does the risk report include a negative statement if a risk of insolvency is not existing?
		2. Are risk concentrations demonstrated?
		3. Are there any interdependences between risks?
		4. Does the risk report include a general statement about the risk situation of the group?
		5. Are the priorities concerning risks presented?
IV.	**Individual risks**	1. How are individual risks described and possible consequences explained?
		2. Are quantitative information concerning an individual risk demonstrated?
		3. How are measurement and methods to quantify individual risks presented?
		4. How are techniques presented to handle an individual risk?
IV. Financial	**risks**	1. How does the company report about the risks of financial instruments?
		2. How does the company report about price risks?
		3. How does the company report about credit risks?
		4. How does the company report about liquidity risks and cash flow risks?
		5. Does the risk report include techniques to handle risks?

Factors to determine information quality

After evaluating the information quality of risk reporting in the disclosures of companies in the prime stock markets in Germany and Austria by a scoring model, the analysis is extended to the determinants of the information quality on risk reporting.

According to prior literature three determinants (quantity of risk reporting disclosures, firm size and index) are analyzed regarding the impact of information quality.

A vast literature is related to the quantity of corporate disclosures. Therefore, the quantity of risk reporting can be defined by the number of words (for example see Deegan and Rankin, 1996, Neu et al., 1998); the number of sentences (Buhr, 1998), the number of pages (Cowen et al., 1987) and the percentage of pages (Adams et al., 1995). In the study conducted, the quantity of risk reporting is defined by the number of pages. According to the descriptive data in table 3 an increase in risk reporting can be determinated within the years 2007 and 2008. This increase in the quantity of the disclosure of risk reporting may be caused by the financial crisis or by a general increase of the quantity in disclosures of risk reporting (see Lenz and Diehm, 2010). However, an increase in the quantity of risk reporting disclosures is not essentially related with an increase of the information quality. If the quality does not increase by an increase of quantity an information overload may exist. An information overload results in the fact that users of disclosures are not able to screen decision usefulness information (see Ewelt et al., 2009). According to Ewelt et al., 2009, an increase of the quantity of risk reporting disclosures results in declining information quality.

Several accounting studies have already provided evidence there is a positive relationship between company size and information quality (see Ewelt et al., 2009; Abraham and Cox, 2009). In the following study quality is determinated by sales and total assets of the group.

Fischer and Vielmeyer (2004) proved that the quality of risk reporting varies with the index a company is listed. Based on the empirical findings that the quantity of risk reporting disclosures, firm size and index may be an important determinant of the quality of risk reporting leads to the following assumptions:

> ***Hypothesis:*** *The quality of risk reporting is influenced by the quantity of risk reporting, firm size and/or the index a company is listed.*

Research Method

In order to test this relationship the following regression model is tested:

$$Information\ Quality_t = \beta_0 + \beta_1 Quantity + \beta_2 Sales + \beta_3 Total\ Assets + \beta_4 Index + \varepsilon$$

In the regression model, the information quality of risk reporting is the dependent variable. The independent variables shall capture the influence of size of the firm, index and quantity of risk reporting. The size of the firm is measured by the variable total assets and sales. The variable index is a dummy variable index and is coded 0, when the enterprise is listed in the ATX. It is coded 1, when the enterprise is listed in the DAX-30. The relevance of quantity is represented by the number of pages used for risk reporting. Altogether, five independent variables are included in the regression model to explain the attitudes of enterprises towards risk reporting.

Results

General Aspects

In this section the main results of the empirical study are presented. As shown in table 3 the quantity of risk reporting varies between 3 and 27 pages. Companies listed in the ATX report on average 6,63 in the year 2007 in comparison to companies listed in the DAX-30 which report on average 11,56 pages in the year 2007. From the year 2007 to 2008 an increase of the quantity of risk reporting disclosures can be demonstrated for ATX and DAX-30 listed companies. The results also show that the quantity of risk reporting disclosures vary according to the index a company is listed. According to the descriptive data, the quantity of risk reporting disclosures of companies which are listed in the DAX-30 tend to be higher than for companies which are listed in the ATX.

Table 3: Quantity of risk reporting disclosures

	Companies listed in ATX		**Companies listed in DAX-30**	
	Number of pages in the year 2007	**Number of pages in the year 2008**	**Number of pages in the year 2007**	**Number of pages in the year 2008**
Mean	6,63	8,03	11,56	12,67
Std. Deviation	2,02	2,16	4,55	3,61
Min.	3,00	5,00	3,50	5,00
Max.	10,00	11,50	27,00	19,00
25%-Quantil	5,00	6,13	9,50	9,88
Median	7,00	8,50	11,50	13,75
75%-Quantil	8,00	9,50	13,00	16,00

As most industries (except the finance industry) have been affected by the financial crisis in the second half of the year 2008, an increase in the quantity of risk reporting could be caused by the financial crisis in the year 2008. Lenz and Diehm, 2010 even attribute the risk report disclosures a prognostic value.

Form

In the years 2007 and 2008 in all companies the disclosed risk report information are separated from other disclosures and marked by a separate headline. In the year 2007/2008 six/five companies listed in the DAX-30 report about the chances in the risk management disclosures. According to the German Standard of risk reporting disclosures chances have to be presented outside the risk report. The number of risk categories varies between 4 and 20 categories (without financial risks). The study found that internal risks dominate external risks. In the year 2007/2008 166/183 internal types

of risk are mentioned in the risk reporting disclosures. Internals risks included mostly risks related to production, products, staff and/or information systems. In comparison only 109/124 external risks are reported in the risk reporting disclosures in the year 2007/2008. External risks include risks concerning price, regulation, industry and economic situation. Most companies use the possibility to report about their financial risks in their group accounting notes instead of the management report. All in all, the risk reporting disclosures of companies listed in the ATX as well as companies listed in the DAX-30 meet the requirements of the form of risk reporting disclosures.

Table 4: Results of analyzing the parameter „form“

I. Form	**Companies listed in the ATX**				**Companies listed in the DAX-30**			
I.1. Separate presentation and headline	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	17	17	100,00%	100,00%	26	26	100,00%	100,00%
No	0	0	0,00%	0,00%	0	0	0,00%	0,00%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
I.2 Excluded from prospects	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	17	17	100,00%	100,00%	26	26	100,00%	100,00%
No	0	0	0,00%	0,00%	0	0	0,00%	0,00%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
I.3 Are rewards presented outside the risk report?	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	17	17	100,00%	100,00%	20	21	76,92%	80,77%
No	0	0	0,00%	0,00%	6	5	23,08%	19,23%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
I.4 Clear Structure	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	12	13	70,59%	76,47%	25	26	96,15%	100,00%
No	5	4	29,41%	23,53%	1	0	3,85%	0,00%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
I.5 Separation into categories and types	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	14	15	82,35%	88,24%	25	25	96,15%	96,15%
No	3	2	17,65%	11,76%	1	1	3,85%	3,85%

total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
I.6 Presentation of financial risks in the management report	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	1	0	94,12%	100,00%	3	3	88,46%	88,46%
No	16	17	5,88%	0,00%	23	23	11,54%	11,54%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**

Risk Management

Only one company gives some information about the forecasting horizon in the financial year 2008. The term "risk" is neither defined in the law nor in the literature, that is why the definition of the term "risk" has to be explained to the users in the risk management report. In the financial year 2007 or 2008 only eight (18,60 %) or ten (23,25 %) of the considered companies explain their understanding of "risk". The companies of the ATX fulfill the requirement to explain "risk" in comparison with the companies of the DAX-30 almost equally. The majority defines risk as a negative deviate from the expected value or another comparative value. More than 36 (83,72 %) or 37 (86,05 %) of the considered companies present the objectives and strategy of risk management. In general, companies which are listed in the DAX-30 fulfill the requirement better than ATX companies do. Concerning risk communication attention is paid to information process within the group accounts. In the financial years 2007 or 2008 in 29 (67,44 %) or 30 (69,77 %) risk management reports provide an appropriate information of risk communication. Companies which are listed in the DAX-30 offer more information about their risks than companies which are listed in the ATX. At least, 36 (83,72 %) or 38 (88,37 %) of the considered companies make a statement about the implementation of risk management. The presentation of the process of risk management is necessary to see how the companies handle risks. Although an information about the process of risk management is only mandatory for companies which are listed in the DAX-30, 30 (69,77 %) or 31 (72,09 %) of the considered companies present the process of risk management reporting in the financial year 2007 or 2008. Reporting on methods in order to identify risks is important for users as to get an idea how companies recognize potential risks and take necessary measures against it. The willingness to provide information about such risks is small. It is obvious, that the number of methods to identify risks is limited. For example risk inventory, market analyses or interviews with employees are methods mentioned in the risk reports. In the financial year 2007 seven companies (16,28%) explained the internal review process. The number of companies explaining the tasks of risk management and the internal review process declined in the financial year 2008 to twelve. Furthermore, the German and Austrian regulations require information about risks that could affect decisions of the users of risk reports. This scope is extensive. Therefore, companies should define their understanding of materiality in the context to risks. In 2007 19 companies provided adequate information in comparison to only 18 companies in the year 2008.

Table 5: Results of analyzing the parameter risk management reporting

II. Risk management	**Companies listed in the ATX**				**Companies listed in the DAX-30**			
	absolute		**relative**		**absolute**		**relative**	
II.1. Forecasting horizon	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	0	0	0,00%	0,00%	0	1	0,00%	3,85%
No	17	17	100,00%	100,00%	26	25	100,00%	96,15%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
	absolute		**relative**		**absolute**		**relative**	
II.2. Definition of "risk"	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	3	4	17,65%	23,53%	5	6	19,23%	23,08%
No	14	13	82,35%	76,47%	21	20	80,77%	76,92%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
II.3 Objectives and strategy of risk management	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	12	12	70,59%	70,59%	24	25	92,31%	96,15%
No	5	5	29,41%	29,41%	2	1	7,69%	3,85%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
II.4. Communication about risk management	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	6	7	35,29%	41,18%	23	23	88,46%	88,46%
No	11	10	64,71%	58,82%	3	3	11,54%	11,54%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
II.5. Implementation of risk managment	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	13	14	76,47%	82,35%	23	24	88,46%	92,31%
No	4	3	23,53%	17,65%	3	2	11,54%	7,69%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
II.6. Process of risk management	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	8	9	47,06%	52,94%	22	22	84,62%	84,62%
No	9	8	52,94%	47,06%	4	4	15,38%	15,38%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
II.7. Methods to identify risks	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**

Yes	3	5	17,65%	29,41%	11	13	42,31%	50,00%
No	14	12	82,35%	70,59%	15	13	57,69%	50,00%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
II.8. Internal review process	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	3	6	17,65%	35,29%	4	6	15,38%	23,08%
No	14	11	82,35%	64,71%	22	20	84,62%	76,92%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
	absolute		**relative**		**absolute**		**relative**	
II.9. Materiality of risks	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	5	6	29,41%	35,29%	14	12	53,85%	46,15%
No	12	11	70,59%	64,71%	12	14	46,15%	53,85%
total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**

Overall Risks

According to the Austrian and German regulations companies have to present risks which may lead to an insolvency. Furthermore, companies have to make a negative statement, if there is no risk of insolvency. Even with the beginning of the financial crisis not a single company reported risks which may lead to an insolvency or any risk concentrations in the group. 28 companies explicitly reported a negative statement implying that there is no risk of insolvency. In the years 2007 and 2008 the number of companies making a general statement about the risk situation of the group increased from 25 to 28 companies. However, most of the companies which made a general statement about the risk situation of the group are companies listed in the DAX. An increasing number of 13 companies which are listed in the DAX-30 also reported in the year 2008 the priority of risks in their risk reporting disclosures, whereas only one company which is listed in the ATX reports about the priority of risks.

Table 6: Results of analyzing the parameter "overall risks"

III. Overall risks	**Companies listed in the ATX**				**Companies listed in the DAX-30**			
III.1. Report of risk which may lead to insolvency or a negative statement of it	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	0	0	0,00%	0,00%	0	0	0,00%	0,00%
Negative statement	8	8	47,06%	47,06%	20	20	76,92%	76,92%
No	9	9	52,94%	52,94%	6	6	23,08%	23,08%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
III.2. Risk concentrations	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	0	0	0,00%	0,00%	0	0	0,00%	0,00%
no	17	17	100,00%	100,00%	26	26	100,00%	100,00%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	100,00%	100,00%
III.3. Interdependences between risks	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	0	0	0,00%	0,00%	0	0	0,00%	0,00%
In relation to risks which could lead to insolvency	1	1	5,88%	5,88%	5	6	19,23%	23,08%
No	16	16	94,12%	94,12%	21	20	80,77%	76,92%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
III.4. General statement about risks	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	4	5	23,53%	29,41%	21	23	80,77%	88,46%
No	13	12	76,47%	70,59%	5	3	19,23%	11,54%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
III.5. Priority of risks	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	1	1	5,88%	5,88%	7	13	26,92%	50,00%
No	16	16	94,12%	94,12%	19	13	73,08%	50,00%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**

Individual Risks

With regard to the presentation of risks and their qualitative consequences in the financial year 2007 two reports of risk managements were assessed with "inadequate", eight with "adequate" and 29 with "highly detailed". In 2008 the reporting of risk management showed a slight tendency to rise. Only two reports were assessed with "inadequate reported". Four reports of risk management were "adequate" and at least 35 were "highly detailed". In 2007 and 2008 two companies of the ATX did not report any individual risks or explained their possible consequences. According to the German requirements, risks do not need to be quantified unless several criteria are met. In the financial years 2007 and 2008 quantitative estimates are only made by three DAX-30 companies. These three companies disclosed the methods and estimates used to quantify individual risks. Furthermore, companies have to present the handling techniques for existing specific risks. As shown in table 7 companies which are listed in the DAX-30 report about their handling techniques and mostly highly detailed and fulfill the criteria better than companies which are listed in the ATX do.

Table 7: Results of analyzing the parameter "individual risks"

IV. Individual Risks	**Companies listed in ATX**				**Companies listed in DAX-30**			
IV.1. Presentation of risks and explanation of possible consequences?	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
No statement	2	2	11,76%	11,76%	0	0	0,00%	0,00%
Inadequate	2	1	11,76%	5,88%	2	1	7,69%	3,85%
Adequate	4	3	23,53%	17,65%	4	1	15,38%	3,85%
Highly detailed	9	11	52,94%	64,71%	20	24	76,92%	92,31%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
IV.2. Estimated quantitative consequence of an individual risk	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	0	0	0,00%	0,00%	3	3	11,54%	11,54%
No	17	17	100,00%	100,00%	23	23	88,46%	88,46%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
IV.3. Are methods to quantify individual risks presented?	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
No statement	0	0	0,00%	0,00%	0	0	0,00%	0,00%
Inadequate	0	0	0,00%	0,00%	0	0	0,00%	0,00%
Adequate	0	0	0,00%	0,00%	1	0	33,33%	0,00%
Highly detailed	0	0	0,00%	0,00%	2	3	66,67%	100,00%
Total	**0**	**0**	**0,00%**	**0,00%**	**3**	**3**	**100,00%**	**100,00%**

IV.4. Information to handle an individual risk	absolute		relative		absolute		relative	
	2007	2008	2007	2008	2007	2008	2007	2008
No statement	2	1	11,76%	5,88%	0	0	0,00%	0,00%
Inadequate	4	4	23,53%	23,53%	2	1	7,69%	3,85%
Adequate	5	5	29,41%	29,41%	6	4	23,08%	15,38%
Highly detailed	6	7	35,29%	41,18%	18	21	69,23%	80,77%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**

Financial Risks

The German and Austrian GAAP also requires special disclosures for financial instruments. The analysis shows that quality of risk management objectives and policies for financial instruments differ. As presented in table 8, companies which are listed in the DAX-30 present their financial risk disclosure more detailed than companies listed in the ATX. Although, at least all companies which are listed in the ATX report about their risk management objectives and policies for financial instruments. Whereas in 2007/2008 four/two companies which are listed in the DAX-30 do not report about their risk management objectives and policies. The results also indicate that companies report their price and liquidity/cash flow risks mostly detailed. Only a small number of companies reports inadequately about their price and liquidity/cash flows. Room for improvements exists for credit risks. However, all companies report their handling techniques concerning financial risks.

Table 8: Results of analyzing the parameter "financial instruments"

V. Financial risks	Companies listed in ATX				Companies listed in DAX-30			
V.1. Risk management objectives and policies	absolute		relative		absolute		relative	
	2007	2008	2007	2008	2007	2008	2007	2008
No statement	0	0	0,00%	0,00%	4	2	15,38%	7,69%
Inadequate	8	6	47,06%	35,29%	5	4	19,23%	15,38%
Adequate	5	7	29,41%	41,18%	8	8	30,77%	30,77%
Highly detailed	4	4	23,53%	23,53%	9	12	34,62%	46,15%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
	absolute		**relative**		**absolute**		**relative**	
V.2. Price risk	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
No statement	0	0	0,00%	0,00%	0	0	0,00%	0,00%
Inadequate	2	2	11,76%	11,76%	2	0	7,69%	0,00%
Adequate	4	3	23,53%	17,65%	4	4	15,38%	15,38%
Highly detailed	11	12	64,71%	70,59%	20	22	76,92%	84,62%

Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
	absolute		**relative**		**absolute**		**relative**	
V.3. Credit risk	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
No statement	0	0	0,00%	0,00%	1	1	3,85%	3,85%
Inadequate	5	5	29,41%	29,41%	7	5	26,92%	19,23%
Adequate	7	6	41,18%	35,29%	7	9	26,92%	34,62%
Highly detailed	5	6	29,41%	35,29%	11	11	42,31%	42,31%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
V.4.Liquidity and cash flow risk	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
No statement	1	0	5,88%	0,00%	2	1	7,69%	3,85%
Inadequate	4	3	23,53%	17,65%	4	3	15,38%	11,54%
Adequate	1	3	5,88%	17,65%	3	2	11,54%	7,69%
Highly detailed	11	11	64,71%	64,71%	17	20	65,38%	76,92%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**
V.5. Techniques to handle risks	**absolute**		**relative**		**absolute**		**relative**	
	2007	**2008**	**2007**	**2008**	**2007**	**2008**	**2007**	**2008**
Yes	17	17	100,00%	100,00%	26	26	100,00%	100,00%
No	0	0	0,00%	0,00%	0	0	0,00%	0,00%
Total	**17**	**17**	**100,00%**	**100,00%**	**26**	**26**	**100,00%**	**100,00%**

General statement about the quality of risk reporting

In this section the main results of the empirical study are presented. As table 9 shows no company receives all points of the scoring model. In 2007 companies listed in the DAX-30 received 27 points on average for their risk reporting. Companies listed in the ATX got on average only 21 points. Table 9 provides evidence that companies which are listed in the DAX-30 report their risk reporting information with higher quality than companies which are listed in the ATX. These results are similar to those of Ewelt, C. et al., 2009. Ewelt et al., 2009 found that DAX-30 companies show the highest quality of risk reporting in comparison to other German indexes. As the number of individual risks increased in 2008, the financial crisis might had an effect on risk reporting. But as companies are affected by financial crisis in the second half of 2008, an increasing number of risks in 2008 indicates that companies show risks which are on the horizon.

Table 9: Results of evalutation

	Companies listed in ATX		Companies listed in the DAX-30	
	Evaluation in points in 2007	**Evaluation in points in 2008**	**Evaluation in points in 2007**	**Evaluation in points in 2008**
Mean	21	23	27	28
Median	22	23	27	30
Stand. Deviation	5	4	4	4
Min.	13	15	17	17
Max.	28	31	36	36
25%-Quantil	18	19	25	26
75%-Quantil	25	27	30	31

Maximum points of the scoring model = 42

Results of regression model

The results of the regression model are summarised in the table below. The author finds statistical evidence that the information quality of risk reporting is influenced by the quantity of risk reporting. The results of the regression model show that quality increases significantly with the number of pages of risk reporting which are disclosed. The study also shows that index influences the quality of risk reporting. According to the results, companies which are listed in the DAX-30 have statistically a higher quality of risk reporting. The study found no evidence that the firm size influences the information quantity of risk reporting disclosures statistically significant.

Table 10: Results of multiple linear regression model

	Regression coefficient (Beta)	**T**	**Sig.**	**VIF**
Number of pages	0,58	5,75	0,00	1,70
Sales	-0,04	-0,29	0,77	2,89
Total assets	-0,03	-0,26	0,80	2,74
Index	0,26	2,61	0,01	1,62

N= 86, R^2= 0,511, adjusted R^2= 0,486

Conclusions

This paper attempted to establish a scoring model for the analysis of the information quality of risk reporting. As indicated above, according to German and Austrian GAAP the scoring model included five parameters (form, risk management, overall, individual and financial risks). The analyses show that no company fulfils all criteria of the scoring model and information quality of risk reporting is not uniform across companies. Furthermore, there is a steady increase of the information quality of risk reporting from 2007 to 2008. The results of the multiple regression model indicate that the quantity of risk reporting and the index a company is listed in, are statistically significant in determining the information quality of risk reporting disclosures.

The study faces the following limitations. First, only two periods of reporting are analyzed. Second, the sample includes only German and Austrian companies in the prime stock market. Second, the results of a scoring model are always influenced by a validity problem. Third, the evaluation of a scoring model requires the identification of a vast number of dimensions to information quality that potentially exist. However, these aspects offer fruitful avenues for further research.

References

Abraham, S. and Cox, P. 2007, Analysing the determinants for narrative risk information in UK FTSE 100 annual reports, The British Accounting Review, pp. 227-248.

Adams, C. A., Coutts, A. and Harte G., 1995, Corporate equal opportunities (non-)disclosure, The British Accounting Review, pp. 87-108.

Buhr, N., 1998, Environmental performance, legislation and annual report disclosure: the case of acid rain and Falconbridge, Accounting, Auditing and Accountability Journal, pp. 163-190.

Cowen, S. S.; Ferreri, L. B. and Parker, L. D. (1987), The Impact of corporate characteristics on social responsibility disclosure: a typology and frequency-based analysis, Accounting, Organizations and Society, pp. 111-122.

Deegan, C. and Rankin, M. 1996, Do Australian companies report environmental news objectively? An analysis of environmental disclosures by firms prosecuted successfully by the Environmental Protection Authority, Accounting, Auditing & Accountability Journal, pp. 50-67.

Ewelt, C.; Knauer, T. and Sieweke, M. 2009, Mehr = besser? Zur Entwicklung des Berichtsumfangs in der Unternehmenspublizität am Beispiel der risikoorientierten Berichterstattung deutscher Aktiengesellschaften, Zeitschrift für kapitalmarktorientierte und internationale Rechnungslegung, pp. 706-715.

Fischer, T. M. and Vielmeyer, U. 2004: Analyse von Risk Disclosure Scores: Risikoorientierte Unternehmenspublizität der DAX 100-Unternehmen, Zeitschrift für kapitalmarktorientierte und internationale Rechnungslegung, pp. 459-474.

Lenz, H. and Diehm, J. 2010, Einfluss der Finanz- und Wirtschaftskrise auf die Risikoberichterstattung im SDAX, Zeitschrift für kapitalmarktorientierte und internationale Rechnungslegung, pp. 385-394.

Neu, D., Warsame, H. and Pedwell, K. 1998, Managing public impressions: environmental disclosures in annual reports, Accounting, Organizations and Society, pp. 265-282.