# Risk disclosures in annual reports of Dutch listed companies during the years 2005-2008


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# Abstract

Creating transparency about risks in the annual reports is vital for the well-functioning of an organization. An organization has to deal with the stakeholders' need for information. Stakeholders need information about all aspects of the organization, including risks to make sound judgments. Another reason why the topic of risk reporting received more attention is the financial crisis, also called credit crunch. The world got confronted with the financial crisis in 2007 and even more in 2008. With the collapse of financial markets and the (forced) government intervention, the financial services industry changed significantly. In this climate it is necessary for companies to develop strategies in order to anticipate on risks. This thesis provides a longitudinal study of the type and nature of corporate risk information disclosed in the company's annual reports during the financial years 2005-2008.

The focus of the hypotheses is to test whether (i) the quantity and quality of risk disclosures in the annual reports of Dutch listed companies are significantly higher in the period 2007-2008 compared with the period 2005-2006, (ii) the number of risk categories identified in the annual reports of the period 2007-2008 are significantly higher compared with the period 2005-2006, (iii) if there exists any relationship between the quantity and quality of risk disclosures being made within company's annual report and company size.

A content analysis has been performed in this thesis to measure the quantity of risk disclosures. Content analysis will also be used to measure the content of risk disclosures. To measure the content different risk categories are identified – market risk (currency risk, interest rate risk and other price risk), credit risk, liquidity risk, strategic risk, operational risk, legal and regulatory risk and financial reporting risk. Finally a disclosure index is performed in this thesis to measure the quality of risk disclosures.
The results support the hypothesis that there exists a positive relationship between quality and time; the quality of annual reports of Dutch listed companies has increased significantly during the periods 2005-2006 and 2007-2008. The results of this study support the hypothesis that there is a significant positive relationship between quantity and time. This relationship exists for both measures of quantity. When quantity is measured by means of the number of words and when it is measured by means of the percentage of the total annual report.
A significant positive relationship was also found between the number of risk categories disclosed and time. The annual reports in the period 2007-2008 have significantly more risk categories disclosed then the annual reports in the period 2005-2006. The results support the hypothesis that there exists a positive correlation between the quantity of risk disclosures and company size for the period 2005-2006 and 2007-2008. This positive relationship is found for all three measures of company size. Finally the results support the hypothesis that there exists a significant positive correlation between the quality of risk disclosures and company size for both the period 2005-2006 and the period 2007-2008; a significant positive relationship is found for all the three measures of company size, namely natural logarithm of market capitalization, natural logarithm of total assets and the natural logarithm of turnover.

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Since March 1 I have been working on this master thesis at Deloitte in order to graduate for my master in Business Administration (Financial Management). The concept thesis was already finished in September. However because of my new job, Auditor at Deloitte and the intensive working period during the last few months my final master thesis is ready now.

Although written individually, I would like to thank some people for their support and advice during this intensive period. First of all I want thank my supervisor at the University of Twente, Prof. Dr. Kabir for his advice and interest in this thesis. Next to this I would like to thank Deloitte for giving me the opportunity to write my master thesis at the Enschede office and I would like to thank J. Huiskes for his advice and critical view on my thesis. Finally I want to thank my parents who gave me the opportunity to start and complete my studies at the University of Twente.

The last six months have been an educative experience where everything I have learned the last 5 years have supported me by the establishment of this master thesis. With this master thesis I finish my studies at the University of Twente and at the same time the finish of my study means the beginning of a whole new adventure at Deloitte Enschede and the post graduate study RA at the VU Amsterdam.

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# Chapter 1. Introduction

In the last years there is a lot of attention for the topic of financial and non-financial risk reporting. Risk reporting is not only for financial institutions. Changing economic and regulatory environments, more complex business structures, risk management, increasing reliance on financial instruments, international transactions and prominent corporate crises have forced non-financial sectors to give rise to financial and non-financial risk reporting (Dobler, 2008). These factors forced the International Accounting Standards Board (IASB) to come up with the publication of a new International Financial Reporting Standard (IFRS), namely IFRS 7 *Financial Instruments: Disclosures.* These new regulations became mandatory in 2007 for listed companies in the European Union (EU) and forced companies to report risks and create more transparency in the annual reports. Creating transparency about risks in the annual reports is vital for the well-functioning of an organization (Deumes, 2008). An organization has to deal with the stakeholders' need for information. Stakeholders need information about all aspects of the organization, including risks to make sound judgments. Solomon, Solomon, Norton, & Joseph (2000) provide in their research a sample survey of UK institutional investors. The results of this survey showed that a significant number of respondents would like to see more detailed risk disclosures in the annual report. The risk disclosures in the annual reports contain too much generalized statements about risk policy (Solomon et al., 2000). Based on above events the Code Corporate Governance Monitoring Committee came with adjustments to the original code 'Tabaksblat' of 2003. The Code Corporate Governance (hereafter called the Code) contains both principles and best practice provisions that regulate the relationship between the board of directors, the supervisory board and the shareholders. In the adjustments to the Code stated that companies should have an adequate and effective risk management and control system. The objective of the Code is also to create more transparency about risk management and control of companies.
Another reason why the topic of risk reporting received more attention is the financial crisis, also called credit crunch. The world got confronted with the financial crisis in 2007 and even more in 2008. With the collapse of financial markets and the (forced) government intervention, the financial services industry changed significantly. In this climate it is necessary for companies to develop strategies in order to anticipate on risks.

Based on above events, it can be concluded that risk reporting is becoming an important topic for organizations nowadays. A great number of risk disclosures researches have been conducted the last years. A substantial growth in the research attention devoted to risk disclosure in company's annual reports can be observed. These studies have examined different aspect of risk disclosure and risk management, covered different sample sizes and different data sets.

## 1.1. Previous studies

For example Linsley & Shrives (2006) study the relationship between risk disclosures and company characteristics (e.g. company size). Beretta & Bozzolan (2004) find a positive association between company size and the quantity of risk disclosures for their sample of 85 Italian companies. This relationship is also confirmed for UK non-financial companies by Linsley & Shrives (2006). There are also studies that examine not only the relationship between risk disclosure and company size, but also the relationship between quality of risk disclosure and company size. For example Beretta & Bozzolan (2004) show that the disclosure quality is not influenced by size. Their sample exists of 85 non-financial companies listed in the ordinary market on the Italian Stock Exchange. The studies about risk disclosure and company characteristics are performed in different countries during the years. For example see the study of Ahmed & Courtis (1999).

Above studies are performed only in single years. In the existing literature there are also studies that examine the relationship between risk disclosures and time. These studies often find a positive relationship between the number of risk disclosures and time. For example Rajab & Handley-Schachler (2009) find that the average quantity of risk disclosure increased during the years 1998-2001, 1998-2004 and 2001-2004. This is a result of the regulatory development. Their study is based on a sample of 53 non-financial UK listed companies for the three different time periods. Liu (2006) finds also an increase of the quantity of risk disclosures during the periods 2001-2002 and the period 2005-2006. The study shows that both quantity, as a percentage of the total annual report and as the number of words about risk disclosure are significantly higher in the period 2005-2006 then in the period 2001-2002. The study consisted of a sample of 7 UK telecommunications companies listed in the FTSE all-share index between the period 2001 and 2006.

Also the relationship between the quality of risk disclosure and time is studied in the existing literature. For example Daske & Gebhardt (2006) asses the quality of the financial statements of three European countries; German (1996-2003), Swiss (2001-2004) and Austrian (1997-2004) companies which had already adopted the IFRS standards[1]. The sample consisted of 62 German companies, 41 Austrian companies and 9 Swiss companies. Daske & Gebhardt (2006) conclude that the quality of disclosure increases significantly under the IFRS standards in the three countries over the years. Further Daske & Gebhardt (2006) find that the result holds for both companies that voluntarily adopt the IFRS standards and companies which mandatory adopt the IFRS standards.

Soderstrom & Sun (2007) review existing risk disclosure studies and as a conclusion of their review they find a positive impact on the quality of risk disclosures in EU countries by adopting the IFRS standards and also the improvements to the existing standards during the years have a positive impact on the quality of risk disclosures.

[1] IFRS standards: Are the International Financial Reporting Standards which are the successor to the IAS. These IFRS standards became mandatory in 2005 for listed companies in the EU, but were earlier applied by some companies.

However there are only a few empirical studies about company characteristics and the quality and quantity of financial and non-financial risk disclosures in the annual reports of Dutch listed companies. For example Deumes (2008) studies whether companies report risk-relevant information to prospective investors and Van Beest, Braam, & Boelens (2009)study the quality of financial reporting. Other studies are most of the time about the influence of the Code Corporate Governance (e.g. Mertens & Blij, 2008), the voluntary adoption of the IFRS regulation since 2005 in relation with local GAAP or about the voluntary reporting on internal control (Deumes & Knechel (2008) and Deumes (2000)). Further these studies are most of the time performed in single years.

IFRS 7 became mandatory for listed companies in the Netherlands at January 1, 2007. This thesis seeks to address this gap in the literature by providing a longitudinal study of the type and nature of corporate risk information disclosed in the company's annual reports during the financial years 2005-2008. This thesis distinguishes itself from other risk disclosure studies as this thesis seeks to determine whether companies' risk disclosure in their annual reports has enhanced over the years in response to the changing regulations and legislation.

The rest of this thesis is structured as follows. Chapter two reviews the literature that is related to risk, risk management and risk disclosure. In chapter three the Dutch legislation about risk and risk management will be outlined and in chapter four a conceptual framework and hypotheses are developed. Chapter five describes the sample selection and research method. Chapter six presents the results of the empirical research and finally in chapter seven the results are discussed, conclusions are drawn and a discussion for future research has been made.

# Chapter 2. Risk and risk disclosure

## 2.1. Introduction

To obtain a good understanding of risk information presented in companies' annual reports it is essential to understand the theories associated with risk, risk disclosure and risk management. In this chapter the topics of risk, risk disclosure and risk management will be reviewed with the use of a number of related empirical studies. However, first of all it is essential to understand what is meant in this thesis by an annual report, this will be discussed in subsection 2.2.1. Secondly the different risk definitions will be discussed in subsection 2.2.2. In subsection 2.2.3 the types of risks a company deals with will be discussed. In subsection 2.2.4 the concept of risk disclosure will be outlined. The concept of risk management and the Enterprise Risk Management (ERM) model of the Committee of Sponsoring Organizations of the Treadway Commission (COSO, 2004) will be discussed in subsection 2.2.5. When the concepts of risk, risk disclosure and risk management are clear, an answer to the question why companies should disclose risks in their annual reports can be given. Section 2.3 outlines the cost and benefits of risk disclosure for the company but also the benefits for users of the annual reports. Finally in section 2.4 the quantity and quality of risk disclosures will be discussed.

## 2.2. Definitions

### 2.2.1. Annual Report

In this thesis the risk disclosures in annual reports of Dutch listed companies will be examined. Therefore we first need to know what is meant by an annual report. This is not always clear. For example (Hayes, Dassen, Schilder, & Wallage, 2005) define annual report as: *'an entity ordinariliy issues on an annual basis a document which includes its financial statements together with the audit report thereon'.* Financial statements are an entity's balance sheet, income statements or profit and loss accounts, statements of changes in financial position, notes and other statements and explanatory material (Hayes, Dassen, Schilder, & Wallage, 2005). An audit report is the audit opinion including all important administrative data related to the audit, including comments, results and the corrective and or preventive actions that have been determined and is signed by the partner of an audit firm (Hayes, Dassen, Schilder, & Wallage, 2005). However, when you have an annual report in front of you, the report consists of more than the financial statements and the audit report. Most of the time it also includes a director's report, a corporate governance statement of compliance, a risk and internal control section, the main lines of the company's activities and its mission statement, profit sharing and its statutes. The precise classification differs per annual report, but should be in line with the regulation about the content of an annual report, which is established in the Dutch civil law book 2, chapter 2 and also in line with the other specific regulation and codes of conduct which will be discussed in the following chapters. In this thesis when we refer to annual report, we mean the total package of the financial statements, the director's report and the other data.

### 2.2.2. Risk

Before there is an understanding of which risks and how risk should be incorporated in a company's annual report there should be a clear understanding of the meaning of risk. Risk is hard to define univocal. There are different meanings of risk in the literature.

In the present-day risk is used very broadly (Lupton, 1999). Risk is seen as an idiom for a hazard, a threat or harm. Abraham & Cox (2007) found through a content analysis on key words that companies saw risk predominantly as a variation, uncertainty or opportunity. However, this only gives an insight in the meaning of 'risk' but it does not provide a clear definition.

According to Watson & Head (1998, p. 192) financial textbooks typically define risk as '*referring to a set of outcomes arising from a decision that can be assigned probabilities whereas 'uncertainty' arises when probabilities cannot be assigned to the set of outcomes*'. According to Dobler (2008) risk can be seen from either an '*uncertainty-* or *target based*' perspective. The uncertainty based perspective defines risk as *'randomness of uncertainty of future outcomes that can be expressed numerically by a distribution of outcomes'* (Dobler, 2008, p. 187). The second perspective, the target based view, defines risk as *'the potential deviation from a benchmark or target outcome'* (Dobler, 2008, p. 187).

These definitions of risk reflects the modern view. The modernist view of risk incorporate both the positive and negative outcomes of an event (Linsley & Shrives, 2006). For example the Shrand & Elliot (1998), they define risk as a modernist view; risk does not only contain threats, but also opportunities and possibilities.

This definition of risk is in contrast with the pre modern view definitions of risk. In the pre-modern view, risks were considered to be bad, because risk was connected to the occurrence of natural events (Linsley & Shrives, 2006 & Lupton, 1999). There are still authors in the modern era who use this one side relationship of risk. For example the ERM model of COSO (COSO, 2004). COSO states that events can have a negative impact, a positive impact or both, but that only an event that has a negative impact represents a risk (COSO, 2004). This definition of risk is an event which has a negative effect, that can prevent value creation or can hollow out existing value (COSO, 2004).

In this thesis a modern definition of risk will be used. This is because the modern definition of risk takes into consideration both negative and positive aspects of risk and it deals with the factor uncertainty.

A modern definition of risk is given by Linsley & Shrives (2006, p. 389). Disclosures are judged to be risk disclosures only if '*the reader is informed of any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure*.' This definition of risk contains all aspects of risk; good risk, bad risk and uncertainty and therefore it will be used in this thesis.

### 2.2.3. Risk categories

The previous section described different risk definitions in the literature. Reviewing the different risk categories create an understanding of the risks a company has to deal with.

According to Cabedo & Tirado (2004) risks can be categorized into two broad categories, namely financial and non-financial risks. Non-financial risks are risks which are not directly related to monetary assets and liabilities, but they will have some influence on future cash flows. Non-financial risks are business risk and strategic risk. Financial risks on the other hand, are directly related to monetary assets and liabilities. Financial risks are market risk, credit risk, operational risk and liquidity risk. A definition of these risks is given in appendix 1.

Linsley & Shrives (2006) identify in their research different types of risks. The types of risk they identify are also financial and non-financial risks. Under financial risks they understand risks related to the financial position of the company. And the non-financial risks they distinguish operations risk, empowerment risk, information processing and technology risk, integrity risk and strategic risk. Linsley & Shrives (2006) do not define these types of risks, but they give a table with the types of risks that fall into each of the categories. This table is reproduced in table 1.

According to Beretta & Bozzolan (2004) the types of risk are company strategy, company characteristics and the environment surrounding the company. The company strategy consists of the organization objectives, mission, goals for performance and the way to achieve the objectives of the organization. Company characteristics consist of the financial structure, the corporate structure, the technological structure, organization and the business processes. The environment around the company consists of regulation and legislation, political, social and economic factors.

Code Corporate Governance distinguishes the risks that are most important for a company according to them. These are financial reporting risk, strategic risk, operational risk, legal and regulatory risk and financial risk (Corporate Governance Code Monitoring Committee, 2008).

IFRS 7 identifies credit-, market- and liquidity risk (International Accounting Standards Board, 2007). These are the risks that arise from financial instruments (The concept of financial instruments will be explained in subsection 3.3.2.) IFRS 7 splits up market risk in currency risk, interest rate risk and other price risk. These definitions are explained in detail in subsection 3.3.5.

Based on above findings it can be concluded that a lot of risk categorizations are being used in the existing literature about risk disclosures. Almost all studies make a distinction between financial and non-financial risks. Identifying different risk categories is important to understand, identify, monitor and control risks. Information about different risk categories also helps to improve the knowledge of investors about a company's financial situation, assets and its risks (Cabedo & Tirado, 2004).

**Table 1.** Risk disclosure categories

| | |
|---|---|
| **Financial risk** | Interest rate |
| | Exchange rate |
| | Commodity |
| | Liquidity |
| | Credit |
| **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 |
| **Empowerment risk** | Leadership and management |
| | Outsourcing |
| | Performance incentives |
| | Change readiness |
| | Communications |
| **Information processing and technology risk** | Integrity |
| | Access |
| | Availability |
| | Infrastructure |
| **Integrity risk** | Management and employee fraud |
| | Illegal acts |
| | Reputation |
| **Strategic risk** | Environmental scan |
| | Industry |
| | Business portfolio |
| | Competitors |
| | Pricing |
| | Valuation |
| | Planning |
| | Life cycle |
| | Performance measurement |
| | Regulatory |
| | Sovereign and political |

This thesis is focusing on the risk disclosure development of Dutch listed companies in the financial years 2006 till and inclusive 2008. The goal of the thesis is to find out if the Dutch legislation about risk disclosures (e.g. the introduction of IFRS 7 at January 1, 2007) have influenced the risk disclosure behavior of companies. For this reason the risk categories identified in this thesis are the categories as identified by the IFRS 7 standard and the Code Corporate Governance. The risk categories that will be used in this thesis are reproduced in table 2.

**Table 2.** Risk categories used in this thesis

| Risk categories |
| --- |
| - Strategic risk<br>- Operational risk<br>- Financial reporting risk<br>- Legal and regulatory risk<br>- Financial risk<br>- Market risk<br>- Currency risk<br>- Interest rate risk<br>- Other price risk<br>- Liquidity risk<br>- Credit risk |

### 2.2.4. Risk disclosure

Beretta & Bozzolan (2004, p. 269) define risk disclosure as '*the communication of information concerning firms' strategies, characteristics, operations, and other external factors that have the potential to affect expected results*'. The disclosure of risk in the annual report should contain, according to Beretta & Bozzolan (2004, p. 269) information on '*strategy, actions, and performance in addition to information specifically focused on risk*'.

The definition of Linsley & Shrives (2006) is stated as risk disclosure is informing the reader about '*any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure*' (Linsley & Shrives, 2006, p. 389). This definition is compared to the definition of Beretta & Bozzolan (2004) more extensively. It includes also the aspects of opportunity, prospect, hazard, harm, threat and exposure. Therefore this definition will be used in this thesis.

### 2.2.5. Qualitative and quantitative risk disclosures

According to Beretta & Bozzolan (2004) the quality of risk disclosures does not only depend on the quantity of disclosure, but also on the content, the richness of the disclosed information. In their research quality is a function of quantity, density, depth and the outlook profile.

The quantity of risk disclosure is the absolute number of risk disclosures in the annual report.
In the research of Beretta & Bozzolan (2004) they state that the quantity of disclosure is not a measure of the quality of disclosure. Density of risk disclosure refers to the ratio between the number of sentences which include risk disclosures and the total number of overall information.
The depth of the risk information concerns to the information content and refers to the expected economic impact on future performance of the company. Finally the outlook profile refers to the management approach to face identified risks and the communication of this approach.

Botosan (2004) concludes in his research that the quality of risk disclosure is very hard to measure and that there exists a positive relationship between the quantity and quality of risk information. Quantifying of the quality aspects as stated above is very hard. According to Botosan (2004) this is because it is hard to quantify the attributes of disclosure quality. Next to this, most of the time there is some missing information and the costs of quantifying are high. Botosan (2004) has for these reason a lot of criticism on the model of Beretta & Bozzolan (2004). It measures not the quality of risk disclosures, but the quantity. Botosan (2004) introduces a new assumption that quality is a function of the qualitative characteristics as defined by frameworks like the International Accounting Standards Board (2001). According to the International Accounting Standards Board (2001) quality is a function of understandability, relevance, reliability and comparability. This framework was accepted by the IASB in April 2001. The framework describes the qualitative characteristics of risk disclosures. The characteristics determine the usefulness for the decision making process for investors, creditors and other stakeholders. This framework of the IASB describes basis concepts for preparing financial statements. The framework serves as a guide in developing new standards and it serves also as a guide to resolve accounting issues which are not directly reported in any of the standards. The four characteristics will now be outlined in further detail.

*Relevance;* The information presented in financial statements can be considered as relevant when it influences the economic decisions made by users of the annual report. The information can help the users by evaluating past, present and or future events and by conforming or correcting evaluations that the users have made. Relevance has a relationship with material interest[2] (International Accounting Standards Board, 2001, p. F.29). Another component that has a relationship with relevance is timeliness. Information should be presented in the annual report within the time period in which it is useful for the decisions made by users of it (International Accounting Standards Board, 2001, p. F.43).

[2]*Material interest*: Information is of material interest, if when the information is improper reproduced or omitted, the economic decisions made by users of the annual report could be influenced (Koninklijk Nederlands Instituut van Registeraccountants (NIVRA), 2010)

*Understandability;* The information in annual reports should be prepared in such a way that it is understandable for users. The question that arises is for whom the information should be understandable. According to the framework International Accounting Standards Board (2001) this should be for *'users who have a reasonable knowledge of business and economic activities and accounting and who are willing to study the information diligently'* (International Accounting Standards Board, 2001, p. F.25).

*Reliability;* According to the International Accounting Standards Board (2001, p. F.31) information disclosed in financial statements is reliable if *'it is free from material error and bias and can be depended upon by users to represent events and transactions faithfully'*.

*Comparability;* According to the International Accounting Standards Board (2001) there exists comparability when users are able to compare the financial statements of a company with other years. This gives them the opportunity to observe trends in the financial position and performance of the company. The framework stated that users should also be able to compare financial statements of different companies to evaluate the relative financial position and performance (International Accounting Standards Board, 2001).

The key problem with this method to measure risk disclosure quality is how to operationalize and measure the quality items; relevance, understandability, reliability and comparability (Van Beest, Braam, & Boelens, 2009). In the paper of Van Beest et al. (2009) a measurement tool is constructed to assess the quality items as defined in the conceptual framework of the (International Accounting Standards Board, 2001). This measurement tool consists of a 21 item index to measure the quality items.

There have to be found a balance between the different qualitative characteristics. The aim is to find an appropriate balance between the different characteristics in order to meet the goal of the annual report. The goal or objective of a annual report is *'to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions'* (International Accounting Standards Board, 2001, p. 13). This information should be of high quality, because high quality information will have a positive influence on the investment decisions of capital providers and other stakeholders (Van Beest et al., 2009).

Daske & Gebhardt (2006) have assessed the quality of the financial statements of three European countries; German, Swiss and Austrian companies which have adopted the IFRS standards. In this research the authors conclude that the quality of disclosure has increased significantly under the IFRS standards in the three countries. Further Daske & Gebhardt (2006) found that the result holds for both companies that voluntarily adopted the IFRS standard and companies which mandatory adopted the standards.

### 2.2.6. Risk management

This thesis is about the risk disclosure development of listed companies in the Netherlands. In an annual report the risks that have an impact on the performance of the company will be discussed in the risk paragraph. The risk paragraph is part of the internal control section of the annual report. The internal control section is about the risk management of the company , but what does risk management actually mean?

According to COSO (2004) Risk Management (RM) is:

*'A process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives'.*
(COSO, 2004, p. 2)

The focus of RM is on the prevention and taking care of the negative effects of the threats that occur. The board of directors of an organization has to find a way to identify these events of threat and the possible consequences of it, and have to control these risks.
RM is according to Mertens & Blij (2008) defined as all activities and measures which are aimed at controlling risks.

The RM process will be defined by means of the Enterprise Risk Management (ERM) framework of COSO (COSO, 2004). This framework helps to asses and enhance the internal control systems of businesses and other entities. COSO is born due to a recommendation of the National Commission on Fraudulent Financial Reporting. This commission, better known as the 'Treadway commission', came up with a report that mentioned the diversity of interpretations and concepts that was given with regard to internal control. The COSO framework is coherent with the Dutch Code Corporate Governance (from now on called the Code), which will be outlined in further detail in section 3.4. The Code notices that a company shall have an internal risk management and control system. The Code is also referring to the COSO ERM framework.

The ERM framework is used to identify, assess and manage risk. The objective of the ERM framework is to identify events that may be a threat for the organization. Further the objective of the ERM framework is to control risks within the risk profile of an organization. These objectives contribute to a reasonable degree of certainty for the board of directors with regard to the objectives of the organization. The following section will outline the ERM framework in further detail.

#### *2.2.6.1. ERM framework*

An important aspect of the framework is the internal control aspect. According to COSO (2004) internal control is a process, which is effected by an entity's board of directors, management and other personal, and which is designed to provide *'reasonable assurance'* regarding the achievement of the following objectives:

- Effectiveness and efficiency of the entity's operations;
- Financial reporting reliability; and
- Compliance with the laws and regulations that are applicable

Another definition of internal control is given by Emanuels (2005). According to Emanuels (2005) internal control is the system that enables the management to identify, prioritize, analyze and control the risks that threat the achievement of the objectives of the organization.

The internal control system is focusing on the achievement of the organization's objectives (COSO, 2004). These objectives can be categorized in four specific areas (see figure 1). These four areas are the strategic, operations, reporting and compliance area (COSO, 2004). In the strategic area the focus is on the high level goals and these goals should be aligned with and supporting the mission of the organization. In the operations area, the focus is on the efficient and effective use of resources. The emphasis in the reporting area is lying on the reliability of reporting. Finally in the compliance area the focus is on the compliance with applicable laws and regulations (COSO, 2004).
The COSO ERM framework comprises eight interrelated components (see figure 1). These components are derived from the way management manages the organization and are integrated in the management process. The eight components are; internal environment, objective setting, event identification, risk assessment, risk response, control activities, information and communication and monitoring (COSO, 2004).

The internal environment of an organization sets the foundation for the way risk is seen and addressed by the people of the organization. The view of the people includes the risk management philosophy and the risk appetite - Risk appetite is the risk willingness of the management of the organization - Further also the ethical norms and values are included.

First of all an organization has to set their objectives before potential events that may affect the achievement of the objectives can be identified by the management. ERM ensures that the management of the organization has a process of setting objectives and also ensures that the chosen objectives are consistent with the risk appetite and are in accordance with the mission of the organization. These objectives are set in the objectives setting component.

In the event identification component, both the internal and external events that affect an organization's objectives should be identified. There should be made a distinction between positive and negative effects of risk, so opportunities or threats. An event that has a negative effect is called a risk according to the COSO (2004) and an event that has some positive effect an opportunity. These opportunities should be flow back to the process of objectives setting. After this has been done, management has to decide how to deal with certain risks that are mentioned as significant during the *risk assessment* component. All the risks that are discovered need to be analyzed.

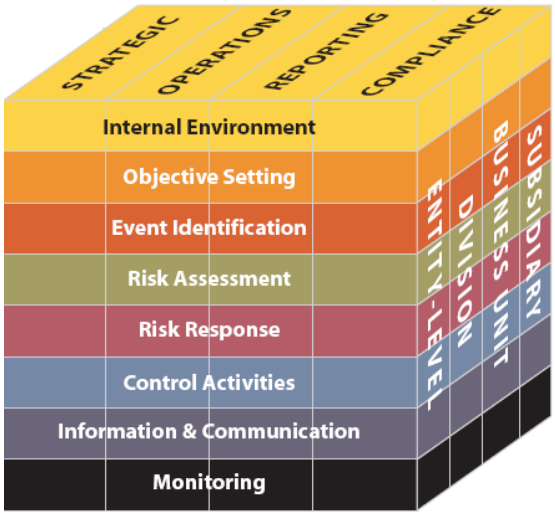
Analyzing these risks consists of considering the likelihood and the impact of the risk. Analyzing risk is the basis for deciding how the different risks should be managed. Management has to choose a method that sets the risk within the desired tolerance, in relation to the risk appetite of the organization. The ERM framework considers four methods to deal with risks (COSO, 2004);

- *Avoiding risk*; stop with all activities that gave reason to the risk.
- *Accepting risk*; take no actions to influence the probability or impact/effect of the risk.
- *Reducing risk*; reduce the probability and/or the impact/effect of the risk.
- *Sharing risk*; reduce the probability or the impact/effect of the risk by means of sharing or moving the risk. (e.g. by close off an insurance policy)

The control activities in the model help to ensure that the risk responses are effectively carried out. The control activities have to take care for an effective response to the identified risks, so the objectives of the organization will not be harmed. This is done by means of policies and procedures. By some objectives the control activities are the risk response. For example a review or drawing up a stock inventory. All levels in the organization need information to identify, assess and to come up with the correct action, but also to govern the organization. Also the risk policy that the organization wants to follow needs to be carry out to all the employees in the organization. This can be mentioned as the information and communication component in the ERM framework (COSO, 2004). The last component in the ERM framework is monitoring. An effective risk management system can only exist if the functioning of the system is monitored constantly. It should be checked if the chosen control activities have been implemented actually and if the control activities have the desired effect. On top of that the monitoring component shows if the taken measures are still adequate for the environment in which the organization operates. If elements have changed, the risk management system has to react to these changes.

The ERM framework of COSO (2004), as illustrated in figure 1, consists of the four objective categories, the eight components of risk management and the four levels within an organization. There is a mutually interrelated relationship between the four objectives (the four vertical columns), the eight components (the horizontal rows) and an entity's units (third dimension). An entity's objectives, represents what the entity wants to achieve and the components, which represent what is needed to achieve the objectives of the entity. The eight components will not function identically in every business unit, therefore the third dimension is also included in the cube, which represents the different business units. This third dimension gives the ability to focus on the entirety of an entity's ERM, or to focus on divisional level, business unit level of subsidiary level.

**Figure 1.** Enterprise Risk Management framework




**Source: (COSO, 2004, p. 5)**

ERM is a process of continuous change. The objectives of the organization and the environment in which the organization operates are subject to change. This is the reason why the risks of the organization are subject to change and the ERM of an organization has to be revised continuously.

Now the concepts of risk, risk disclosure and risk management have been discussed. But why should companies disclose information about risks in their annual report? The next section will discuss the value of risk information disclosed in companies' annual reports.

## 2.3. Value of risk disclosure

Based on existing literature, the concept of risk reporting emerged in the last fifteen years and the attention on the issues of risk and risk disclosure have reached a peak nowadays due to the financial crisis. To understand why organizations have an incentive to disclose risks or are required according to legislation, it is important to understand the rationale behind risk reporting.

Risk reporting can be divided into internal and external risk reporting. Internal risk reporting is for the board of directors and the board of supervisory directors of the organization. External risk reporting is for the shareholders of the organization and other interested parties. Internal parties have the disposal of a lot more information than the external parties. This is because not all the information is made public. This is in the literature known as *information asymmetry*. The research of (Healy & Palepu, 2001, p. 406) argued that the demand for financial disclosures made by management arises from the *agency problem* and *information asymmetry*.

- *The agency problem* is referring to the problem that there is a difference in interest between the agent and the principal (Jensen & Meckling, 1976). The agent is the manager of the organization and the shareholder can be seen as the principal. The problem that arises is that the agent has the incentive to act according to his own interest and this interest can conflict with the interest of the principal. In the research of Healy & Palepu (2001, p. 410) the authors come up with several measures to reduce the agency problem. The measures to reduce the agency problem are optimal contracts, corporate governance, information intermediaries, disclosure and corporate control.

- *Information asymmetry* is referring to the problem that the management of an organization has in most cases more and better information than the shareholders and other interested parties. As a consequence, when organizations disclose more information about risks in their annual reports, the result is a reduction in information asymmetry. From the stakeholder point of view this is a positive development, because the disclosed information can be taken into account by making sound judgements about decisions. The manager on the other side will be more hesistant to come up with additional information and remove some of the information asymmetry.

So in general terms disclosures reduce the agency problem and the information asymmetry. However it also may result in reduced cost of capital[3]. According to Helbok & Wagner (2006) '*investors demand of returns depends on the level of information provided to them through disclosures'*. Several studies have studied the relationship between risk disclosures and the cost of capital. Research of Botosan (1997), Botosan (2006) and Healy & Palepu (2001) showed that the cost of equity[4] reduces when the amount of disclosure increases.

Another theory that explains the demand of investors for more risk information is the Capital Asset Pricing Model[5] (CAPM). According to this model there is a relationship between the beta[6] and the expected risk premium on stock (Brealy, Myers, & Allen, 2006). The CAPM model states that the expected return equals the risk free rate plus a risk premium for the expected risk. Risk can be divided into systematic risk and specific risk. Systematic risk is risk that represents the entire market. Specific risk is the individual risk of a share that is not related to the market conditions. According to Botosan (1997), the CAPM model provides no role for the level of disclosure.

### *Conclusion*

As a conclusion riks disclosures reduce the agency problem and the information asymmetry. Risk disclosures may also result in a reduced cost of capital. The CAPM model provides no role for the level of disclosure. In the next subsection the benefits for stakeholders and the cost and benefits for companies will be discussed.

[3] Cost of Capital: the expected return on a portfolio of all the company's existing securities. This includes both debt and equity (Brealy, Myers, & Allen, 2006, p. 218).
[4] Cost of Equity: the expected rate of return demanded by investors in the firm's common stock (Brealy, Myers, & Allen, 2006, p. 218).
[5] Expected risk premium on stock = Beta x Expected risk premium on market (Brealy, Myers, & Allen, 2006).
= $r - r_f = \beta(r_m - r_{f)}$
[6] $\beta$ = the sensitivity to market risk of the security (Brealy, Myers, & Allen, 2006, p. 167).

### 2.3.1. Benefits for stakeholders

The main aim of financial information is to be of use to the present and potential users of it for their decision making purpose (Dopuch & Sunder, 1980). The financial information disclosed by companies is used by a range of users. According to the IASB framework the users of financial information include present and potential investors, lenders, suppliers and other trade creditors, employees, governments and their agencies, customers and the public (IASB, 2010). All these users have different information needs; suppliers and other trade creditors are interested in information that enables them to determine whether the amount owing to them will be paid to them. They are interested in an entity's over a shorter period than for example investors. Employees are interested in information about the stability and profitability of their employees, further they are interested in information about retirement benefits, remuneration and employment opportunities. Governments and their agencies are interested in information about the allocation of resources and information in order to determine taxation and statistics, like national income. Customers need information about the entity's continuance when they are dependent on the entity for a long period. Public member are also affected by the entity. For example entities make a substantial contribution to the economy, an entity provides employment. Annual reports provide information to the public about trends and developments (IASB, 2010).

Finally, investors, including lenders, are the main users of the information disclosed in the annual report (Cabedo & Tirado, 2004), they need financial information to evaluate the financial and economic position of the company and also its risks. Investors need information about the risks of a company, because the traditional financial statements focus only on recent historic profits and short term cash flow performance. Based on the evaluation of the financial and economic position and its risks, investors can make sound investment decisions (Cabedo & Tirado, 2004).

Investors need information about the risk factors that affect a company in order to assist them in their central activity of estimating the size, timing and certainty of future cash flows. The traditional financial statement with its focus on recent historic profits and cash flow performance in the short term does not satisfy this need. According to Marston & Shrives (1991) it is difficult for investors to understand and value the financial information without a clear accompanied explanation from the organization, because of the increasing complexity of business strategies, operations and regulations. According to Beretta & Bozzolan (2004) shareholders and stakeholders require listed companies to create more transparency about risks in their annual reports. This information can give them prospects about future performance and the sustainability of value creation drivers. Deumes (2008) agrees this statement. Creating transparency about risks in the annual reports is vital for the well-functioning of an organization (Deumes, 2008). An organization has to deal with the stakeholders' need for information. Stakeholders need information about all aspects of the organization, including risks to make sound judgments. Solomon et al. (2000) provide in their research a sample survey of UK institutional investors. The results of this survey shows that a significant number of respondents wants to see more detailed risk disclosures in the annual report. The risk disclosures in the annual reports contain too much generalized statements about risk policy (Solomon et al., 2000). Beretta & Bozzolan (2004) show that listed companies increase the amount of information disclosed in the annual report to fulfill the demands of their stakeholders. This information regards to the risk faced and the effect on the future. According to Linsley & Shrives

(2006) and Shrand & Elliot (1998) risk reporting allows external stakeholders to assess the risk of an organizations future economic performance.

### 2.3.2. Cost and benefits for companies

Linsley & Shrives (2000) state that the most important benefit of the increasing risk disclosures in the annual report is a reduction in the cost of capital. When risks are disclosed in the annual report of an organziation, the providers of capital may decrease the premium amount for the uncertainty. This premium amount is incorporated in the cost of capital. Botosan (1997) also came up with this conclusion in his research. According to (Solomon et al. (2000) adding disclosures to the annual report will prevent speculation and competitive harm to the company. It also discourages leaks, rumors and insider transactions.

Disclosing information about risks result not always in benefits for the organization or the management of a company. According to the research of Linsley & Shrives (2005) there are two main reasons why managers do not want to disclose more risk information in the annual report. First of all managers do not want to disclose information in the annual report, because of the *'commercially sensitivity'* of information. This means when disclosing this kind of information it can give competitors an advantage. Secondly, managers want only disclose forward looking information with *'safe harbour protection'*. Linsley, Shrives, & Crumpton (2006, p. 269) state that this forward looking information is *'unreliable and could leave directors open to potential claims from investors who have acted upon this information'*.

Several risk disclosure studies apply a number of theoretical frameworks to explain what motivates managers to disclose more information than it is necessitated by regulation. These frameworks are based on several factors, e.g. financial factors, non-financial factors and social responsibility factors, which determine a firm's disclosure policy. However there are also other factors that may determine a company's risk disclosure policy. For example a lot of risk disclosure studies have studied the relationship between risk disclosure and company size. For example Beretta & Bozzolan (2004) find a positive association between company size and the quantity of risk disclosures for their sample of 85 Italian companies. This relationship is also confirmed for UK non-financial companies by the Linsley & Shrives (2006).

The study of Sengupta (1998) shows that firms with high disclosure quality ratings enjoy lower effective interest cost when issuing debt. This finding indicates that a policy of timely and detailed risk disclosures reduces lenders' and other stakeholders' perception of default risk for the disclosing firm, reducing its cost of debt. Further the study shows that the relative importance of risk disclosures is greater in situations of market uncertainty. Market uncertainty expresses when there is a high variance in stock returns.

## 2.4. Summary and conclusion

In this chapter risk is defined as: '*any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure*' (Linsley & Shrives, 2006). This definition of risk contains all aspects of risk; good risk, bad risk and uncertainty. Risk disclosure is defined as informing the reader of the annual report about the risks. The focus of Enterprise Risk Management is on the prevention and taking care of the negative effects of the threats that occur (risks). The board of directors of an organization has to find a way to identify these events of threat and the possible consequences of it, and have to control these risks. The risk management process has been defined by means of the ERM framework of COSO (2004). This model is the framework for a company's risk management to fulfill the requirements of the legislation about risk disclosure. This model is used to identify, assess and manage risk. The main aim of financial information is to be of use to the present and potential users of it for their decision making purpose (Dopuch & Sunder, 1980). The financial information disclosed by companies is used by a range of users. These users are investors, lenders, suppliers, civil services, competitors and managers (Cabedo & Tirado, 2004). Investors, including lenders, are the main users of the information disclosed in the annual report (Cabedo & Tirado, 2004), they need financial information to evaluate the financial and economic position of the company and also its risks. Investors need information about the risks of a company, because the traditional financial statements focus only on recent historic profits and short term cash flow performance. Based on the evaluation of the financial and economic position and its risks, investors can make sound investment decisions (Cabedo & Tirado, 2004). The magnitude of risk disclosure in the annual report of companies depends on the size of a company (e.g. Beretta & Bozzolan (2004) & Linsley & Shrives (2006)) Further it depends on legislation. In the Netherlands listed companies are liable to the Dutch legislation. The listed companies have to fulfill the Code and the IFRS standards. The legislation states what information about risks and risk management companies have to disclose. What companies further voluntary disclose is in their own hands. Possible reasons for companies not to disclose risk information voluntary is because of the commercially sensitivity of information and because of the potential claims from investors who act upon unreliable information. Reasons why companies should disclose more information is because of the lower cost of capital.

Finally, it can be concluded from the literature review that the topic of risk disclosure gets more and more attention. In this thesis, I will examine how the risk dislcosure behavior of Dutch listed companies is developed during the years 2005-2008. In the next section the hypotheses will be developed which will be empirically tested.

# Chapter 3. Regulation

## 3.1. Introduction

In the late 90's reporting about internal control was totally voluntary, because there was no regulation about internal control. Deumes & Knechel (2008) state that '*the voluntary disclosure increases with the extent of information and agency problems, as proxied by management and block holder ownership and financial leverage'*. Deumes & Knechel (2008) find that there will be less voluntary reported when the management or one big shareholder (block holder) owns most of the shares. When an organziation has a high level of financial leverage, i.e. the organization is financed with a high degree of debt capital, then a higher degree of voluntary disclosure was observed. Deumes & Knechel (2008) define this as a trade-off between costs and benefits of such disclosures. According to Solomon et al. (2000) voluntary risk disclosures are preferred to mandatory disclosures. The reason for this is the perception that relevant information can not be standardized. Depsite this statement in this area there is a lot of legislation about risk disclosure and it is continually revisited. Mandatory disclosures refer to regulation about risk disclosure. This chapter will discuss the regulation in further detail.

Every year listed companies are forced to prepare and publish disclosures about the financial and economic situation of the company. These disclosures are published in the annual report to external users. The external users can use these disclosures for their decision making process (Cabedo & Tirado, 2004). Legal requirements on the subject of risk reporting have a big impact on the risk disclosure behavior of companies.

This section about regulation is only focusing on the Dutch regulation, because this thesis is about the risk disclosure behavior of Dutch listed companies. First of all I will discuss the three pillars used in this thesis, subsequently in section 3.2 the Dutch Corporate Governance Code will be discussed. In section 3.3 IFRS and especially IFRS 7 will be discussed. Finally a summary of the three pillars will be given and especially where they meet each other, contradict each other and overlap each other.

## 3.2. Code Corporate Governance

### 3.2.1. Introduction and history

In 1997 the commission 'Peters' came up with 40 recommendations about Corporate Governance in the Netherlands. The report of the commission 'Peters' was followed up by committee 'Tabaksblat'. The committee 'Tabaksblat' has introduced the Corporate Governance Code, also called code 'Tabaksblat', on the 9th of December 2003 (Corporate Governance Committee, 2003). From January 1, 2004 the Code came into operation. The Code Corporate Governance is a Code of conduct for *'all companies whose registered offices are in the Netherlands and whose shares or depositary receipts for shares have been admitted to listing on a stock exchange'* (Corporate Governance Code Monitoring Committee, 2008, p. 5). The Code applies also to all large companies whose registered offices are in the Netherlands and have a balance sheet value that exceeds the 500 million Euros and *'whose shares or depositary receipts for shares have been admitted to trading on a multilateral trading facility or a comparable system.* (Corporate Governance Code Monitoring Committee, 2008, p. 5). In short listed companies. The Code is divided into five chapters. These five chapters are compliance with and enforcement of the code, the board of directors, the supervisory board, the general meeting of shareholder and the audit of the financial reporting and the position of the internal audit and the external accountant (Corporate Governance Code Monitoring Committee, 2008).

### 3.2.2. Regulation

The Code was introduced as a result of the accounting scandals in Europe and America and has as goal creating a renewed trust of the social financial traffic and the financial integrity (Corporate Governance Code Monitoring Committee, 2008). On December 30, 2004 the Code was enacted in article 2:391 part 4 of the Dutch civil law. The code uses the 'comply or explain' principle. This means that companies have to comply with the code or otherwise have to explain why they do not apply a certain aspect of the code (Corporate Governance Code Monitoring Committee, 2008).

The Code contains both principles and best practice provisions that regulate the relationship between the board of directors, the supervisory board and the shareholders (Corporate Governance Code Monitoring Committee, 2008). The principles can be noticed as modern and widely supported, general views about good Corporate Governance. Companies report every year in their annual reports in which way they have applied the principles of the Code. The Committee Corporate Governance states not how the chapters in the annual report of a company should look like. The principles are further detailed in best practice provisions. These provisions are creating a certain standard for the behavior of commissioners and directors. As stated before, companies have to clarify to what extent the Code is applied in the annual report. Contraries to the Code are not objectionable. These contraries can be justified under certain conditions. So the Code is so-called principle based and also embedded like this in the law. It is not just a checklist of what is mandatory to report, the Code gives room for 'voluntry' disclosures.

As stated before the Code contains both principles and best practice provisions that regulate the relationship between the board of directors, the supervisory board and the shareholders (Corporate Governance Code Monitoring Committee, 2008). The principles and best practice provisions refer to the annual report as a whole, and not only to the financial statements, with the intention to improve the transparency in the annual report.

### 3.2.3. Code corporate governance about risk management and risk disclosure

Risk management is an essential part of govern a company. It is the task of the board of directors to make a statement about the risks facing a company. Provision II.1.3 , II.1.4 and II.1.5 are part of the Code. These provisions refer to the internal risk management and control system of the company. These provisions result from principal II.1 , that deals with the task and procedures of the directors. According to this provision, the management board of the company is responsible for the adequate functioning of risk management and control systems (Corporate Governance Code Monitoring Committee, 2008). Within these provisions the commission has distinguished several kind of risks, these are; financial reporting risks, strategic and operational risks, legal and regulatory risks and financial risks (Corporate Governance Code Monitoring Committee, 2008). The most important elements about risk management and risk disclosure in the code will now be cited.

- **Best practice provision II.1.3**

*'The company shall have an internal risk management and control system that is suitable for the company. It shall, in any event, employ as instruments of the internal risk management and control system:*

a. *risk analyses of the operational and financial objectives of the company;*
b. *a code of conduct which should be published on the company's website;*
c. *guides for the layout of the financial reports and the procedures to be followed in drawing up the reports;*
d. *a system of monitoring and reporting'.*

(Corporate Governance Code Monitoring Committee, 2008, p. 12)

- **Best practice provision II.1.4**

*'In the annual report the management board shall provide:*

*a. a description of main risks related to the strategy of the company;*

*b. a description of the design and effectiveness of the internal risk management and control systems for the main risks during the financial year; and*

*c. a description of any major failings in the internal risk management and control systems which have been discovered in the financial year, any significant changes made to these systems and any major improvements planned, and a confirmation that these issues have been discussed with the audit committee and the supervisory board'.*

(Corporate Governance Code Monitoring Committee, 2008, p. 12)

According to Groenland, Daals, & Von Eije (2006) there are four items of importance. First of all the presence of an adequate internal risk management and control system. This items has been established in best practice provision II.1.3. Secondly performing an analysis of risk frequently. This item has been established in best practice provision II.1.3.a. Thirdly the presence of a system of monitoring and reporting (Best practice provision II.1.3.d.). Finally a report, with a clear foundation, in the annual report of the directors about the functioning of the internal risk management and control system during the financial year. This item is reported in best practice provision II.1.4.

Best practice provision II.1.5 is concerned with the internal risk management system and control systems provide an assurance that the financial reporting does not contain errors of material importance and that these systems worked properly. This provision is included in appendix 2.

### 3.2.4. Corporate Governance Monitoring Committee

The official task of the Code Corporate Governance Monitoring Committee, under supervision of Frijns, (from now on called monitoring committee) is to improve the actuality and usefulness of the code and also monitor the compliance of the companies (Corporate Governance Code Monitoring Committee, 2008). The Monitoring Committee has to come up with a report about their findings every year (Corporate Governance Code Monitoring Committee, 2008). Committee 'Frijns' came up with compliance reports in the years 2005, 2006, 2007 and 2008.

The best practice provisions presented above are of interest for this thesis. These best practice provisions belong in the first monitoring report of the Monitoring Commission 2005 to the category of frequently explained and not observed best practice provisions (Corporate Governance Code Monitoring Committee, 2005). Companies and shareholder organizations have indicated that they need more guidance regarding the statement of adequacy and effectiveness. Therefore the Monitoring Committee came up with some recommendations in their 2005 report (Corporate Governance Code Monitoring Committee, 2005). In this report only the recommendations for the risk section will be outlined.

1. Considering the financial reporting risks:

- Will be declared that the risk management- and control systems give a reasonable assurance that the financial reporting does not contain any errors of 'material interest'[7].
- Will be declared that the risk management- and control systems have worked properly during the reporting year.
- Will be declared that there are no indications that the risk management- and control systems will not work properly in the current year.
- Any shortcomings that could have material consequences and which are established in the reporting year or the current year will be reported, in addition to which also made or planned improvements will be reported.
  (Corporate Governance Code Monitoring Committee, 2005)

2. Considering other risks(operational/strategic risks and legal and regulatory risks):

- A description of the risk management- and control systems based on the identified most important risks will be given.
- If applicable, important shortcomings which are established during the reporting year will be reported. Also planned or made improvements should be reported.
  (Corporate Governance Code Monitoring Committee, 2005)

If the percentages of Code compliance in the first year are compared with the percentages of Code compliance in the second year of the Code, it can be concluded that the compliance has significantly improved (Corporate Governance Code Monitoring Committee, 2006). The Monitoring Commission found it not necessary to come up with recommendations.
In 2007 there were some minor improvements (Corporate Governance Code Monitoring Committee, 2007), but the Monitoring Commission came up with some remarks about risk disclosure in the annual report. In the opinion of the Monitoring Commission the description of the strategic-, operational- , financial- and the legal- and regulatory risks could be improved. Therefore the Monitoring Commission came up with some recommendations in their 2007 report (Corporate Governance Code Monitoring Committee, 2007).

1. Description of the risk profile:
   In the description of the risk profile the company indicates which risks they face when execute their strategy. Next to this the company indicates their risk willingness to realize the objectives and quantifies these, if possible, means a sensitivity analysis. In the description of the risk profile the company receives attention for at least the following parts:

- The main risks related to the strategic objectives of the company, as well as the attitude towards these risks ('risk appetite').
- A description of the main strategic, operational, financial, legal and regulatory disclosure risks of the company, whereby anyway the qualitative impact of these risks is described.

[7] *Material interest*: Information is of material interest, if when the information is improper reproduced or omitted, the economic decisions made by users of the annual report could be influenced (Koninklijk Nederlands Instituut van Registeraccountants (NIVRA), 2010)

- A sensitivity analysis of the identified risks, if this analysis may be expected in fairness, based on the best practices in the relevant sector.
  (Corporate Governance Code Monitoring Committee, 2007)

2. Description of the internal risk management- and control systems:
   From the description of the internal risk management- and control systems it should become clear which actions the company undertook to control the identified risks. It is not only about the system itself, but also about the embedding of it. The following points are worth to discuss:
- The risks that are controlled by the internal risk management- and control system and if necessary the reference model that is used to design the system.
- The organization of the internal risk management- and control system and the embedding of it into the company.
- The results of a periodical evaluation of the internal risk management- and control system. if applicable also the improvement measures as a result of the outcomes.
  (Corporate Governance Code Monitoring Committee, 2007)

Finally another provision that has a relationship with the reporting about the internal risk management- and control system is best practice provision III.1.8. This provision states that *'the supervisory board shall discuss at least once a year the corporate strategy and the main risks of the business, the result of the assessment by the management board of the design and effectiveness of the internal risk management and control systems, as well as any significant changes thereto. Reference to these discussions shall be made in the report of the supervisory board'* (Corporate Governance Code Monitoring Committee, 2008, p. 20).

As a conclusion there can be stated that according to the code corporate governance a risk section has to contain of three elements; risk profile, a description of the risk management system and an in-control statement.

- *Risk profile*: an explanation of the most important operational- , strategic-, financial-, legal and regulatory risks risk that faces the company.
- *Description risk management system:* An explanation of the characteristics of the entity's specific risk management system that controls the entity's risks.
- *In-control statement:* A statement of the directors of the organization about the set-up/ the existence and/ or the functioning of the described system of risk management/ internal control.

## 3.3. International Financial Reporting Standards

### 3.3.1. Introduction

The International Financial Reporting Standards (IFRS) are an international set of financial reporting standards, interpretations and the framework adopted by the International Accounting Standards Board (IASB). The framework was issued in 1989. Instead of producing standards, the framework provides that the IASB will use in the development of a new or revised standards and to assist preparers of financial statements in applying standards. The framework helps also dealing with topics that are not addressed by one of the standards. Many of the standards forming part of IFRS are known as International Accounting Standard. These standards are issued by the International Accounting Standards Committee during the years 1973 to 2001.

The IFRS standards are used for the preparation and presentation of financial statements for external users. As discussed before, the financial statements are only a part of the annual report. IFRS is not focusing on the directors' report and the other information presented in the annual report.

#### *History*

In the 70's a lot of non-American companies want to get listed on one of the American Stock exchanges. At that time US GAAP was very extensive compared to the European GAAP. The International Accounting Standards Committee tried to anticipate on that and came up with International Accounting Standards to fill the gap between the US GAAP and the non-American GAAP. The IAS standards where in different countries, based on their local legislation, translated to the local standards. In the Netherlands this process was done by the 'Raad voor Jaarverslaglegging' (RJ).

The IASC was linked to audit offices and therefore not independent. In April 2001, the IASB took over the IASC. The IASB is the independent standard setting entity of the IFRS foundation. Independency turns out from the IASB Due Process Handbook, which states that *'the IASB is an independent group of experts with an appropriate mix of recent practical experience of standard-setting, or of the user, accounting, academic or preparer communities.'*

The IAS board consists of 14 to 16 full time members who are responsible for the IFRS development and publication. The members of the board are appointed by the IFRS foundation Trustee, which consists of part-time members.

### 3.3.2. Regulation

The IASC is trying to make one IFRS for the whole world. More and more multinational corporations have required the use of IFRS. These corporations want a consistent auditing standard throughout the world. With a set of international standards adopted for the world, international investors can be more confident in financial statements prepared in another country.

In Europe, on the 19th of July, 2002 the European Commission (EC) came up with regulation nr. 1606/2002 about the application of the IFRS standards for the annual account. The regulation stated that the application of the International Financial Accounting Standards became mandatory for listed companies in the European Union since January 1, 2005. In the Dutch civil law this regulation of the EC is laid down in article 2:362 part 8 in civil law book 2 title 9: 'The annual account and the annual report'. This means that all listed companies in the EU had to switch from the Generally Accepted Accounting Principles (GAAP) to the standards of IFRS from January 1, 2005.

#### *IFRS 7*

*'The board believes that the introduction of IFRS 7 will lead to greater transparency about the risks that entities run from the use of financial instruments. This, in combination with the new requirements in IAS 1[8], will provide better information for investors and other users of financial statements to make sound judgements about risk and return'*

*Sir David Tweedie, IASB Chair*

The demand for risk disclosures in the annual report has been increased over the years (Beretta & Bozzolan, 2004 & Cole & Jones, 2005). Corporate scandals and the discussion about corporate governance contributes to the increased demand for risk disclosures. Due to the financial crisis the demand for risk disclosures in the annual report will only increase. Because of the discussion about risk disclosures the IASB came up with an exposure draft in 2004. This exposure draft was about regulation to improve the disclosures about financial instruments and their risks. On August 15, 2005 the IASB issued IFRS 7 *Financial Instruments: Disclosures.*

On January 11, 2006 the IFRS 7 standard is approved by the European Commission. In regulation nr. 108/2006 the EC laid down that since January 1, 2007 the IFRS 7 standard became mandatory for all listed companies in the European Union. This new standard replaces the IAS 30: *Disclosures in the financial statement of banks and similar financial institutions* and also some elements of the IAS 32: *Financial instruments: Disclosure and presentation*. These IAS standards were established by the predecessor of the IASB, namely the International Accounting Standards Committee (IASC) which was established in 1973. Non-listed companies in the EU should still use the GAAP principles, because the IFRS standards are not (not yet) mandatory for them. In the Dutch regulation is a provision stated that non listed companies can voluntary apply the IFRS standards. But in practice it was too complicated for non-listed companies and for that reason too expensive to apply the IFRS standards. Therefore on July 9, 2009 the IASB came up with the International Financial Reporting Standard for Small and Medium Sized Entities (IFRS SME). This research is focusing on Dutch listed companies, therefore the IFRS SME standards will not be outlined in further detail.

[8] IAS 1 is about the presentation of financial statements. IAS 1 aims to prescribe the basis of presentation of financial statements, and to ensure comparability with previous periods and with the financial statements of other entities.

The IFRS 7 standard requires disclosures about the significance of financial instruments for an entity's financial position and performance. The IFRS 7 standard requires therefore information about the extent to which the entity is exposed to risks arising from financial instruments. Next to this the entity requires a description of the objectives, processes and policies of management for managing those risks. Both quantitative and qualitative information about the exposure to risk that arises from financial instruments. The standard also describes that specified information about liquidity -, credit -, and market risk is necessary. Quantitative information is based on the extent to which the entity is exposed to those risks. This quantitative disclosure is based on the information provided internally by management. Qualitative information describes the policies, processes and objectives of management for managing the risks.

In the Dutch civil law this regulation of the EC is laid down in article 2:391 part 3 in civil law book 2 title 9: 'The annual account and the annual report'. Article 2:391 part 3 state explicitly that the risk caused by financial instruments have to be disclosed in the annual report and this part is therefore the foundation for the qualitative part of the IFRS 7 standard. Article 2:391 part 1 of the Dutch civil law state explicitly that in the annual report the main corporate risks and uncertainties have to be stated. We will now discuss IFRS 7 in more detail, since it is the basis for risk disclosure in the annual report of Dutch listed companies.

### 3.3.3. IFRS 7

The objective of the IFRS 7 standard is introducing disclosure requirements that should enable the users of the financial statements in the annual report to evaluate:

- *'The significance of financial instruments to the entity's financial position and performance'*
- *'The nature and extent of risks arising from financial instruments to which the entity is exposed and how the entity manage those risks'*

(IASB, 2010)

The level of disclosure required by companies depends on both the extent of the use of financial instruments by a company, the financial risk exposure of the company and the measures and methodology a company uses to manage those financial risks (Deloitte, 2005). In the next section financial instruments will be outlined in further detail.

### 3.3.4. Financial Instruments

According to IASB (2010) a financial instrument is an agreement that leads to a financial asset of one party and a financial obligation of the other party. A financial instrument contains both primary financial instruments, like receivables and debt, and derivate financial instruments or derivatives. These are for example options, swaps and forward contracts (IASB, 2010). Almost every company has financial instruments. Such instruments are borrowings, accounts receivable, accounts payable, liquid assets and investments. Derivatives gain much interest in this period of economic crisis. An example of a financial instrument that has a relationship with the financial crisis is the Credit Default Swap (CDS). A CDS is according to Hull, Predescu, & White (2004) a contract that provides insurance against the risk of a debt default by another entity. The company is the reference entity and a default made by the company is known as a credit event. The buyer of the CDS (insurance) makes payments to the seller periodically. The buyer gets in return the right to sell a bond issued by the reference entity for its face value if a credit event takes place (Hull et al., 2004).

### 3.3.5. Content IFRS 7

IFRS standard 7.31 is stated as follows:

> *'A Fund shall disclose information that enables users of its financial instruments to evaluate the nature and extent of risks arising from financial instruments to which the entity is exposed to at the reporting date'.*
> (International Accounting Standards Board, 2007, p. IFRS 7.31)

IFRS 7 applies to all risks arising from all financial instruments. The risks that are distinguished in the IFRS 7 standards are, as stated before, credit risk, market risk and liquidity risk. But the IFRS standards are not limited to those 3 types of risk (International Accounting Standards Board, 2007, p. IFRS 7.32). These types of risks will be outlined in further detail.

- *Market risk*

According to the International Accounting Standards Board (2007, Appendix A) market risk is the risk that the future cash flows or fair value[9] of a financial instrument will fluctuate because of market price changes. Market risk contains of three types of risk. These three types of risk are currency risk, interest rate risk and other price risk. The definitions of these types of risks are as follows;

- *Currency risk is 'the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates'*
- *Interest rate risk is 'the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates'*
- *Other price risk is 'the risk that the fair value of future cash flows of a financial instrument will fluctuate as a result of changes in market prices'.* These changes in market price are the result of other than those arising from the currency- or interest rate risk.

- *Liquidity risk*

According to the International Accounting Standards Board (2007, Appendix A) liquidity risk is *'the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities'.* According to the IFRS 7 standards an entity has to perform a maturity analysis for financial liabilities in which the entity shows their contractual maturities that are still remaining and also the way the managers of the entity manages those liquidity risks (International Accounting Standards Board, 2007, IFRS 7.39).

- *Credit risk*

According to the International Accounting Standards Board (2007, Appendix A) credit risk is *'the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation'.*
According to the IFRS 7 standards an entity has to disclose by class of financial instrument; first of all the amount that gives, on the reporting date, the best representation of its maximum exposure to credit risk. Secondly a description of collateral held as security and other credit enhancements with respect to the amount presented. Thirdly information about the financial assets' credit quality.

[9] '*Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date*.' (Penman, 2007)

Finally the carrying amount of financial assets whose terms are renegotiated and these financial assets would otherwise impair or past due.

The IFRS 7 standards state in paragraph 7.33 that an entity has to disclose for each type of risk that arises from the financial instruments; how risk arises and the exposure to risk. Secondly the methods the entity uses to measure the risks and the objectives, processes and policies to manage the risks. Finally any changes that have occurred from the previous period in the exposure and arising of risk and also in the measure methods and the objectives, policies and processes for managing (IASB, 2010, IFRS 7.33).

As mentioned in the introduction the last years there is a lot of attention for the topic of risk reporting. IFRS 7 has become mandatory since January, 2007. But in the last years also two amendments have been made to it. The first amendment has been introduced in October 2008. This amendment was about disclosures related to the reclassification of financial assets. The second amendment which was introduced in March 2009 was about disclosures related to the fair value and liquidity risks (International Accounting Standards Board, 2009).

The three pillars used in this thesis are the IFRS standards, the Code Corporate Governance and the COSO ERM model. These three pillars will be summarized below to show their coherence and their differences.

**COSO**

The COSO ERM framework is used to identify, assess and manage risk. The objective of the ERM framework is to identify events that may be a threat for the organization. Further the objective of the ERM framework is to control risks within the risk profile of an organization. These objectives contribute to a reasonable degree of certainty for the board of directors with regard to the objectives of the organization in the following categories: Effectiveness and efficiency of operations, reliability of financial reporting, compliance with applicable laws and regulations and safeguarding of assets against unauthorized acquisition, use or disposition. The reason an entity establishes a system of internal control is to help achieve its performance and profitability goals and prevent loss of resources by fraud and other means. Internal Control can help to ensure reliable financial reporting and compliance with laws and regulations, for example IFRS. Section 404 of the Sarbanes-Oxley act (SOX) requires that each annual report of a publicly traded company contains an internal control report.

**IFRS**

The IFRS standards are used for the preparation and presentation of financial statements for external users. As discussed before, the financial statements are only a part of the annual report. IFRS is not focusing on the directors report and the other information presented in the annual report. The IASC is trying to make one IFRS for the whole world. More and more multinational corporations have required the use of IFRS. These corporations want a consistent auditing standard throughout the world. With a set of international standards adopted for the world, international investors can be more confident in financial statements prepared in another country. The International Financial Accounting Standards became mandatory for listed companies in the European Union since January 1, 2005. In the Dutch civil law this regulation of the EC is laid down in article 2:362 part 8 in civil law book 2 title 9: 'The annual account and the annual report'. This means that all listed companies in the EU had to switch from the Generally Accepted Accounting Principles (GAAP) to the standards of IFRS from January 1, 2005. So IFRS is compulsory in the EU.

**CGG:**

The Code was introduced as a result of the accounting scandals in Europe and America and has as goal creating a renewed trust of the social financial traffic and the financial integrity (Corporate Governance Code Monitoring Committee, 2008). On December 30, 2004 the Code was enacted in article 2:391 part 4 of the Dutch civil law. The code uses the 'comply or explain' principle. This means that companies have to comply with the code or otherwise have to explain why they do not apply a certain aspect of the code (Corporate Governance Code Monitoring Committee, 2008).
The Code contains both principles and best practice provisions that regulate the relationship between the board of directors, the supervisory board and the shareholders (Corporate Governance Code Monitoring Committee, 2008). The principles can be noticed as modern and widely supported, general views about good Corporate Governance. Companies report every year in their annual reports in which way they have applied the principles of the Code. Corporate Governance is the process and structure used to direct and manage the business and affairs of the entities with the objective of enhancing shareholder value.

# Chapter 4. Hypotheses

## 4.1. Hypotheses development

The focus of the hypotheses is to test whether (i) the quantity and quality of risk disclosures in the annual reports of Dutch listed companies are significantly higher in the period 2007-2008 compared with the period 2005-2006, (ii) the number of risk categories identified in the annual reports of the period 2007-2008 are significantly higher compared with the period 2005-2006, (iii) if there exists any relationship between the quantity and quality of risk disclosures being made within company's annual report and company size. The rationale underlying the hypotheses development is set out below.

## 4.2. Risk disclosure quantity

Each year listed companies have to prepare and publish disclosures about the financial and economic situation of the company. These disclosures are published in the annual report to external users. The external users can use these disclosures for their decision making process (Cabedo & Tirado, 2004). Legal requirements on the subject of risk reporting have a big impact on the risk disclosure behavior of companies. To improve a companies' risk disclosure practices and fulfill the requirements of stakeholders the IFRS standards became mandatory for all listed companies in the Netherlands since January 1, 2005. These standards are published with the aim to help companies to achieve better risk disclosure practices.

In the Netherlands there is also the Code Corporate Governance. The Code was introduced as a result of the accountancy scandals in Europe and America and has as goal creating a renewed trust of the social financial traffic and the financial integrity (Corporate Governance Code Monitoring Committee, 2008). To increase the compliance with the Code the Code Corporate Governance Monitoring Committee is created. The official task of the Code Corporate Governance Monitoring Committee, under supervision of Frijns, is to improve the actuality and usefulness of the code and also monitor the compliance of the companies (Corporate Governance Code Monitoring Committee, 2008). The Monitoring Committee has to come up with a report about their findings every year (Corporate Governance Code Monitoring Committee, 2008).

Also the Internal Control system changes over time. The way controls are applied may evolve; some procedure may become less effective or are no longer performed. Also circumstances for which the internal control system was designed may change. Management of the entity needs to determine whether the internal control system is still adequate and relevant to address new risks and otherwise has to change the internal control system. This is the monitoring function of the COSO model. All these risk disclosure measures should help to increase the transparency and shareholder value of the entity.

Research has shown that transparent risk disclosure may have benefits for the company. For example the lower cost of capital (Linsley & Shrives, 2000). The study of Beretta & Bozzolan (2004) showed that listed companies have been increasing the amount of information disclosed in the annual report to fulfill the demands of their stakeholders. This is also the result of the IFRS and Code Corporate Governance regulation. The official task of the Monitoring Committee is to improve the actuality and usefulness of the Code and also monitor the compliance of the companies (Corporate Governance Code Monitoring Committee, 2008). It could be concluded that compliance of the code has been improved during the years.

Previous disclosure studies have often found a positive relationship between the number of risk disclosures and time. For example the study of Rajab & Handley-Schachler (2009) found that the average quantity of risk disclosures has been increased during the years 1998-2001, 1998-2004 and 2001-2004. As a result of the regulatory development. The study is based on a sample of 53 non-financial UK listed companies for the three different time periods. The study of Liu (2006) found also that the quantity of risk disclosures has increased during the periods 2001-2002 and the period 2005-2006. This study showed that quantity, measured as a percentage of the total annual report and as the number of words about risk disclosure, are significantly higher in the period 2005-2006 then in the period 2001-2002. The study was performed on a sample of 7 UK telecommunications companies listed in the FTSE all-share index between the period 2001 and 2006.

Therefore it is hypothesized that a positive relationship between the quantity of risk disclosure and time also holds true for Dutch listed companies. Also because from January 1, 2007 IFRS 7 became mandatory for Dutch listed companies. The first hypothesis is stated as:

**Hypothesis 1:** The ***quantity*** of risk disclosures in the annual reports of Dutch listed companies is significantly higher in the period 2007-2008 then in the period 2005-2006.

## 4.3. Risk disclosure quality

According to the study of Beretta & Bozzolan (2004) the quality of risk disclosures does not only depend on the quantity of disclosure, but also on the content, the richness of the disclosed information. According to the International Accounting Standards Board (2001) the aim is to find an appropriate balance between the different qualitative characteristics in order to meet the goal of the annual report. The goal or objective of an annual report is *'to provide information about the financial position, financial performance and cash flows of an entity that is useful to a wide range of users in making economic decisions'* (International Accounting Standards Board, 2001, p. 13). This information should be of high quality, because high quality information will have a positive influence on the investment decisions of capital providers and other stakeholders (Van Beest et al., 2009). Previous disclosure studies have often found a positive relationship between the quality of annual reports and time. For example Daske & Gebhardt (2006) assessed the quality of the financial statements of three European countries; German, Swiss and Austrian companies which have adopted the IFRS standards. In this study the sample consists of 62 German companies, 41 Austrian companies and 9 Swiss companies. Daske & Gebhardt (2006) conclude that the quality of disclosure has increased significantly under the IFRS standards in the three countries over the years. Further they find that the result holds for both companies that voluntarily adopt the IFRS standard and companies which mandatory adopt the IFRS standards. Soderstrom & Sun (2007) review existing risk disclosure studies and as a conclusion of their review they find a positive impact on the quality of risk disclosures in EU countries by adopting the IFRS standards and also the improvements to the existing standards during the years had a positive impact on the quality of risk disclosures.
Therefore it is hypothesized that a positive relationship between the quality of risk disclosures and time also holds true for Dutch listed companies. This because since January 1, 2005 IFRS was also mandatory for Dutch listed companies. In the subsequent years I expect the quality is increased, because of the improvement of the existing standards and the issue of new standards (i.e. IFRS 7) during the years.

Next to this I expect also an increase in the quality in compliance with the Code, because the Code Corporate Governance Monitoring Committee improves the actuality and usefulness of the code and also improves the compliance of the companies (Corporate Governance Code Monitoring Committee, 2008). The Monitoring Committee comes up with a report about how companies can increase their compliance with the code and which components they have to improve (quality). Finally because of the interim audits, auditors test the internal control environment and make recommendations to management. Therefore the internal control system quality will increase.

The second hypothesis is stated as:

**Hypothesis 2:** The ***quality*** of risk disclosure in the annual reports of Dutch listed companies is significantly higher in the period 2007-2008 then in the period 2005-2006.

## 4.4. Risk categories

It is expected that the annual reports of Dutch listed companies identify significantly more risk categories in the period 2007-2008 than the annual reports of the period 2005-2006. This will be expected because the IFRS 7 standard became mandatory on January 1, 2007 for all listed companies in the EU. Therefore the listed companies have to disclose the risks and have to identify different risk categories and report more extensive about financial risks than before. Further the second step in the COSO internal control framework is the entity's risk assessment process. All components of internal control have to be assessed for risks. Management has to effectively assess and respond to the identified risks; management of an entity needs to determine whether the internal control system is still adequate and relevant to address new risks and otherwise has to change the internal control system.

In the existing academic literature there are some risk disclosure studies that have studied the relationship between risk categories and time. The study of Liu (2006) found that the number of risk categories disclosed in the annual reports remained largely unchanged over the two periods (2001-2002 and 2005-2006) the study was performed. However Liu (2006) found that different risk categories were identified during the two periods. Lajilli & Zeghal (2005) conducted a content analysis of risk disclosures on a sample of 300 TSE Canadian companies. In this study 12 risk categories were identified. The number of risk categories reported in the annual reports of the sample companies range from a minimum of 1 to a maximum of 9 categories. The most frequently identified risk categories were financial risks, commodity risk and market risk. For this thesis I expect a positive relationship between the number of risk categories identified and time for Dutch listed companies. Therefore the third hypothesis is stated as:

**Hypothesis 3:** The annual reports of the financial years 2007-2008 identify significantly more ***risk categories*** than the annual report of the financial years 2005-2006.

## 4.5. Risk disclosure and company size

The previous hypotheses test if the quantity and quality of risk disclosures in the annual reports of Dutch listed companies is significantly higher in the period 2007-2008 then in the period 2005-2006. The rationale for these hypotheses is the increasing regulation and the increasing demand of stakeholders. As stated in the literature review the problems of information asymmetry, agency costs and the cost of capital expected return for the shareholders will be higher for larger companies. This because, in general, larger companies attract more attention of share- and stakeholders than smaller companies. As a consequence information given by management should be reliable and the principals who buy shares, loan the company money and work for them should have faith in the information given. Therefore, as stated in the literature review, the problems of information asymmetry, agency cost and the cost of capital will be higher for larger companies.
It is expected that company size has a positive influence on the quality and quantity of risk disclosures, because more attention of share- and stakeholders means creating more transparency to attract capital and reduce the information asymmetry and agency cost. More and better risk disclosure measures should help to increase the transparency and shareholder value of the entity.

Previous disclosure studies have often found a positive relationship between the number of risk disclosures and company size. For example Beretta & Bozzolan (2004) find a positive association between company size and the quantity of risk disclosures for their sample of 85 Italian companies. This relationship is also confirmed for UK non-financial companies by Linsley & Shrives (2006). Therefore it is hypothesized that a positive relationship between company size and the quantity of risk disclosures in the annual report should also hold true for Dutch listed companies in the AEX and AMX index. The hypotheses will be tested as follows:

**Hypothesis 4(a):** There will be a significant positive relationship between the ***quantity*** of risk disclosures in the annual reports of Dutch listed companies and ***company size*** in the period 2005-2006 and in the period 2007-2008.

In this research also the relationship between the quality of risk disclosures and company size will be examined. Previous disclosure studies have found different relationships between the quality of risk disclosures and company size. For example Beretta & Bozzolan (2004) show that the disclosure quality is not influenced by size. Their sample exists of 85 non-financial companies listed in the ordinary market on the Italian Stock Exchange. Daske & Gebhardt (2006) show that the application of the IFRS accounting standards has lead consistently to higher quality financial report ratings. Their study has been performed on 62 German companies, 41 Austrian companies and 9 Swiss companies. Their study shows also a positive relationship between the quality of the annual report and company size. In the study of Botosan (2004) a positive relationship between the quantity and quality of risk information has been assumed. In general it is expected that larger Dutch listed companies produce higher quality annual reports, because of the greater number of stakeholders that make use of the annual report and secondly because of the political exposure. Therefore the hypotheses will be tested as follows:

**Hypothesis 4(b):** There will be a significant positive relationship between the ***quality*** of risk disclosures in the annual reports of Dutch listed companies and ***company size*** in the period 2005-2006 and in the period 2007-2008.

# Chapter 5. Sample selection and research method

### *Introduction*

In this chapter the data and research method will be described. First of all the sampling procedure will be described and the final sample which will be used in this research. Secondly the research method used to test the hypotheses will be described. Finally the variable definition will be described.

## 5.1. Sample selection

In this thesis the focus will be only on Dutch listed companies. This is because these listed companies have to fulfill the Dutch regulation about risks, risk disclosure and risk management. Small and medium unlisted companies are excluded, because they do not have the same risk reporting standards as listed companies; the IASB has introduced individual IFRS standards for SME companies; these standards are not the same as for the listed companies. The sample used in this thesis consists of Dutch Amsterdam Exchange Index[10] (AEX) and Amsterdam Midcap Index[11] (AMX) companies which were listed on the AEX or AMX index on April 20, 2010 and which were listed in the Netherlands[12] in the years 2005-2008. The companies should be listed in all the four years, because otherwise no correct comparison can be made (Nb. The selected companies should have the same regulation to compare the annual reports).

The sampling approach is non-random sampling, because the companies are selected and not based on a certain chance that a company will be selected. The AEX list consists of 25 companies and the AMX list of 22 companies. However not all these companies are of Dutch origin (Nb. A selection based on the Dutch ISIN code is done, because otherwise companies can be influenced by other country regulation).

Therefore a selection is made based on the Dutch ISIN code[13]. A list of 21 AEX and 20 AMX companies is left. Now a selection is made based on type of industry. Companies in the industry 'financials' are removed from the sample, because financial companies are risk management entities and make different types of risk disclosures (Bessis, 2002). A list of 17 AEX and 17 AMX companies is left. Finally there is checked if all the listed companies in 2010 were also listed on the AEX, AMX or AScX[14] index in the years 2005, 2006, 2007 and 2008. This is done by means of the historical composition documents[15,16,17] retrieved from the website http://www.euronext.com. The result is a list of 32 Dutch listed companies. Finally the company 'EuroCommercial' has been removed from the sample, because their financial year ends on June 30. Financial years ending on June 30 should not have any influence on the comparability with companies whose financial year ends on December 31.

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[10] *AEX*: The Amsterdam Exchange Index is the most important stock market price index of the Netherlands and consists of the 25 most traded shares (source:www.euronext.com).
[11] *AMX*: The Amsterdam Midcap Index is the stock market price index of the Netherlands for midsized shares and consists of the 25 most traded shares after the AEX.
[12] There is checked if the company was listed on the AScX, AMX or AEX index.
[13] ISIN code: International Securities Identifying Number; a combination of twelve alphanumeric symbols that identify securities all around the world. The first two symbols identify the country of issue (Source: http://www.euronext.com).
[14] *AScX*: The Amsterdam Smallcap Index is the stock market price index of the Netherlands for small shares and consists of the 25 most traded shares after the AEX and the AMX.
[15] Historical document AMX index retrieved from the website http://www.euronext.com/fic/000/046/685/466858.pdf
[16] Historical document AEX index retrieved from the website http://www.euronext.com/fic/000/046/685/466857.pdf
[17] Historical document AScX index retrieved from the website http://www.euronext.com/fic/000/046/686/466860.pdf

However since the IFRS standards are established on the first of January 2005 and IFRS 7 on the first of January 2007, there is a chance that the companies whose financial year ends on June 30, have not fully implemented new regulation. Therefore there is a chance that the annual report is not totally comparable with the other companies.

The sample that will be used in this thesis is included in table 3 and consists of 124 annual reports for the period 2005-2008. The complete annual reports of the sample companies for all years were downloaded from the company's individual website. All reports were available in English for the selected years.

**Table 3.** Sample AEX and AMX companies

| | Company | Stock Exchange | Industry |
|---|---|---|---|
| 1. | AALBERTS INDUSTRIES | AMX | Diversified Industrials |
| 2. | AHOLD KON | AEX | Consumer Services |
| 3. | AKZO NOBEL | AEX | Specialty Chemicals |
| 4. | ARCADIS | AMX | Business Support Services |
| 5. | ASM INTERNATIONAL | AMX | Semiconductors |
| 6. | ASML HOLDING | AEX | Semiconductors |
| 7. | BAM GROUP KON | AEX | Heavy Construction |
| 8. | BOSKALIS WETSMIN | AEX | Heavy Construction |
| 9. | CRUCELL | AMX | Biotechnology |
| 10. | CSM | AMX | Food Products |
| 11. | DRAKA HOLDING | AMX | Electrical Components & Equipment |
| 12. | DSM KON | AEX | Specialty Chemicals |
| 13. | EUROCOMMERCIAL | AMX | Retail REITs |
| 14. | FUGRO | AEX | Oil Equipment & Services |
| 15. | HEINEKEN | AEX | Brewers |
| 16. | HEIJMANS | AMX | Heavy Construction |
| 17. | IMTECH | AMX | Business Support Services |
| 18. | KPN KON. | AEX | Fixed Line Telecommunications |
| 19. | MEDIQ/OPG | AMX | Drug Retailers |
| 20. | NUTRECO HOLDING | AMX | Farming & Fishing |
| 21. | ORDINA | AMX | Computer Services |

| | | | |
|---|---|---|---|
| 22. | PHILIPS KON. | AEX | Consumer Electronics |
| 23. | RANDSTAD | AEX | Business Training & Employment Agencies |
| 24. | REED ELSEVIER | AEX | Publishing |
| 25. | SBM OFFSHORE | AEX | Oil Equipment & Services |
| 26. | TEN CATE KON. | AMX | Diversified Industrials |
| 27. | TNT | AEX | Delivery Services |
| 28. | UNILEVER | AEX | Food Products |
| 29. | USG PEOPLE/UNTGS 2005 | AMX | Business Training & Employment Agencies |
| 30. | VOPAK KON. | AMX | Marine Transportation |
| 31. | WESSANEN KON. | AMX | Food Products |
| 32. | WOLTERS KLUWER | AEX | Publishing |

*Source:* http://www.euronext.com/fic/000/046/685/466858.pdf (AMX companies)
http://www.euronext.com/fic/000/046/685/466857.pdf (AEX companies)

## 5.2. Research method

According to Saunders, Lewis, & Thornhill (2009) there are two main research approaches used by researchers. These are the deductive approach and the inductive approach. Under a deductive approach first of all theories and hypotheses are developed and secondly a research strategy is formulated to test the hypotheses. Under a inductive approach first of all the data has been collected and secondly a theory is developed based on the outcomes of the data analysis (Saunders et al., 2009). This thesis makes use of the deductive approach; a number of risk related models and theory have been reviewed in this thesis and have provide some insights, but these insights have to be tested on the selected companies in the Netherlands in order to evaluate the risk disclosing behavior of these companies.

The nature of the study is descriptive. It is the intention to portray an accurate profile of a situation; namely the risk disclosure development during the financial years 2005-2008. Saunders et al. (2009) state that this type of research needs a highly structured methodology to facilitate replication. Operationalization needs to take place in a way that quantified measures are possible. Saunders et al. (2009) state that the final characteristic of deduction is generalization, which means that a sufficient numerical size is needed. The condition for replication is met by executing an archival research. This will rule out participants errors and biases, because none exist. The data on which this research is therefore secondary data[18], to be more specific documentary secondary data. However, Saunders et al. (2009) state that these can be important raw data sources in their own right. Archival research makes it possible to longitudinally examine the risk disclosure in annual reports. That will be done by means of the annual reports of the selected companies for the financial years 2005-2008.

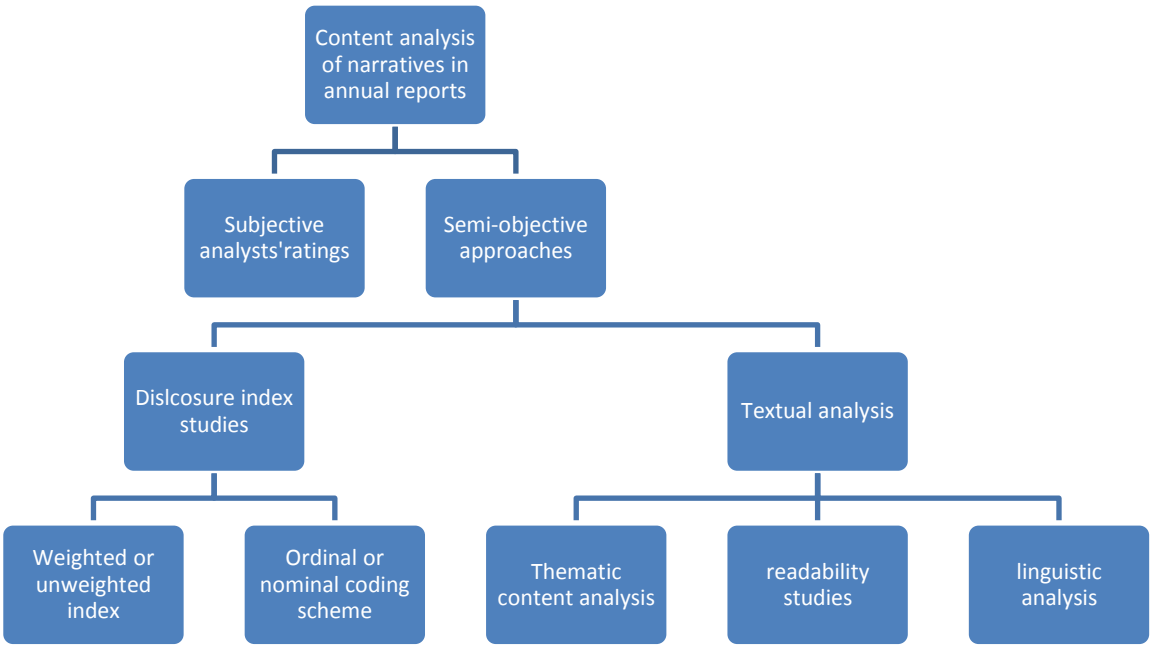
[18] *Secondary data*: data that already has been collected for some other purpose.

### 5.2.1. Content analysis

This study will adopt content analysis approach. To measure risk disclosures a lot of previous studies have made use of content analysis (e.g. Beretta & Bozzolan (2004), Linsley & Shrives (2006) & Abraham & Cox (2007). Content analysis is a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use" (Krippendorff, 2004, 18). Further content analysis has been chosen for this study, because with content analysis large amounts of qualitative data that risk disclosures contain can be categorized effectively (Lajilli & Zeghal, 2005).

According to Beattie, McInnes, & Fearnley (2004)and shown in figure 2, there are two ways of measuring risk disclosures and their quality. We can make a distinction between subjective analysts' ratings and semi -objective approaches to measure the narratives in annual reports. Problem with the subjective ratings is that these are based on the perceptions of analysts instead of objective direct measurements of disclosures. Therefore the semi-objective approach is the most used one. This approach can be divided into the disclosure index studies and in textual analysis which can be further divided into thematic content analysis, readability studies and linguistic analysis.

**Figure 2.** Approaches to the analysis of narratives in annual reports



### *Disclosure index studies*

Disclosure index studies are a *'partial form of content analysis where the items to be studied are specified ex ante'* (Beattie et al., 2004, p. 209). Because it is hard to directly asses the quality of risk disclosures, disclosure index studies assume that the quantity of disclosure is a proxy for the quality of disclosure (Beattie et al., 2004). Disclosure index studies make use of a nominal or ordinal level coding scheme (Beattie et al., 2004). The nominal coding scheme checks if an item is present or absent and the ordinal level scheme capture the degree of specificity of an item and uses most of the time three levels. The disclosure index study is used by Botosan (1997). Botosan (1997) makes use of an ordinal weighted scale to measure the level of disclosure. Qualified disclosed information scores a 1, quantified disclosed information scores a 2 and when there is no disclosure a 0 has been registered. It is a weighted index study, because not all the scores are equally weighted. The quantified disclosures are more weighted.

### *textual analysis*

The second method, textual analysis can be divided into thematic content analysis, readability studies and linguistic analysis. Thematic content analysis focuses on the content of accounting narratives. Which topics are disclosed and where are the topics disclosed? Readability studies are studies which are designed to *'quantify the cognitive difficulty of text'* (Beattie et al., 2004, p. 212). The computed score is compared to an external benchmark to evaluate the difficulty of the text. Finally linguistic analysis are used to study the language used in texts. It makes use of text characteristics. According to Beattie et al. (2004) the methods described above, for measuring the disclosure, have two fundamental limitations. First of all the methods used are one dimensional. It only measures of a certain topic is present or absent in the annual report. The second limitation is that many approaches are partial. This is because the approaches do not focus on the entire annual report; the approaches only focus on selected sections of the annual report or the only focus on pre-selected index items (Beattie et al., 2004). To solve the two limitation Beattie et al. (2004) have developed a new approach for measuring the level of disclosure in the annual report. The approach they have developed is the so called *'computer-assisted disclosure profile'*. This method is based on the general principles of the content analysis and it makes use of a computer software package called QSR NUD*IST. This method can be described as a multi-dimensional approach that focuses on all the narrative sections in an annual report (Beattie et al., 2004).

### *Reliability content analysis*

According to Beattie et al. (2004) there are 3 types of reliability for the quantitative methods as described above. First of all stability; how consistent is the researcher in coding the same content over time. Secondly reproducibility; do different researchers get the same results when coding the same content. Finally accuracy; is the classification of text according to a strict norm.

To increase the credibility of the risk disclosure research there are several procedures. According to Abraham & Cox (2007) to increase the confidence that the interpretation of written documents correspond to the objective reality is that more than one person read and code the document. To check the consistency in coding, which is a proxy for accuracy, a test of inter-rater[19] can be used (Abraham & Cox, 2007). A second method is '*examining the output of the content analysis measured*

[19] Test of inter-rater: assess the degree to which different raters are consistent in estimating the same phenomenon.

*one way against the output measured in a different way*' (Abraham & Cox, 2007, p. 235). The degree of consistency among the two ways can be measured. A method to measure this degree of consistency is Cronbach α. Cronbach α measures the rate in which a set of items captures the underlying construct disclosure (Abraham & Cox, 2007). *'Cronbach's a will increase as the average pairwise correlation between the two content analysis measures of disclosure increase'* (Abraham & Cox, 2007, p. 235).

### 5.2.2. Measure risk disclosure quantity

A content analysis will be performed in this thesis to measure the quantity of risk disclosures. According to many studies content analysis is the most appropriate study for the analysis of companies' annual reports (e.g. Beretta & Bozzolan (2004) & Linsley & Shrives (2006)). This method is useful for the purpose of this thesis. Content analysis consist of a study about the quantity and content of risk disclosures of Dutch AEX and AMX listed companies. The content analysis will be performed on the selected companies' annual reports of the financial years 2005, 2006, 2007 and 2008. In this thesis only risk information disclosed in the annual report will be taken into consideration. Internal reporting about risk will not be taken into account, because internal information is not easy accessible. In this study the analysis of risk disclosures for the sample companies was performed on the Corporate Governance section, the risk and risk management section and the financial risk management section. The Corporate Governance section contains the elements of the Code Corporate Governance, the risk and risk management section is based on the COSO internal control framework and finally the financial risk management section is based on the IFRS 7 standard.

To perform a content analysis the number of words, page proportions and sentences can be used (Linsley & Shrives, 2006). To measure the quantity of risk disclosures the number of words in the risk and risk management section, the Corporate Governance section and the financial risk management section will be counted, because counting words is the most accurate objective manner whereby other researchers should come on the same outcomes (accuracy, reproducibility, stability). Although words can hardly be coded to different risk categories this is not a problem, because only the total number of words about risk and risk management will be used and the total number of words about risk and risk management set out to the total number of words in the annual report. Therefore the text from the Corporate Governance section, the risk and risk management section and the financial risk management section will be copied from the pdf annual reports to the program Microsoft Word and with the use of the function 'counting words' the quantity of risk disclosure will be measured.

### 5.2.3. Measure risk categories

Content analysis will also be used to measure the content of risk disclosures. To measure the content different risk categories are identified – market risk (currency risk, interest rate risk and other price risk), credit risk, liquidity risk, strategic risk, operational risk, legal and regulatory risk and financial reporting risk, and will be used in this thesis. This list of risks is included in table 2. These risk categories are derived from the IFRS 7 standard and the Code Corporate Governance. The text in the risk and risk management section, the Corporate Governance section and the financial risk management section of the annual report will be read. To detect the types of risk in these sections of the annual report and classify them into the different risk categories, the definitions of the different kind of risks as stated previously will be used. To perform a content analysis the number of words, page proportions and sentences can be used (Linsley & Shrives, 2006). To identify the different risk categories number of sentences will be used. Although words can be counted with a high degree of accuracy whereby other researchers should come on the same outcomes (accuracy, reproducibility, stability), words can hardly be coded to different risk categories without reference to the sentence (Linsley & Shrives, 2006). The sentences in the different risk sections were analysed manually into the different risk categories.

#### *Limitations research method*

Linsley & Shrives (2006) also state that content analysis is inevitably subjective and therefore the coding method needs to be reliable for valid conclusions to be drawn. Pretesting of this type of content analysis was done by Linsley & Shrives (2006) in order to create decision rules to improve reliability. The authors only include sentences where risk disclosure is mentioned and not just words. They state that although words can be counted with a high degree of accuracy, they cannot be coded to different risk categories without reference to the sentence. That is, words can only be interpreted within the context of a sentence.

The decision rules formulated by Linsley & Shrives (2006) apply next to the sentence rule are: 1) Sentences are to be coded as risk disclosures as the reader is informed of any information that fits the risk disclosure definition. 2) Disclosures must be specifically stated, they cannot be implied. 3) Sentences of general policy concerning internal control and risk management systems shall be classified as non-monetary/neutral/non-time specific statements of risk management policy-integrity risk. 4) Monetary risk disclosures are those risk disclosures that either disclose directly the financial impact of a risk or disclose sufficient information to enable the reader to calculate the financial impact of a risk. 5) If a sentence has more than one possible classification, the information will be classified into the category that is most emphasized within the sentence. 6) Tables (quantitative and qualitative) that provide risk information should be interpreted as one line equals one sentence and classified accordingly. 7) Any disclosure that is repeated shall be recorded as a risk disclosure sentence each time it is discussed. 8) If a disclosure is too vague in its reference to risk, then it shall not be recorded as a risk disclosure.

To improve reliability the decision rules, as formulated by Linsley & Shrives (2006), will be used for coding the sentences into the right risk category. A checklist with each of the risks will be used to monitor the identified risks per annual report. A second method to check the other sections of the annual reports on presence of risk categories and to improve the reliability a list of keywords will be used. This list is retrieved from the study of Abraham & Cox (2007). In the study of Abraham & Cox

(2007) they perform a second method to establish the reliability of their research. This method is called the key words method. For this method a list of key words is compiled and these words will be counted in the text. The key words record risk in three manners; risk as an uncertainty, an opportunity and risk as variation. This list of key words is complemented with other keywords. These other keywords are retrieved from the electronic 'Van Dale' English dictionary and are synonyms for uncertainty, opportunity and variation. The keyword list is included in table 4.

**Table 4.** Keywords

| Key word |
|---|
| **Risk** |
| **Risk as variation** |
| Fluctuation |
| Variation |
| Volatility |
| Oscillation |
| Amplitude |
| Change |
| Diversification |
| **Risk as uncertainty** |
| Uncertainty |
| Unexpected |
| Contingency |
| Surprise |
| Shock |
| **Risk as opportunity** |
| Opportunity |
| Prospect |
| Potential |
| Upside |
| Advantage |
| Possibility |
| Chance |

*Sources:* (Abraham & Cox, 2007)
Van Dale Dictionary (2006)

### 5.2.4. Measure risk disclosure quality

A disclosure index study will be performed in this thesis to measure the quality of risk disclosures. Disclosure index studies make use of a nominal or ordinal level coding scheme (Beattie et al., 2004). The nominal coding scheme checks if an item is present or absent and the ordinal level scheme capture the degree of specificity of an item and uses most of the time three levels. For this study the disclosure index is based on an ordinal level scheme that makes use of five levels. To perform a disclosure index study it is necessary to define a list of quality items which will be applied to all the companies in the sample in order to compute the disclosure index. To measure the quality of disclosure in the annual reports of the selected companies the measurement tool as developed by Van Beest et al. (2009) will be used. This tool gives an overview of the measures used to operationalize the qualitative characteristics as defined by the International Accounting Standards Board (2001). Next to this for this thesis is chosen for this tool, because the tool was tested for reliability and validity by Van Beest et al. (2009). Their results show that the measurement tool assessses the quality of financial reporting in a valid an reliable way.

The qualitative characteristics are understandability, relevance, reliability and comparability are already defined in subsection 2.2.4. These characteristics allow to examine the content and style of the information disclosed. The measurement tool is included in appendix 3. The last item T1 (How many days did it take for the auditor to sign the auditors' report after bookyear end?) (see appendix 3, p. 63) of this tool, developed by Van Beest et al. (2009) has been adjusted. According to their scale, an annual report that was signed 150 days after book-year end gets a higher score than one that was signed just 10 days after bookyear end. Van Beest et al (2009) had another purpose and therfore for this thesis the item is changed. When a auditors'report was signed one month after bookyear end a score of 5 was obtained, 2 months after bookyear end a 4, and so on.

The annual reports for the sample companies for the years 2005, 2006, 2007 and 2008 are checked on the presence of each of the 21 quality items as defined by the tool. The coding procedure has been defined as follows: For each of the 21 quality items presence has been checked in the annual report text, tables and footnotes. If the item was in absence a score of '1' has been obtained. If an item was present it was scaled from 2 to 5 according to the guidelines of the quality checklist. For each of the items a score between 1 and 5 can be obtained. This makes it possible to compare the quality of disclosure between companies and years. It is assumed the higher the score, the higher the quality of the information disclosed.

#### *Quality score*

The framework for measuring disclosure quality as discussed above shows that for every disclosed item in the annual report the company can score between 1 and 5 points. The quality of disclosure can be measured by calculating a disclosure score for each company for each year. This score can be calculated by the following formula (4), as retrieved from Tsalavoutas, Evans, & Smith (2009).

$$C_{jk=}\frac{T=\sum_{i=1}^{n} d_i}{M=\sum_{i=1}^{m} d_i} \qquad (4)$$

In this formula the k is added in $C_{jk}$. $C_{jk}$ stands for the total compliance score for company j in the annual report of year k. Where $0 \leq C_{jk} \leq 1$. T is the total points scored ($d_i$) by company j in annual report k. M is the maximum number of points that could have been scored by company j in annual report k. This formula is an unweighted index, because each items is weighted equally. For example when a company has scored 50 (T=50) points for quality in the annual report of 2008 (k=4) and M is

105 (21 quality items times 5 points). The company has a score of 50/105 = 0,476. After calculating all the scores for each company in each of the four years the scores can be compared with each other.

### 5.2.5. Measurement of company size

To test hypothesis 4(a) and 4(b) another key variable should be measured, namely company size. According to Linsley & Shrives (2006) company size can be measured by means of turnover[20] and market capitalization[21]. Linsley & Shrives (2006) converted the two variables into their natural logarithm, because of non-linearity. Beretta & Bozzolan (2004) measure size by means of the natural logarithm of turnover. According to Botosan (1997) the market value of equity at the end of the year is a good measure of company size. There are also other measures of company size; book value of total assets, PPE[22], total sales and the number of employees (Botosan, 1997). It is not possible to provide a theoretical justification as to why one particular measure of company size should be used rather than another. In this thesis company size will be measured by means of the natural logarithm of market capitalization, -turnover and -total assets. There is chosen for these methods, because they are used in several other empirical studies and they can be measured directly. Next to this number of employees is not a reliable measure of company size, because there are large companies who do not have a lot of employees; it depends on the nature of the business.

The market capitalization will be calculated for 2005, 2006, 2007 and 2008. The company's outstanding shares and the current market price of one share can be obtained from the annual report of the company. The turnover of a company can be taken directly from the company's annual report. The turnover will also be taken from the years 2005, 2006, 2007 and 2008. Finally total assets can be taken directly from the annual reports of the selected companies for the years 2005, 2006, 2007 and 2008.

## 5.3 Statistical methods

The sample size consists of 31 Dutch listed companies. The measurements of the variables takes place on different levels of measurement. In order to determine the right statistical test it is necessary to identify first of all the level of measurement and secondly whether the data is normally distributed. To test if the data is normally distributed QQ-plots will be used. When the data is normally distributed the following statistical methods per hypothesis will be used.

- **Hypothesis 1:** The quantity of risk disclosures in the annual reports of Dutch listed companies is significantly higher in the period 2007-2008 then in the period 2005-2006.

The quantity of risk disclosure is measured by counting the number of words. The total number of words will be compared with other years. Therefore the level of measurement is interval/ratio. To test hypotheses 1 paired samples t-tests will be used. A paired samples t-test compares the means of two variables for each case and test if the average difference is significantly different from zero.
The quantity scores of each of the years will be calculated and used to compare period 2005-2006 with period 2007-2008. The hypotheses will be tested at a 95% confidence level. The confidence level tells how sure we can be, how often the true percentage of the population who would pick an

[20] The turnover can be taken directly from the financial statements in the annual report of the company.
[21] Market capitalization = companies outstanding shares multiplied by the current market price of one share.
[22] PPE = Net book value of property, plant and equipment.

answer lies within the confidence interval. 95% means you can be 95% certain that 95% of the population who would pick an answer lies within the confidence interval. The confidence interval is the estimated range of values which is likely to include an unknown population parameter.

In this thesis we expect that the mean of a certain group is higher than the mean of another group. Therefore *H0* and *H1* for hypotheses 1 till 3 are stated as:

- *H0: the means of the two groups are equal to each other*
- *H1: the mean of group 2 is higher than the mean of group 1.*

For hypothesis 1 the groups are the financial years 2005-2006 (group 1) and 2007-2008 (group 2) and the variable quantity will be tested.

- **Hypothesis 2:** The quality of risk disclosure in the annual reports of Dutch listed companies is significantly higher in the period 2007-2008 then in the period 2005-2006.

To measure the quality of disclosure in the annual reports of the selected companies the measurement tool as developed by Van Beest et al. (2009) will be used. The level of measurement of this tool is based on an ordinal scale. Ordinal measurement describes order but not relative size or degree of difference between the items measured. Each of the items will be measured by means of a five points scale. The total quality score is measured with the use of the formula as stated in subsection 5.2.4. This formula is based on an interval/ratio scale. The different quality scores can be compared with each other. To test hypotheses 3 paired samples t-tests will be used. A paired samples t-test compares the means of two variables for each case and test if the average difference is significantly different from zero. The quality scores of each of the years will be calculated and will be used to compare the period 2005-2006 with period 2007-2008. The hypotheses will be tested at a 95% confidence level. In this thesis, we expect that the quality of disclosure has increased through the financial years, therefore *H0* and *H1* are stated as in (1). The groups are the financial years 2005-2006 (group 1) and 2007-2008 (group 2).

- **Hypothesis 3:** The annual reports of the financial years 2007-2008 identify significantly more risk categories than the annual report of the financial years 2005-2006.

The total number of risk categories disclosed will be measured on an interval/ratio scale; the number of risk categories found in each of the annual reports is divided by the total number of risk categories that were identified (see table 2, page 8). The score of the total number of risk categories disclosed in the period 2005-2006 will be compared with the period 2007-2008. To test hypotheses *2* paired samples t-tests will be used. A paired samples t-test compares the means of two variables for each case and test if the average difference is significantly different from zero. The average disclosure scores of each of the periods will be calculated and will be used to compare the two periods with each other. The hypotheses will be tested at a 95% confidence level.
In this thesis, we expect that the number of risk categories disclosed in the annual report has increased, therefore *H0* and *H1* are stated as in (1). The groups are the financial years 2005-2006 (group 1) and 2007-2008 (group 2).

- **Hypothesis 4(a):** There will be a significant positive relationship between the quantity of risk disclosures in the annual reports of Dutch listed companies and company size in the period 2005-2006 and in the period 2007-2008.

The quantity of risk disclosure is measured by counting the number of words. The number of words is presented on an interval/ratio level in two ways: First of all as the total number of words about risk disclosure in the Corporate Governance section, the risk and risk management section and the financial risk management section divided by the total number of words of the annual report. After this the average percentages for the period 2005-2006 and the period 2007-2008 are calculated.
Secondly the quantity of risk disclosure is measured by means of the total number of words in the Corporate Governance section, the risk and risk management section and the financial risk management section. After this the average number of words in the years 2005-2006 and in the years 2007-2008 are calculated, therefore the level of measurement is interval/ratio; the quantity of risk disclosure for the different years can be compared with each other.

Company size is measured in three different ways; Market capitalization, Turnover and Total assets. Company size is also measured on an interval/ratio scale. The market capitalization, turnover and total assets of the different companies and the different years can be compared which each other. Because the level of measurement is interval/ratio the method that will be used to determine the correlation between the two variables is Pearson correlation coefficients. The Pearson correlation coefficient measures the linear correlation between the variables X and Y.

Pearson correlation coefficient can be measured as follows (1):

$$\rho(X,Y) = \frac{cov(X,Y)}{\theta_X \theta_Y} = \frac{cov(X,Y)}{\sqrt{var(X)var(Y)}} \quad (1)$$

To test hypothesis 4(a) Pearson correlation coefficients will be calculated at a 95% confidence level;

- *H0: There is a significant correlation between variables X and Y ($\alpha$ =0,05)*
- *H1: There is no significant correlation between variables X and Y ($\alpha$ =0,05)*

Where X = company size and Y = the quantity of risk disclosure

- **Hypothesis 4(b):** There will be a significant positive relationship between the **quality** of risk disclosures in the annual reports of Dutch listed companies and **company size** in the period 2005-2006 and in the period 2007-2008.

To measure the quality of disclosure in the annual reports of the selected companies the measurement tool as developed by Van Beest et al. (2009) will be used. This tool gives an overview of the measures used to operationalize the qualitative characteristics as defined by the IASB (2001). The level of measurement of this tool is based on an ordinal scale. Each of the items will be measured by means of a five points scale. The scale gives a ranking of the different quality items. The total quality score is measured with the use of the formula as stated in subsection 5.2.4. This

formula is based on an interval/ratio scale. The different quality scores can be compared with each other. Company size is also measured on an interval/ratio scale. The market capitalization, turnover and Total assets of the different companies and the different years can be compared which each other. Because the level of measurement is interval/ratio, the method that will be used to determine the correlation between the two variables is Pearson correlation coefficients.

To test hypothesis 4(b) Pearson correlation coefficients will be calculated at a 95% confidence level;

- *H0: There is a significant correlation between variables X and Y ($\alpha = 0,05$)*
- *H1: There is no significant correlation between variables X and Y ($\alpha = 0,05$)*

Where X = company size and Y = the quality score of the annual report.

# Chapter 6. Results

## 6.1. Descriptive statistics

The descriptive statistics as shown in table 4 are shown on a yearly level as well as on total level. The descriptive statistics for all the variables used in this thesis are shown in table 4. For these variables the table shows the number of annual reports used (N), the minimum value, the maximum value, the mean, standard deviation and the median which is the numeric value that splits the higher half from the lower half of the sample. In the appendices all the results of the empirical research are included.

**Table 4.** Descriptive statistics

| Variable | N | Minimum | Maximum | Mean | Std. Deviation | Median |
|---|---|---|---|---|---|---|
| QU05 | 31 | ,591 | ,771 | ,691 | ,041 | ,686 |
| QU06 | 31 | ,581 | ,752 | ,678 | ,044 | ,667 |
| QU07 | 31 | ,667 | ,800 | ,713 | ,038 | ,705 |
| QU08 | 31 | ,686 | ,829 | ,741 | ,034 | ,743 |
| QNP05 | 31 | ,045 | ,227 | ,108 | ,041 | ,963 |
| QNP06 | 31 | ,058 | ,252 | ,113 | ,045 | ,105 |
| QNP07 | 31 | ,079 | ,242 | ,120 | ,041 | ,108 |
| QNP08 | 31 | ,050 | ,259 | ,126 | ,041 | ,119 |
| QNW05 | 31 | 1714 | 19857 | 7589,484 | 5177,122 | 4968 |
| QNW06 | 31 | 2243 | 19618 | 7641,774 | 5220,019 | 5226 |
| QNW07 | 31 | 2805 | 20295 | 8547,226 | 5297,525 | 6635 |
| QNW08 | 31 | 2880 | 20621 | 9228,484 | 5022,099 | 7639 |
| CSTO05 (in million €) | 31 | 32,729 | 44.496 | 7.201 | 11.094 | 2.529 |
| CSTO06 (in million €) | 31 | 131,567 | 44.872 | 7.454 | 10.853 | 2.942 |
| CSTO07 (in million €) | 31 | 203,786 | 40.187 | 7.021 | 9.173 | 3.413 |
| CSTO08 (in million €) | 31 | 267,157 | 40.523 | 7.495 | 9.245 | 3.374 |
| CSTA05 (in million €) | 31 | 131 | 39.159 | 6.750 | 10.090 | |
| CSTA06 (in million €) | 31 | 457 | 38.000 | 6.935 | 10.130 | |
| CSTA07 (in million €) | 31 | 532,2 | 37.302 | 7.160 | 10.090 | |
| CSTA08 (in million €) | 31 | 460,5 | 36.142 | 7.490 | 9.647 | |
| CSMC05 (in million €) | 31 | 450,552 | 33.065 | 6.115 | 8.610 | 1.644 |
| CSMC06 (in million €) | 31 | 489,024 | 35.494 | 7.081 | 9.155 | 2.145 |
| CSMC07 (in million €) | 31 | 501,795 | 43.125 | 7.314 | 10.352 | 2.423 |
| CSMC08 (in million €) | 31 | 81,848 | 29.733 | 4.305 | 6.549 | 1.361 |
| RCP05 | 31 | ,455 | 1,000 | ,792 | ,122 | ,818 |
| RCP06 | 31 | ,545 | 1,000 | ,818 | ,117 | ,818 |
| RCP07 | 31 | ,636 | 1,000 | ,891 | ,101 | ,909 |
| RCP08 | 31 | ,727 | 1,000 | ,918 | ,086 | ,909 |

**QU** =average quality score for the year **, measured by the checklist score divided by the total possible score**
**QNP** = average quantity for the year ** measured by the # of words in the 3 risk sections as a percentage of the total # of words in the annual report**
**QNW** = average quantity for the year ** measured by the # of words in the 3 risk sections**
**CSTO** = average company size for the year **, measured by the Turnover of the selected companies.**
**CSTA** = average company size for the year **, measured by the Total Assets of the selected companies.**
**CSMC** = average company size for the year **, measured by means of Market Cap. of the selected companies.**
**RCP** = average # of risk categories included for the year **, measured by the # of risk categories included in the annual report as a percentage of the total possible # of risk categories**

In table 4 and appendix 7 the results of inclusion in the annual reports of the sample companies of the 11 distinguished risk categories are shown on a yearly level (RCP). The risks that are included in the annual reports of all the sample companies for all the four years are operational risks, financial risks and credit risks. Risks that are poorly represented are financial reporting risks and other price risks. Typical examples of these risk disclosures are shown in table 5. In appendix 17 the results of the risks scores per sample company are shown. The risk score is calculated as the number of risks included in the annual report of the company divided by the total possible number of risk that could have been included.

Table 4 shows an increase in the inclusion of risk categories during the years; in all of the four years an increase in the mean and minimum score can be obtained; in 2005 (RCP05) 79% of the distinguished risk categories are included in the annual reports of the sample. In 2008 (RCP08) the 31 sample companies include on average almost 92% of the distinguished risk categories in their annual report. Appendix 7 shows that this increase can especially be perceived in the financial risk categories, namely market risk, currency risk, interest rate risk, other price risk, liquidity risk and credit risk. Table 4 shows also that the maximum risk categories inclusion score of 100% is obtained in all the four years and the standard deviation decreases in all of the four years, which indicates that the differences in the risk categories inclusion scores between the sample companies have become smaller.

In Appendix 6 the quantity scores per year for all the sample companies are represented. In table 4 the quantity scores per year are represented. Both measures of quantity, the number of words in the three risk sections (QNW) and the number of words in the three risk sections divided by the total number of words in the annual report (QNP), are represented. In total 1.023.216 risk disclosure words were identified within the sample of 124 annual reports.

Table 4 shows an increase in the minimum and average number of words in the three risk sections during the four years. In 2005 (QNW05) the average number of words about risk disclosure was 7589 and in 2008 (QNW08) the number of risk disclosure words increased to an average of 9228 words per annual report. The minimum quantity score is obtained in 2005 (1714 words) which is 5875 words below the average quantity score in 2005 and far below the maximum score of 19857 words for that year. Table 4 shows also that the standard deviation increases during the years 2005, 2006 and 2007, which indicates that the differences in the quality scores between the sample companies have become larger.

**Table 5.** Typical examples of risk disclosures

| Company | Risk disclosure example | Risk category |
|---|---|---|
| Philips | 'Through its Vision 2010, Philips aims to achieve profitable growth. Philips' inability to transform this vision into action and to meet the financial targets as planned, may cause its share price to drop.' *Philips, 2007, p. 100* | Strategic risk |
| Akzo Nobel | 'Inability to access raw materials, growth in cost and expenses for raw materials, petroleum and natural gas, and changes in product mix may adversely influence the future results of the company. The company aims to use its purchasing power and long-term relationships with suppliers to acquire raw materials and their constant delivery at the best conditions. Akzo Nobel is not insensitive to price movements. In particular, energy prices pose a risk, aggravated by the unstable situation in the Middle East.' *Akzo Nobel, 2005, p. 89* | Operational risk |
| SBM Offshore | 'Operating companies prepare local management reports on a monthly basis and financial statements on a quarterly basis for inclusion in the consolidated report of the Board of Management to the Supervisory Board. External financial reporting consists of the mid-year and full-year financial statements. The irregular nature of the new order intake and of project deliveries can cause significant variations from one quarter to another in the turnkey supply reporting segment. Publication and comparison of quarterly figures could therefore be misleading and is not considered appropriate.' *SBM Offshore, 2005, p. 45* | Financial reporting risk |
| Heineken | 'Due to increasing legislation there is an increased possibility of non-compliance. Additionally, more supervision by regulators and the growing claim culture may potentially increase the impact of non-compliance, both financially and on the reputation of the Company.' *Heineken, 2008, p. 48* | Legal and regulatory risk |
| KPN | 'We have liabilities with respect to our pension plans and the actual cost of our pension plan obligations could exceed current estimates. Any pension funding obligations may impact our financial position.' *KPN, 2007, p. 16* | Financial risk |
| BAM | 'Royal BAM Group generates income in various geographic markets and by carrying out a range of different types of activities. The Group's financial performance depends largely on the economic climate in the countries in which Royal BAM Group operates, as a considerable portion of the projects are commissioned by government bodies.' *BAM, 2006, p. 43* | Market risk |
| Wessanen | 'Wessanen is exposed to foreign currency risk on sales, purchases and borrowings that are denominated in a currency other than the respective functional currencies of Group entities, primarily the euro (EUR ), US Dollar (USD), Canadian Dollar (CAD) and British Pound (GBP). The currencies in which these transactions primarily are denominated are EUR, USD, GBP, CAD, Hong Kong Dollar (HKD), and Japanese Yen (JPY).' *Wessanen, 2007, p. 87* | Currency risk |
| Ahold | 'Ahold is also exposed to fluctuations in interest rates. Accordingly, changes in interest rates can affect the cost of Ahold's floating interest-bearing borrowings. It is Ahold's policy to attempt to mitigate interest rate risk by financing a targeted percentage of its borrowings in fixed interest rate instruments and by the use of derivative financial instruments, such as interest rate swaps. Ahold's attempts to manage its risk could result in the Company's failure to realize savings, if interest rates fall.' *Ahold, 2006, p. 32* | Interest rate risk |
| TNT | 'We lease and own a fleet of vehicles and aircrafts to facilitate domestic and international delivery of mail, parcel and logistics activities. We are exposed to the risk of an increase in the prices of refined fuels, principally jet and diesel gasoline, which is used in the transportation of the goods we carry.' *TNT, 2006, p. 117* | Other price risk |
| Unilever | 'Operational cash flow provides the funds to service the financing of financial liabilities and enhance shareholder return. Unilever manages the liquidity requirements by the use of short-term and long-term cash flow forecasts. Unilever maintains access to global debt markets through an infrastructure of short-term and long-term debt programmes.' *Unilever, 2007, p. 97* | Liquidity risk |
| Wolters Kluwer | 'Cash is invested and financial transactions are concluded only with financial institutions with strong credit ratings. Furthermore, credit limits per counterparty are in place. The Company does not enter into financial derivative instruments to protect against default of financial counterparties.' *Wolters Kluwer, 2005, p. 51* | Credit risk |

Appendix 6 and table 4 show that, on average, the total number of words in the risk sections as a percentage to the total number of words in the annual report (QNP) also increased during the four years. In 2005 (QNP05), on average, 10,8% of the total annual report was filled in by the three risk sections (Corporate Governance section, risk and risk management section and the financial risk management section). In 2008 (QNP08) this percentage increased to an average of 12,62% of the total annual report. Table 4 shows again that the minimum QNP score is obtained in 2005 (0,045), which is 6% lower than the average QNP score in 2005 and even 18% lower than the maximum QNP score obtained in that year. The maximum QNP score is obtained in 2008 (0,259) and is almost the same as the maximum QNP score obtained in 2006. The standard deviation outcomes, as shown in table 4, show a relatively stable standard deviation for all the four years, which indicates that the differences in the QNP scores between companies are equal for all the four years.

Appendix 8 shows the empirical results of the quality scores per company for all of the four years. The quality scores are obtained by means of the quality checklist which is included in appendix 3 . The results, for each of the four years and for all the 21 items of this quality checklist, can be found in appendices 9 till 12. This checklist has been filled in for each of the 31 companies for each of the four years. The results retrieved from the checklist are represented in table 4. The results show that the annual reports of the financial year 2006 (QU06) have obtained the lowest quality score. The quality score decreased slightly with respect to the financial year 2005 (QU05). The minimum quality score is achieved in 2006 (0,581) which is almost 10% below the average quality score in 2006 and far below the maximum score of 0,752 for that year. In the years 2007 and 2008 the mean, minimum and maximum score all increased, with the maximum quality score in 2008 (0,829). Over the years 2007 and 2008 also the standard deviation decreases, which indicates that the differences in the quality scores between the sample companies have become smaller.

When we look to the outcomes of company size measured by means of turnover (CSTU), table 4 shows a decrease in the maximum and average turnover for the year 2007 (CSTU07) compared to previous years. The lowest average turnover is obtained in 2007 (9,2 billion euro) which is almost 2 billion euro below the average turnover in 2005. Table 4 shows also that the differences between the minimum and maximum turnover per year is more than 35 billion euro for all of the four years.

Over the years 2005, 2006 and 2007 the standard deviation decreases, which indicates that the differences in turnover between the sample companies became smaller. However in 2008 the standard deviation increased, which indicates bigger differences between companies.

When company size is measured by means of market cap. (CSMC) the minimum, maximum and average market capitalization increased in the years 2005, 2006 and 2007, but there is a large decrease in the minimum, maximum and average market cap in the year 2008. The maximum market capitalization is obtained in 2007 (43 billion euro) and is 13 billion higher than the maximum market cap. in 2008 and is even 36 billion euro higher than the average market cap. in 2008. The standard deviation increases in the years 2005, 2006 and 2007, which indicates that the differences in market cap. between the sample companies have become larger. In 2008 the standard deviation decreases fast, which indicates that market cap. between companies have become smaller.

When company size is measured by means of Total Assets (CSTA) the minimum, maximum and average total assets increased in the years 2005, 2006, 2007 and 2008. However the highest maximum total assets are obtained in the years 2005 and 2006, with a maximum of 39.159 million euro in 2005. The standard deviation increases in the years 2005 and 2006 and decreases in the years 2007 and 2008, which indicates that the differences in total assets between the sample companies have become larger in the first period and the difference in total assets between companies have become smaller in the second period (2007-2008).

## 6.2. Hypotheses testing

Paired samples t-test has been used to test **hypothesis 1:** *The quantity of risk disclosures in the annual reports of Dutch listed companies is significantly higher in the period 2007-2008 then in the period 2005-2006.* Quantity is measured by means of the total number of words in the three risk sections divided by the total number of words of the annual report (1) and by means of the total number of words in the three sections (2).

- *Quantity as a percentage (1)*

Table 6 shows the results of the paired samples t-test for QNP. The results show that the average quantity (measured as a percentage of the annual report) in the period 2007-2008 is 12,3 percent compared with 11 percent for the period 2005-2006. The t-test (appendix 13) shows a t-value of -3,341 with a significance level of ,001 (2-tailed). The t-value is known as the testing variable and is measured as follows:

$$T = \frac{\bar{X} - a}{S/\sqrt{n}} \; with \; \bar{X} = \frac{1}{n}\sum_{i=1}^{n} X_i \, , S = \sqrt{S^2} \; and \; S^2 = \frac{1}{n-1}\sum_{i=1}^{n}(X_i - \bar{X})$$

The t-value is compared to the variable c, which can be obtained from the Student t-test table. If T > c we reject H0 and otherwise we accept H0. Hypothesis 1 is tested one tailed, because hypothesis 1 test only if the quantity is significantly higher. So the level of significance is ,0005 with a t-value of -3,341. The test statistics indicate that the average quantity (measured as a percentage of the annual report) in the period 2007-2008 is significantly higher (at a 99% confidence interval) than in the period 2005-2006. Therefore this result supports hypothesis 1.

**Table 6.** Results paired samples t-test QNP.

| | 2005 – 2006 | 2007 – 2008 | Difference | Significance |
|---|---|---|---|---|
| **Average QNP** | ,110 | ,123 | -,013 | ,001 |

- *Quantity as total number of words (2)*

Table 7 shows the results of the paired samples t-test for QNW. The results test show that the average number of words disclosed in the annual report in the period 2007-2008 is 8.888 words and 7.616 words for the period 2005-2006. The paired samples t-test, which can be found in appendix 14, show a t-value of -2,993 with a significance level of ,004 (2-tailed). The significance level for this research is ,002, because hypothesis 1 is tested one tailed (Hypothesis 1 test only if the quantity is significantly higher). The test statistics indicate that the average quantity in the period 2007-2008 is significantly higher (at a 99% confidence interval) than in the period 2005-2006.

**Table 7.** Results paired samples t-test QNW.

| | 2005 – 2006 | 2007 – 2008 | Difference | Significance |
|---|---|---|---|---|
| **Average QNW** | 7615,63 | 8887,85 | -1272,23 | ,004 |

To test **hypothesis 2:** *The quality of risk disclosure in the annual reports of Dutch listed companies is significantly higher in the period 2007-2008 then in the period 2005-2006,* a paired samples t-test is performed. The results of this paired samples t-test can be found in table 8. The results show an average quality score of 68 percent for the period 2005-2006 and an average quality score of 73 percent for the period 2007-2008. The t-value for this test, as included in appendix 15, is -7,553 and the significance level ,000 (2-tailed). This hypothesis is also tested only one tailed. Therefore the level of significance is ,000. The results of the paired samples t-test indicates that the average quality in the period 2007-2008 is significantly higher (at a 99% confidence interval) than in the period 2005-2006.

**Table 8.** Results paired samples t-test QU.

| | 2005 – 2006 | 2007 – 2008 | Difference | Significance |
|---|---|---|---|---|
| **Average QU** | ,684 | ,727 | -,043 | ,000 |

For **hypothesis 3**, paired samples t-test is used to test if *the annual reports of the financial years 2007-2008 identify significantly more risk categories than the annual report of the financial years 2005-2006*. The results of this statistic test can be found in table 9. The results show that the average percentage of risk categories disclosed (the different risk categories can be found in table 2) in the annual report for the period 2005-2006 is 80 percent. For the period 2007-2008 the average percentage of risk categories disclosed is about 90 percent. Further the results, included in appendix 16, show a t value of -7,057 and a significance level of ,000 for a two tailed test. This hypothesis test if the number of risk categories disclosed is significantly higher, therefore the test is one tailed and the level of significance is ,000. The results indicates that the average number of risk categories in the period 2007-2008 is significantly higher than in the period 2005-2006 at al 99 percent confidence interval.

**Table 9.** Results paired samples t-test RCP.

| | 2005 – 2006 | 2007 – 2008 | Difference | Significance |
|---|---|---|---|---|
| **Average RCP** | ,805 | ,905 | -,100 | ,000 |

Pearson correlation coefficients are calculated to test **hypothesis 4(a):** *There will be a significant positive relationship between the quantity of risk disclosures in the annual reports of Dutch listed companies and company size in the period 2005-2006 and in the period 2007-2008*. Quantity is measured by means of the total number of words in the risk sections divided by the total number of words of the annual report (QNP) and by means of the total number of words (QNW). Company size is measured by means of market capitalization (CSMC), turnover (CSTU) and total assets (CSTA).

- *Quantity as a percentage (QNP) – Turnover (CSTU)*

Pearson correlation coefficients are calculated to test the relationship between the quantity (measured as a percentage of the annual report) of risk disclosures in the annual reports of Dutch listed companies and company size (measured as the natural logarithm of turnover) in the period 2005-2006 and in the period 2007-2008. The results of the statistic test can be found in table 10. The sign of the correlation coefficient indicates the direction of the relationship (positive or negative). The absolute value of the correlation coefficient indicates the strength, with larger absolute values indicating stronger relationships between the variables.
In this case the results show a very small positive relationship between quantity, as measured by means of percentage of the annual report, and company size, as measured by means of the natural logarithm of turnover, for the period 2005-2006 and of small positive relationship between quantity and company size for the period 2006-2007.

The significance of each correlation coefficient is also displayed in table 10. The significance level is the probability of obtaining results as extreme as the one observed. If the significance level is very small (less than 0.05, because we test with 95% confidence) then the correlation is significant and the two variables are linearly related. Otherwise the two variables are not linearly related. In this case the correlation between the two variables is not significant.

**Table 10.** Results Pearson correlation coefficient

| Variable | | AVG QNP 2005-2006 | AVG QNP 2007-2008 |
|---|---|---|---|
| AVG CSTU 2005-2006 | *Pearson Correlation*<br>*Sig. (1-tailed)*<br>*N* | ,045<br>,404<br>31 | |
| AVG CSTU 2007-2008 | *Pearson Correlation*<br>*Sig. (1-tailed)*<br>*N* | | ,162<br>,192<br>31 |

- *Quantity as total number of words (QNW) – Turnover (CSTU)*

To test the relationship between the quantity (measured as the number of words in the risk sections) of risk disclosures in the annual reports of Dutch listed companies and company size (measured as the natural logarithm of turnover) in the period 2005-2006 and in the period 2007-2008, Pearson correlation coefficients are calculated. The results of this test can be found in table 12. The results of this statistic test show a significant positive relationship (at a 95% confidence interval) between quantity, as measured by means of the total number of words in the risk sections, and company size, as measured by means of the natural logarithm of turnover, for the period 2007-2008 and a significant positive relationship (at a 99% confidence interval) for the period 2005-2006.

**Table 11.** Results Pearson correlation coefficient

| Variable | | AVG QNW 2005-2006 | AVG QNW 2007-2008 |
|---|---|---|---|
| AVG CSTU 2005-2006 | *Pearson Correlation* | ,472** | |
| | *Sig. (1-tailed)* | ,004 | |
| | *N* | 31 | |
| AVG CSTU 2007-2008 | *Pearson Correlation* | | ,304* |
| | *Sig. (1-tailed)* | | ,048 |
| | *N* | | 31 |

** Correlation is significant at the 0.01 level (1-tailed)

* Correlation is significant at the 0.05 level (1-tailed)

- *Quantity as a percentage (QNP) – Market Capitalization (CSMC)*

Pearson correlation coefficients are calculated to test the relationship between the quantity (measured as a percentage of the annual report) of risk disclosures in the annual reports of Dutch listed companies and company size (natural logarithm of market capitalization) in the period 2005-2006 and in the period 2007-2008. The outcomes of the test can be found in table 12. The results of this test show a positive, but not significant relationship between quantity, as measured by means of a percentage, and company size, measured by means of the natural logarithm of market capitalization, in the period 2005-2006 and in the period 2007-2008.

**Table 12.** Results Pearson correlation coefficient

| Variable | | AVG QNP 2005-2006 | AVG QNP 2007-2008 |
|---|---|---|---|
| AVG CSMC 2005-2006 | *Pearson Correlation* | ,215 | |
| | *Sig. (1-tailed)* | ,122 | |
| | *N* | 31 | |
| AVG CSMC 2007-2008 | *Pearson Correlation* | | ,272 |
| | *Sig. (1-tailed)* | | ,069 |
| | *N* | | 31 |

- *Quantity as total number of words (QNW) - Market Capitalization (CSMC)*

Finally Pearson correlation coefficients are calculated (table 13) to test the relationship between the quantity (measured as the number of words in the risk sections) of risk disclosures in the annual reports of Dutch listed companies and company size (measured as the natural logarithm of market capitalization) in the period 2005-2006 and in the period 2007-2008. The outcomes of the test show a significant positive relationship between quantity, measured by means of number of words, and company size, measured by means of the natural logarithm of market capitalization in both the period 2005-2006 and the period 2007-2008. This positive relationship is significant at the 99% confidence interval.

**Table 13.** Results Pearson correlation coefficient

| Variable | | AVG QNW 2005-2006 | AVG QNW 2007-2008 |
|---|---|---|---|
| **AVG CSMC 2005-2006** | *Pearson Correlation* | ,552** | |
| | *Sig. (1-tailed)* | ,001 | |
| | *N* | 31 | |
| **AVG CSMC 2007-2008** | *Pearson Correlation* | | ,444** |
| | *Sig. (1-tailed)* | | ,006 |
| | *N* | | 31 |

** Correlation is significant at the 0.01 level (1-tailed)

* Correlation is significant at the 0.05 level (1-tailed)

- *Quantity as total number of words (QNW) – Total Assets (CSTA)*

Pearson correlation coefficients are calculated to test the relationship between the quantity (measured as the number of words in the risk sections) of risk disclosures in the annual reports of Dutch listed companies and company size (measured as the natural logarithm of total assets) in the period 2005-2006 and in the period 2007-2008. The results of the statistic test can be found in table 14. The sign of the correlation coefficient indicates the direction of the relationship (positive or negative). The absolute value of the correlation coefficient indicates the strength, with larger absolute values indicating stronger relationships between the variables. In this case the results show a very strong positive relationship between quantity, as measured by means of percentage of the annual report, and company size, as measured by means of the natural logarithm of turnover, for the period 2005-2006 and of strong positive relationship between quantity and company size for the period 2006-2007.

The significance of each correlation coefficient is also displayed in table 14. The significance level is the probability of obtaining results as extreme as the one observed. If the significance level is very small (less than 0.05, because we test with 95% confidence) then the correlation is significant and the two variables are linearly related. Otherwise the two variables are not linearly related.

The outcomes of the test show a significant positive relationship between quantity, measured by means of number of words, and company size, measured by means of the natural logarithm of total assets in both the period 2005-2006 and the period 2007-2008. This positive relationship is significant at the 99% confidence interval for the period 2005-2006 and significant at the 95% confidence level for the period 2007-2008.

**Table 14.** Results Pearson correlation coefficient

| Variable | | AVG QNW 2005-2006 | AVG QNW 2007-2008 |
|---|---|---|---|
| AVG CSTA 2005-2006 | *Pearson Correlation* | ,548** | |
| | *Sig. (1-tailed)* | ,001 | |
| | *N* | 31 | |
| AVG CSTA 2007-2008 | *Pearson Correlation* | | ,395* |
| | *Sig. (1-tailed)* | | ,017 |
| | *N* | | 31 |

** Correlation is significant at the 0.01 level (1-tailed)

* Correlation is significant at the 0.05 level (1-tailed)

- *Quantity as a percentage (QNP) – Total Assets (CSTA)*

Pearson correlation coefficients are calculated to test the relationship between the quantity (measured as a percentage of the annual report) of risk disclosures in the annual reports of Dutch listed companies and company size (natural logarithm of total assets) in the period 2005-2006 and in the period 2007-2008. The outcomes of the test can be found in table 15.

The results of this test show a positive, but not significant relationship between quantity, as measured by means of a percentage, and company size, measured by means of the natural logarithm of total assets, in the period 2005-2006 and in the period 2007-2008.

**Table 15.** Results Pearson correlation coefficient

| Variable | | AVG QNP 2005-2006 | AVG QNP 2007-2008 |
|---|---|---|---|
| **AVG CSTA 2005-2006** | *Pearson Correlation* | ,166 | |
| | *Sig. (1-tailed)* | ,195 | |
| | *N* | 31 | |
| **AVG CSTA 2007-2008** | *Pearson Correlation* | | ,206 |
| | *Sig. (1-tailed)* | | ,142 |
| | *N* | | 31 |

To test **hypothesis 4(b):** *There will be a significant positive relationship between the quality of risk disclosures in the annual reports of Dutch listed companies and company size in the period 2005-2006 and in the period 2007-2008*, Pearson correlation coefficients are calculated. Company size is measured in three manners; natural logarithm of turnover, natural logarithm of market capitalization and the natural logarithm of total assets. The results of the statistic test can be found in table 16. The sign of the correlation coefficient indicates the direction of the relationship (positive or negative). The absolute value of the correlation coefficient indicates the strength, with larger absolute values indicating stronger relationships between the variables.
In this case the results show strong positive relationships between quality and company size, for all three measures of company size, for the period 2005-2006 and for the period 2007-2008. The significance of each correlation coefficient is also displayed in table 14. The significance level is the probability of obtaining results as extreme as the one observed. If the significance level is very small (less than 0.05, because we test with 95% confidence) then the correlation is significant and the two variables are linearly related. Otherwise the two variables are not linearly related.

The outcomes of the test show a significant positive relationship between quality and company size, for all three measures of company size, for both the period 2005-2006 and the period 2007-2008. This positive relationship is significant at the 95% confidence interval for both periods for all measures of company size and even significant at the 99% confidence interval for the period 2007-2008 when company size is measured by means of total assets.

**Table 16.** Results Pearson correlation coefficient

| Variable | | AVG QU 2005-2006 | AVG QU 2007-2008 |
|---|---|---|---|
| AVG CSTU 2005-2006 | *Pearson Correlation* | ,329* | |
| | *Sig. (1-tailed)* | ,035 | |
| | *N* | 31 | |
| AVG CSTU 2007-2008 | *Pearson Correlation* | | ,349* |
| | *Sig. (1-tailed)* | | ,027 |
| | *N* | | 31 |
| AVG CSMC 2005-2006 | *Pearson Correlation* | ,352* | |
| | *Sig. (1-tailed)* | ,026 | |
| | *N* | 31 | |
| AVG CSMC 2007-2008 | *Pearson Correlation* | | ,384* |
| | *Sig. (1-tailed)* | | ,016 |
| | *N* | | 31 |
| AVG CSTA 2005-2006 | *Pearson Correlation* | ,398* | |
| | *Sig. (1-tailed)* | ,016 | |
| | *N* | 31 | |
| AVG CSTA 2007-2008 | *Pearson Correlation* | | ,431** |
| | *Sig. (1-tailed)* | | ,010 |
| | *N* | | 31 |

** Correlation is significant at the 0.01 level (1-tailed)

* Correlation is significant at the 0.05 level (1-tailed)

# Chapter 7. Discussion and conclusions

This thesis examined the quality and quantity of risk disclosures in annual reports of 31 non-financial listed companies in the years 2005, 2006, 2007 and 2008. This study tested for relationships between the quantity and company size, the quality and company size and the relationship between quantity and time and quality and time. A summary of the results of the tested hypotheses is presented in table 17.

A content analysis has been performed in this thesis to measure the quantity of risk disclosures. The number of words in the risk and risk management section, the Corporate Governance section and the financial risk management section is counted to measure the quantity of risk disclosures. Content analysis is used to measure the content of risk disclosures. To measure the content different risk categories were identified – market risk (currency risk, interest rate risk and other price risk), credit risk, liquidity risk, strategic risk, operational risk, legal and regulatory risk and financial reporting risk are used. Finally a disclosure index is performed in this thesis to measure the quality of risk disclosures. To measure the quality of disclosure in the annual reports of the selected companies the measurement tool as developed by Van Beest et al. (2009) has been used. This tool gives an overview of the measures used to operationalize the qualitative characteristics as defined by the International Accounting Standards Board (2001).

The results support the hypothesis that there exists a positive relationship between quality and time; the quality of annual reports of Dutch listed companies has increased significantly during the periods 2005-2006 and 2007-2008. This significant positive relationship is in accordance with the results of other academic studies. For example Daske & Gebhardt (2006) assessed the quality of the financial statements of three European countries; German (1996-2003), Swiss (2001-2004) and Austrian (1997-2004) companies which have adopted the IFRS standards. Their sample consists of 62 German companies, 41 Austrian companies and 9 Swiss companies. The authors conclude that the quality of disclosure has increased significantly under the IFRS standards in the three countries over the years. Further Daske & Gebhardt (2006) found that the result holds for both companies that voluntarily adopted the IFRS standard and companies which mandatory adopted the IFRS standards. Soderstrom & Sun (2007) review existing risk disclosure studies and find a positive impact on the quality of risk disclosures in EU countries by adopting the IFRS standards and also the improvements to the existing standards during the years have a positive impact on the quality of risk disclosures.

The study of Sengupta (1998) shows that firms with high disclosure quality ratings enjoy lower effective interest cost when issuing debt. This finding indicates that a policy of timely and detailed risk disclosures reduces lenders' and other stakeholders' perception of default risk for the disclosing firm, reducing its cost of debt. Further the study shows that the relative importance of risk disclosures is greater in situations of market uncertainty. Market uncertainty expresses when there is a high variance in stock returns. Because of the financial crises since 2007, there was and still is a high market uncertainty. The changes in the stock indices express the market uncertainty. In this period (2007-2008) the quality of risk disclosures still improved, companies tried to be as

transparent as possible to the outside world, to attract debt to the lowest possible rates, and also to attract deposits.

The results of this study support the hypothesis that there is a significant positive relationship between quantity and time. This relationship exists for both measures of quantity. When quantity is measured by means of the number of words the significance level is 0,05 and when it is measured by means of the percentage of the total annual report the significance level is 0,01. These results are in accordance with previous studies. For example Rajab & Handley-Schachler (2009) found that the average quantity of risk disclosure increased during the years 1998-2001, 1998-2004 and 2001-2004. This was a result of the regulatory development. Their study is based on a sample of 53 non-financial UK listed companies for the three different time periods. Liu (2006) also found that the quantity of risk disclosures increased during the periods 2001-2002 and the period 2005-2006. The study shows that both the quantity, as a percentage of the total annual report as the number of words about risk disclosure are significantly higher in the period 2005-2006 then in the period 2001-2002. The study was performed on a sample of 7 UK telecommunications companies listed in the FTSE all-share index between the period 2001 and 2006. Quantity measured by means of a percentage of the total number of words in the annual report is the most reliable measure, because the quantity of the annual reports as a whole has also increased the last four years. This is because more and more information has to be disclosed according to the regulation and also companies want to provide more and more information about their business, future expectations and so on to get the confidence of all shareholders and other potential investors.

A significant positive relationship was also found between the number of risk categories disclosed and time. The annual reports in the period 2007-2008 have significantly more risk categories disclosed then the annual reports in the period 2005-2006. In the existing academic literature there are some risk disclosure studies that have examined the relationship between risk categories and time. Liu (2006) found that the number of risk categories disclosed in the annual reports remained largely unchanged over the two periods (2001-2002 and 2005-2006) the study was performed. However Liu found that different risk categories were identified during the two periods. Lajilli & Zeghal (2005) conducted content analysis of risk disclosures on a sample of 300 TSE Canadian companies. In this study 12 risk categories were identified. The number of risk categories reported in the annual reports of the sample companies range from a minimum of 1 to a maximum of 9 categories. The most frequently identified risk categories were financial risks, commodity risk and market risk. However in this thesis I wanted to know if there is a positive relationship between the number of risk categories identified and time for Dutch listed companies. As formulated, I have found a significant positive relationship. This was also expected, because the IFRS 7 standard became mandatory on January 1, 2007 for all listed companies in the EU. Therefore the listed companies have to disclose the risks and have to identify different risk categories and report more extensive about financial risks than before. Further the second step in the COSO internal control framework is the entity's risk assessment process. All components of internal control have to be assessed for risks. Management has to effectively assess and respond to the identified risks; management of an entity needs to determine whether the internal control system is still adequate and relevant to address new risks and otherwise has to change the internal control system.

The results support the hypothesis that there exists a positive correlation between the quantity of risk disclosures and company size for the period 2005-2006 and 2007-2008. This positive relationship is found for all three measures of company size. However a significant positive relationship between the quantity of risk disclosures and company size for both periods is only found for one of the two measures of quantity, namely the number of words, in combination with all three measures of company size, namely market capitalization, total assets and turnover. This significant positive relationship is in accordance with the results of Beretta & Bozzolan (2004) and Linsley & Shrives (2006).

Finally the results support the hypothesis that there exists a significant positive correlation between the quality of risk disclosures and company size for both the period 2005-2006 and the period 2007-2008; a significant positive relationship is found for all the three measures of company size, namely natural logarithm of market capitalization, natural logarithm of total assets and the natural logarithm of turnover. This significant positive relationship is not in accordance with the results Beretta & Bozzolan (2004). They found that disclosure quality is not influenced by company size. They found this relationship in their sample of 85 non-financial companies listed on the Italian Stock Exchange for the year 2001. However there are also studies in which the result of this study is in accordance with the results of them. For example Abraham, Solomon, & Stevenson (2007). In their study they found a significant positive relationship between the size of a company and the total risk disclosure quality scores. They found this relationship for 14 non-financial UK FTSE 100 companies for the year 2002. It can be concluded that several studies found different outcomes for the relationship between quality and company size. One reason for these different outcomes can be the different regulation between the companies in the years 2001 and 2002. In these years there were different regulations in all countries. From 2005 the regulation became the same for all listed companies in the European Union. The results support the expectation that larger Dutch listed companies produce higher quality annual reports, because of the greater number of stakeholders that make use of the annual report and secondly because of the political exposure.

**Table 17.** Summary outcomes hypotheses

| Hypotheses | Expected outcome | Outcome |
|---|---|---|
| **H1:** The quantity (percentage of the annual report) of risk disclosures in the annual reports of Dutch listed companies is significantly higher in the period 2007-2008 then in the period 2005-2006. | Significant increase | *Significant increase (0,01 level)* |
| **H1:** The quantity (measured as the number of words in the risk sections) of risk disclosures in the annual reports of Dutch listed companies is significantly higher in the period 2007-2008 then in the period 2005-2006. | Significant increase | *Significant increase (0,05 level)* |
| **H2:** The quality of risk disclosure in the annual reports of Dutch listed companies is significantly higher in the period 2007-2008 then in the period 2005-2006. | Significant increase | *Significant increase (0,01 level)* |
| **H3:** The annual reports of the financial years 2007-2008 identify significantly more risk categories than the annual report of the financial years 2005-2006. | Significant increase | *Significant increase (0,01 level)* |
| **H4(a):** There will be a significant positive relationship between the quantity (percentage of the annual report) of risk disclosures in the annual reports of Dutch listed companies and company size (natural logarithm of turnover) in the period 2005-2006 and in the period 2007-2008. | Significant positive | *Period 2005-2006: Very small positive, not significant*<br>*Period 2007-2008: Small positive, not significant* |
| **H4(a):** There will be a significant positive relationship between the quantity (measured as the number of words in the risk sections) of risk disclosures in the annual reports of Dutch listed companies and company size (natural logarithm of turnover) in the period 2005-2006 and in the period 2007-2008. | Significant positive | *Period 2005-2006: Significant positive (0,01 level)*<br>*Period 2007-2008: Significant positive (0,05 level)* |
| **H4(a):** There will be a significant positive relationship between the quantity (percentage of the annual report) of risk disclosures in the annual reports of Dutch listed companies and company size (natural logarithm of market capitalization) in the period 2005-2006 and in the period 2007-2008. | Significant positive | *Period 2005-2006: positive, not significant*<br>*Period 2007-2008: positive, not significant* |
| **H4(a):** There will be a significant positive relationship between the quantity (measured as the number of words in the risk sections) of risk disclosures in the annual reports of Dutch listed companies and company size (natural logarithm of market capitalization) in the period 2005-2006 and in the period 2007-2008. | Significant positive | *Period 2005-2006: Significant positive (0,01 level)*<br>*Period 2007-2008: Significant positive (0,01 level)* |
| **H4(a):** There will be a significant positive relationship between the quantity (measured as the number of words in the risk sections) of risk disclosures in the annual reports of Dutch listed companies and company size (natural logarithm of total assets) in the period 2005-2006 and in the period 2007-2008. | Significant positive | *Period 2005-2006: Significant positive (0,01 level)*<br>*Period 2007-2008: Significant positive (0,05 level)* |
| **H4(a):** There will be a significant positive relationship between the quantity (percentage of the annual report) of risk disclosures in the annual reports of Dutch listed companies and company size (natural logarithm of total assets) in the period 2005-2006 and in the period 2007-2008. | Significant positive | *Period 2005-2006: positive, not significant*<br>*Period 2007-2008: positive, not significant* |

| | | |
|---|---|---|
| **H4(b):** There is a significant positive relationship between the quality of risk disclosures in the annual reports of Dutch listed companies and company size (natural logarithm of turnover) in the period 2005-2006 and in the period 2007-2008. | Significant positive | *Period 2005-2006: Significant positive (0,05 level)*<br>*Period 2007-2008: Significant positive (0,05 level)* |
| **H4(b):** There is a significant positive relationship between the quality of risk disclosures in the annual reports of Dutch listed companies and company size (natural logarithm of total assets) in the period 2005-2006 and in the period 2007-2008. | Significant positive | *Period 2005-2006: Significant positive (0,05 level)*<br>*Period 2007-2008: Significant positive (0,01 level)* |
| H4(b): There is a significant positive relationship between the quality of risk disclosures in the annual reports of Dutch listed companies and company size (natural logarithm of market capitalization) in the period 2005-2006 and in the period 2007-2008. | Significant positive | *Period 2005-2006: Significant positive (0,05 level)*<br>*Period 2007-2008: Significant positive (0,05 level)* |

## 7.2. Limitations and future research

The aim of this study was to extend empirical knowledge and add to the existing risk disclosure studies. When conducting content analysis, this method has some big limitation. Content analysis is a subjective research method and subjectivity cannot wholly be eliminated. Another limitation in this study is the number of companies used in the sample. In this study 31 Dutch listed companies were used. However there are similar studies which use less companies (e.g. Abraham, Solomon, & Stevenson (2007)) the relatively small number of companies makes it difficult to draw broad conclusion and to generalize the results. The quality tool used in this study is derived from the study of Van Beest et al. (2009). A limitation of this tool is that the results of the comprehensive measurement tool is not compared with the results of other quality assessment tools using the same sample of Dutch listed companies. This comparison can contribute to an increasing insight into the validity and reliability. Another limitation of this study is that to determine the quantity of risk disclosures I have looked only to three risk sections in the annual report; the corporate governance section, the risk management and internal control section and the financial risk management section. However there are other places in the annual report where the company might have disclosed some risk information. This information is not taken into account when performing the content analysis. In this study three measures of company size have been used; the natural logarithm of turnover, the natural logarithm of market capitalization and the natural logarithm of total assets. However there are a lot of other measures for company size used in the existing risk disclosure studies (e.g. total assets, equity, number of employees). In future research also these other measures can be used to check if the relationship between quality/quantity and company size has the same outcomes. In this study financial companies were excluded, because financial companies are risk management entities and make different types of risk disclosures (Bessis, 2002). Future research could also study risk disclosure behavior of Dutch financial companies, because they have an important share in the Dutch listed stock exchanges. Finally in this thesis the number of words of the three risk sections and the number of words in the three risk sections as a percentage of the total annual report are used to measure company size. Because the annual reports have become larger and larger the last years, the number of words in the three risk sections is not always an objective manner to measure company size.

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# Appendices

## Appendix 1. Risk disclosure categories

- *Financial risks*

*Business risk*; According to Cabedo & Tirado (2004) business risk is the risk which the company assumes in order to create competitive advantages and also create value for the shareholders of the company. It can be seen as internal company skills to deal with the competitive environment in which the company operates.

*Strategic risk*; is according to Cabedo & Tirado (2004) the risk which is associated with changes in the factors that define the economic environment.

- *Non-financial risks*

*Market risk*; is according to Cabedo & Tirado (2004) the risks which are associated with a variation in the price of certain economic magnitude. Cabedo & Tirado (2004) divide them further into 4 broad categories. These 4 categories are:

- Interest risk; risk derived from changes in the interest rates.
- Price variation risk; risk that is derived from price variations in financial assets other than fixed income assets.
- Commodity price variation risk; risk that is derived from an unexpected variation in commodity prices.
- Exchange risk; risk of price variations in financial assets other than fixed income assets and risk of commodity price variations.

(Cabedo & Tirado, 2004)

*Credit risk*; is according to Cabedo & Tirado (2004) the possibility that there is some decrease in the real value of the client portfolio of the company. This could be occur because of a deterioration of the credit quality.

*Operational risk*; according to Cabedo & Tirado (2004) these risks are derived from errors in the procedures that are established. These risks are hard to unravel from legal risks, because operational risks have legal consequences most of the time.

*Liquidity risk*; is the risk associated with the possibility of losses, because of insufficient cash to meet the short term obligations of the company (Cabedo & Tirado, 2004).

## Appendix 2. Best practice provision II.1.5

***- Best practice provision II 1.5***

*As regards financial reporting risks the management board states in the annual report that the internal risk management and control systems provide a reasonable assurance that the financial reporting does not contain any errors of material importance and that the risk management and control systems worked properly in the year under review. The management board shall provide clear substantiation of this.*

# Appendix 3. Quality checklist

| Relevance | | | | |
|---|---|---|---|---|
| **Question no.** | **Question** | **Operationalization** | **Concept** | **Literature** |
| R1 | To what extent does the presence of the forward-looking statement help forming expectations and predictions concerning the future of the company? | 1 = No forward -looking information<br>2 = Forward-looking information not an apart subsection<br>3 = Apart subsection<br>4 = Extensive predictions<br>5 = Extensive predictions useful for making expectation | Predictive value | e.g. McDaniel *et al.*, 2002; Jonas and<br><br>Blanchet, 2000; Bartov and Mohanram, 2004 |
| R2 | To what extent does the presence of non-financial information in terms of business opportunities and risks complement the financial information? | 1 = No non-financial information<br>2 = Little non-financial information, no useful for forming expectations<br>3 = Useful non-financial information<br>4 = Useful non-financial information, helpful for developing expectations<br>5 = Non-financial information presents additional information which helps developing expectations | Predictive value | e.g. Jonas and Blanchet, 2000; Nichols and Wahlen, 2004 |
| R3 | To what extent does the company use fair value instead of historical cost | 1 = Only HC<br>2 = Most HC<br>3 = Balance FV/HC<br>4 = Most FV<br>5 = Only FV | Predictive value | e.g. Schipper and Vincent, 2003; McDaniel *et al.*, 2002; Barth *et al.*, 2001; Schipper, 2003 |
| R4 | To what extent do the reported results provide feedback to users of the annual report as to how various market events and significant transactions affected the company? | 1 = No feedback<br>2 = Little feedback on the past<br>3 = Feedback is present<br>4 = Feedback helps understanding how events and transactions influenced the company<br>5 = Comprehensive feedback | Confirmatory value | e.g. Jonas and Blanchet, 2000 |

*Source:* (Van Beest, Braam, & Boelens, 2009, p. 36)

| Faithful representation | | | | |
|---|---|---|---|---|
| **Question no.** | **Question** | **Operationalization** | **Concept** | **Literature** |
| F1 | To what extent are valid arguments provided to support the decision for certain assumptions and estimates in the annual report? | 1 = Only described estimations<br>2 = General explanation<br>3 = Specific explanation of estimations<br>4 = Specific explanation, formulas explained etc.<br>5 = Comprehensive argumentation | Verifiability | e.g. Jonas and Blanchet, 2000; Maines and Wahlen, 2004 |
| F2 | To what extent does the company base its choice for certain accounting principles on valid arguments? | 1 = Changes not explained<br>2 = Minimum explanation<br>3 = Explained why<br>4 = Explained why + consequences<br>5 = No changes or comprehensive explanation | Verification | e.g. Jonas and Blanchet, 2000; Maines and Wahlen, 2004 |
| F3 | To what extent does the company, in the discussion of the annual results, highlight the positive events as well as the negative events? | 1 = Negative events only mentioned in footnotes<br>2 = Emphasize on positive events<br>3 = Emphasize on positive events, but negative events are mentioned; no negative events occurred<br>4 = Balance pos/neg events<br>5 = Impact of pos/neg events is also explained | Neutrality | e.g. Dechow *et al.*, 1996; McMullen, 1996; Beasley, 1996; Razaee, 2003; Cohen *et al.*, 2004; Sloan, 2001 |
| F4 | Which type of auditors' report is included in the annual report? | 1 = Adverse opinion<br>2 = Disclaimer of opinion<br>3 = Qualified opinion<br>4 = Unqualified opinion: Financial figures<br>5 = Unqualified opinion: Financial figures + internal control | Free from material error, verification, neutrality, and completeness | e.g. Maines and Wahlen, 2006; Gaeremynck and Willekens, 2003; Kim *et al.*, 2007; Willekens, 2008 |
| F5 | To what extent does the company provide information on corporate governance? | 1 = No description CG<br>2 = Information on CG limited, not in apart subsection<br>3 = Apart subsection<br>4 = Extra attention paid to information concerning CG<br>5 = Comprehensive description of CG | Completeness, verifiability, and free from material error | e.g. Jonas and Blanchet, 2000 |

*Source:* (Van Beest, Braam, & Boelens, 2009, p. 37)

| Faithful representation | | | | |
|---|---|---|---|---|
| **Question no.** | **Question** | **Operationalization** | **Concept** | **Literature** |
| U1 | To what extent is the annual report presented in a well organized manner? | Judgment based on:<br>- complete table of contents<br>- headings<br>- order of components<br>- summary/ conclusion at the end of each subsection | Understandability | e.g. Jonas and Blanchet, 2000 |
| U2 | To what extent are the notes to the balance sheet and the income statement sufficiently clear? | 1 = No explanation<br>2 = Very short description, difficult to understand<br>3 = Explanation that describes what happens<br>4 = Terms are explained (which assumptions etc.)<br>5 = Everything that might be difficult to understand is explained | Understandability | e.g. Jonas and Blanchet, 2000; Courtis, 2005 |
| U3 | To what extent does the presence of graphs and tables clarifies the presented information? | 1 = no graphs<br>2 = 1-2 graphs<br>3 = 3-5 graphs<br>4 = 6-10 graphs<br>5 = > 10 graphs | Understandability | e.g. Jonas and Blanchet, 2000; IASB, 2006 |
| U4 | To what extent is the use of language and technical jargon in the annual report easy to follow? | 1 = Much jargon (industry), not explained<br>2 = Much jargon, minimal explanation<br>3 = Jargon is explained in text/ glossary<br>4 = Not much jargon, or well explained<br>5 = No jargon, or extraordinary explanation | Understandability | e.g. IASB, 2006; Jonas and Blanchet, 2000; Iu and Clowes, 2004 |
| U5 | What is the size of the glossary? | 1 = No glossary<br>2 = Less than 1 page<br>3 = Approximately one page<br>4 = 1-2 pages<br>5 = > 2 pages | Understandability | e.g. Jonas and Blanchet, 2000 |

*Source:* (Van Beest, Braam, & Boelens, 2009, p. 38)

| Comparability | | | | |
|---|---|---|---|---|
| **Question no.** | **Question** | **Operationalization** | **Concept** | **Literature** |
| C1 | To what extent do the notes to changes in accounting policies explain the implications of the change? | 1 = Changes not explained<br>2 = Minimum explanation<br>3 = Explained why<br>4 = Explained why + consequences<br>5 = No changes or comprehensive explanation | Consistency | e.g. Jonas and Blanchet, 2000 |
| C2 | To what extent do the notes to revisions in accounting estimates and judgements explain the implications of the revision? | 1 = Revision without notes<br>2 = Revision with few notes<br>3 = No revision/ clear notes<br>4 = Clear notes + implications (past)<br>5 = Comprehensive notes | Consistency | e.g. Schipper and Vincent, 2003; Jonas and Blanchet, 2000 |
| C3 | To what extent did the company adjust previous accounting period's figures, for the effect of the implementation of a change in accounting policy or revisions in accounting estimates? | 1 = No adjustments<br>2 = Described adjustments<br>3 = Actual adjustments (one year)<br>4 = 2 years<br>5 = > 2 years + notes | Consistency | e.g. Cole *et al.*, 2007 Jonas and Blanchet, 2000 |
| C4 | To what extent does the company provide a comparison of the results of current accounting period with previous accounting periods? | 1 = No comparison<br>2 = Only with previous year<br>3 = With 5 years<br>4 = 5 years + description of implications<br>5 = 10 years + description of implications | Consistency | e.g. Jonas and Blanchet, 2000; Beuselinck and Manigart, 2007; Cole *et al.*, 2007 |
| C5 | To what extent is the information in the annual report comparable to information provided by other organizations? | Judgment based on:<br>- accounting policies<br>- structure<br>- explanation of events<br>In other words: an overall conclusion of comparability compared to annual reports of other organizations | Comparability | e.g. IASB, 2008; Jonas and Blanchet, 2000; Cole *et al.*, 2007; Beuselick and Manigart, 2007 |
| C6 | To what extent does the company presents financial index numbers and ratios in the annual report? | 1 = No ratios<br>2 = 1-2 ratios<br>3 = 3-5 ratios<br>4 = 6-10 ratios<br>5 = > 10 ratios | Comparability | e.g. Cleary, 1999 |

*Source:* (Van Beest, Braam, & Boelens, 2009, pp. 39-40)

| Timeliness | | | | |
|---|---|---|---|---|
| **Question no.** | **Question** | **Operationalization** | **Concept** | **Literature** |
| T1 | How many days did it take for the auditor to sign the auditors' report after bookyear end? | Natural logarithm of amount of days<br>1 = 1-1.99<br>2 = 2-2.99<br>3 = 3-3.99<br>4 = 4-4.99<br>5 = 5-5.99 | Timeliness | e.g. IASB, 2008 |

*Source:* (Van Beest, Braam, & Boelens, 2009, p. 40)

## Appendix 4. Decision rules for risk disclosures.

- To identify risk disclosures a broad definition of risk is to be adopted as explained below.
- Sentences are to be coded as risk disclosures if the reader is informed of any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure.
- The risk definition just stated shall be interpreted such that 'good' and 'bad' 'risks' and 'uncertainties' will be deemed to be contained within the definition.
- Although the definition of risk is broad, disclosures must be specifically stated; they cannot be implied.
- If a sentence has more than one possible classification, the information will be classified into the category that is most emphasized within the sentence.
- If a disclosure is too vague in its reference to risk, then it shall not be recorded as a risk disclosure.

# Appendix 5. Table of keywords

| Key word |
|---|
| **Risk** |
| **Risk as variation** |
| Fluctuation |
| Variation |
| Volatility |
| Oscillation |
| Amplitude |
| Change |
| Diversification |
| **Risk as uncertainty** |
| Uncertainty |
| Unexpected |
| Contingency |
| Surprise |
| Shock |
| **Risk as opportunity** |
| Opportunity |
| Prospect |
| Potential |
| Upside |
| Advantage |
| Possibility |
| Chance |

*Source:* (Abraham & Cox, 2007)
Van Dale Dictionary (2006)

## Appendix 6. Quantity scores per company

| Company | 2005* | 2006* | 2007* | 2008* | 2005** | 2006** | 2007** | 2008** |
|---|---|---|---|---|---|---|---|---|
| Aalberts Industries | 1714 | 2243 | 2805 | 2880 | 7,30% | 8,68% | 9,92% | 9,84% |
| Ahold | 13372 | 10796 | 10273 | 8808 | 10,82% | 11,39% | 16,75% | 14,68% |
| AKZO Nobel | 7527 | 7657 | 10648 | 11062 | 11,17% | 12,36% | 14,92% | 12,78% |
| Arcadis | 4327 | 2740 | 4449 | 6202 | 9,14% | 5,79% | 9,36% | 11,22% |
| ASM International | 12651 | 14206 | 14427 | 16613 | 13,15% | 13,75% | 13,42% | 14,48% |
| ASML | 13376 | 19305 | 8729 | 9803 | 15,47% | 23,70% | 13,02% | 13,04% |
| BAM | 7390 | 8690 | 8104 | 8652 | 11,02% | 11,99% | 10,84% | 11,08% |
| Boskalis | 2826 | 2919 | 3864 | 4365 | 7,38% | 7,46% | 8,14% | 8,66% |
| Crucell | 6945 | 7631 | 20295 | 16374 | 21,37% | 16,50% | 21,35% | 16,97% |
| CSM | 2786 | 3018 | 3919 | 6119 | 8,43% | 8,21% | 9,77% | 15,76% |
| DRAKA | 4450 | 4062 | 6752 | 7246 | 9,10% | 8,06% | 11,10% | 11,07% |
| DSM | 7780 | 4694 | 6598 | 8652 | 11,32% | 7,77% | 9,58% | 11,08% |
| Fugro | 4968 | 4228 | 5081 | 6848 | 8,42% | 7,16% | 8,33% | 10,41% |
| Heijmans | 3361 | 4574 | 4668 | 3250 | 6,82% | 8,42% | 7,88% | 5,04% |
| Heineken | 1960 | 5226 | 5641 | 7594 | 4,50% | 10,55% | 9,96% | 11,92% |
| Imtech | 3181 | 4331 | 5391 | 5317 | 6,78% | 8,78% | 8,43% | 8,31% |
| KPN | 13706 | 13845 | 15788 | 11618 | 11,92% | 10,73% | 12,73% | 12,52% |
| OPG | 3486 | 4762 | 4794 | 5531 | 5,07% | 9,30% | 7,96% | 9,01% |
| Nutreco | 14080 | 15883 | 18150 | 19297 | 22,69% | 25,23% | 24,20% | 25,85% |
| Ordina | 3048 | 2855 | 3849 | 4458 | 7,98% | 7,22% | 9,64% | 10,51% |
| Philips | 19857 | 19618 | 19783 | 20621 | 15,46% | 14,14% | 13,39% | 13,73% |
| Randstad | 4546 | 6130 | 6910 | 8326 | 8,95% | 10,52% | 10,80% | 12,28% |
| Reed Elsevier | 6248 | 6048 | 6936 | 7639 | 9,63% | 9,08% | 8,53% | 8,06% |
| SBM Offshore | 4792 | 5056 | 6635 | 10358 | 11,16% | 11,32% | 13,85% | 18,12% |
| Ten Cate | 3401 | 3422 | 4061 | 4312 | 7,49% | 8,14% | 8,75% | 9,12% |
| TNT | 16487 | 16905 | 18967 | 19183 | **13,55%** | 12,84% | 20,16% | 20,06% |
| Unilever | 14880 | 14571 | 14571 | 17426 | 14,15% | 15,81% | 15,81% | 18,07% |
| USG People | 6366 | 7248 | 4881 | 6374 | 13,42% | 15,98% | 9,36% | 11,17% |
| Vopak | 4796 | 5184 | 6741 | 8913 | 9,33% | 10,45% | 12,07% | 14,21% |
| Wessanen | 16487 | 3732 | 4798 | 4624 | 13,55% | 8,59% | 10,49% | 9,68% |
| Wolters Kluwers | 4480 | 5316 | 6456 | 7618 | 8,21% | 9,02% | 11,81% | 12,33% |
| Total | 235274 | 236895 | 264964 | 286083 | | | | |
| **Average** | **7589,48** | **7641,77** | **8547,23** | **9228,48** | **10,80%** | **11,26** | **12,01** | **12,62** |

* Quantity is measured as total number of words in the three risk sections

** Quantity is measured as the number of words in the risk sections as a percentage of total words in the annual report

## Appendix 7. Risk category scores

| Variable | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Strategic risk 2005 | *31* | ,000 | 1,000 | ,774 | ,425 |
| Strategic risk 2006 | *31* | ,000 | 1,000 | ,871 | ,341 |
| Strategic risk 2007 | *31* | ,000 | 1,000 | ,935 | ,250 |
| Strategic risk 2008 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Operational risk 2005 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Operational risk 2006 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Operational risk 2007 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Operational risk 2008 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Financial reporting risk 2005 | *31* | ,000 | 1,000 | ,581 | ,502 |
| Financial reporting risk 2006 | *31* | ,000 | 1,000 | ,645 | ,486 |
| Financial reporting risk 2007 | *31* | ,000 | 1,000 | ,613 | ,495 |
| Financial reporting risk 2008 | *31* | ,000 | 1,000 | ,677 | ,475 |
| Legal and regulatory risk 2005 | *31* | ,000 | 1,000 | ,742 | ,445 |
| Legal and regulatory risk 2006 | *31* | ,000 | 1,000 | ,710 | ,461 |
| Legal and regulatory risk 2007 | *31* | ,000 | 1,000 | ,806 | ,402 |
| Legal and regulatory risk 2008 | *31* | ,000 | 1,000 | ,806 | ,402 |
| Financial risk 2005 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Financial risk 2006 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Financial risk 2007 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Financial risk 2008 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Market risk 2005 | *31* | ,000 | 1,000 | ,968 | ,180 |
| Market risk 2006 | *31* | ,000 | 1,000 | ,968 | ,180 |
| Market risk 2007 | *31* | 1,000 | 1,000 | 1,000 | ,000 |

| | | | | | |
|---|---|---|---|---|---|
| Market risk 2008 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Currency risk 2005 | *31* | ,000 | 1,000 | ,968 | ,178 |
| Currency risk 2006 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Currency risk 2007 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Currency risk 2008 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Interest rate risk 2005 | *31* | ,000 | 1,000 | ,968 | ,180 |
| Interest rate risk 2006 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Interest rate risk 2007 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Interest rate risk 2008 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Other price risk 2005 | *31* | ,000 | 1,000 | ,290 | ,461 |
| Other price risk 2006 | *31* | ,000 | 1,000 | ,355 | ,486 |
| Other price risk 2007 | *31* | ,000 | 1,000 | ,484 | ,508 |
| Other price risk 2008 | *31* | ,000 | 1,000 | ,613 | ,495 |
| Liquidity risk 2005 | *31* | ,000 | 1,000 | ,484 | ,508 |
| Liquidity risk 2006 | *31* | ,000 | 1,000 | ,516 | ,508 |
| Liquidity risk 2007 | *31* | ,000 | 1,000 | ,968 | ,180 |
| Liquidity risk 2008 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Credit risk 2005 | *31* | ,000 | 1,000 | ,935 | ,250 |
| Credit risk 2006 | *31* | ,000 | 1,000 | ,935 | ,250 |
| Credit risk 2007 | *31* | 1,000 | 1,000 | 1,000 | ,000 |
| Credit risk 2008 | *31* | 1,000 | 1,000 | 1,000 | ,000 |

# Appendix 8. Quality scores per company

| Company | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|
| Aalberts Industries | 0,590 | 0,581 | 0,676 | 0,752 |
| Ahold | 0,714 | 0,743 | 0,771 | 0,771 |
| AKZO Nobel | 0,648 | 0,638 | 0,752 | 0,771 |
| Arcadis | 0,752 | 0,705 | 0,714 | 0,762 |
| ASM International | 0,629 | 0,638 | 0,667 | 0,724 |
| ASML | 0,638 | 0,676 | 0,695 | 0,762 |
| BAM | 0,686 | 0,686 | 0,724 | 0,790 |
| Boskalis | 0,695 | 0,714 | 0,695 | 0,762 |
| Crucell | 0,714 | 0,676 | 0,695 | 0,752 |
| CSM | 0,676 | 0,638 | 0,676 | 0,714 |
| DRAKA | 0,676 | 0,695 | 0,762 | 0,771 |
| DSM | 0,686 | 0,619 | 0,667 | 0,714 |
| Fugro | 0,743 | 0,667 | 0,667 | 0,743 |
| Heijmans | 0,695 | 0,724 | 0,714 | 0,714 |
| Heineken | 0,733 | 0,752 | 0,790 | 0,829 |
| Imtech | 0,695 | 0,657 | 0,714 | 0,733 |
| KPN | 0,771 | 0,752 | 0,781 | 0,752 |
| OPG | 0,686 | 0,695 | 0,714 | 0,771 |
| Nutreco | 0,638 | 0,619 | 0,667 | 0,705 |
| Ordina | 0,648 | 0,648 | 0,705 | 0,686 |
| Philips | 0,762 | 0,743 | 0,724 | 0,743 |
| Randstad | 0,676 | 0,657 | 0,686 | 0,705 |
| Reed Elsevier | 0,676 | 0,667 | 0,724 | 0,724 |
| SBM Offshore | 0,667 | 0,667 | 0,705 | 0,724 |
| Ten Cate | 0,686 | 0,657 | 0,705 | 0,705 |
| TNT | 0,743 | 0,724 | 0,743 | 0,771 |
| Unilever | 0,686 | 0,657 | 0,686 | 0,686 |
| USG People | 0,686 | 0,714 | 0,724 | 0,743 |
| Vopak | 0,676 | 0,629 | 0,676 | 0,714 |
| Wessanen | 0,724 | 0,648 | 0,676 | 0,695 |
| Wolters Kluwers | 0,724 | 0,724 | 0,800 | 0,790 |

## Appendix 9. Operational measures used for the qualitative characteristics 2005.

| Qualitative characteristics | Items | Mean | Std. Dev. | Min. | Median | Max. |
|---|---|---|---|---|---|---|
| **Relevance** | | | | | | |
| R1 | To what extent does the presence of the forward-looking statement help forming expectations and predictions concerning the future of the company? | 3,23 | 0,76 | 2 | 3 | 5 |
| R2 | To what extent does the presence of non-financial information in terms of business opportunities and risks complement the financial information? | 3,68 | 0,60 | 3 | 4 | 5 |
| R3 | To what extent does the company use fair value instead of historical cost | 3,06 | 0,57 | 2 | 3 | 5 |
| R4 | To what extent do the reported results provide feedback to users of the annual report as to how various market events and significant transactions affected the company? | 3,52 | 0,51 | 3 | 4 | 4 |
| **Faithful representation** | | | | | | |
| F1 | To what extent are valid arguments provided to support the decision for certain assumptions and estimates in the annual report? | 3,06 | 0,81 | 2 | 3 | 4 |
| F2 | To what extent does the company base its choice for certain accounting principles on valid arguments? | 3,84 | 0,64 | 2 | 4 | 5 |
| F3 | To what extent does the company, in the discussion of the annual results, highlight the positive events as well as the negative events? | 2,87 | 0,50 | 2 | 3 | 4 |
| F4 | Which type of auditors' report is included in the annual report? | 4,00 | 0,00 | 4 | 4 | 4 |
| F5 | To what extent does the company provide information on corporate governance? | 3,48 | 0,68 | 2 | 3 | 5 |
| **Faithful representation** | | | | | | |
| U1 | To what extent is the annual report presented in a well organized manner? | 3,32 | 0,60 | 2 | 3 | 4 |
| U2 | To what extent are the notes to the balance sheet and the income statement sufficiently clear? | 3,58 | 0,56 | 2 | 4 | 4 |
| U3 | To what extent does the presence of graphs and tables clarifies the presented information? | 5,00 | 0,00 | 5 | 5 | 5 |
| U4 | To what extent is the use of language and technical jargon in the annual report easy to follow? | 3,10 | 0,65 | 2 | 3 | 4 |
| U5 | What is the size of the glossary? | 2,16 | 1,46 | 1 | 1 | 5 |

| Qualitative characteristics | Items | Mean | Std. Dev. | Min. | Median | Max. |
|---|---|---|---|---|---|---|
| **Comparability** | | | | | | |
| C1 | To what extent do the notes to changes in accounting policies explain the implications of the change? | 4,03 | 0,71 | 2 | 4 | 5 |
| C2 | To what extent do the notes to revisions in accounting estimates and judgments explain the implications of the revision? | 2,94 | 0,44 | 1 | 3 | 4 |
| C3 | To what extent did the company adjust previous accounting period's figures, for the effect of the implementation of a change in accounting policy or revisions in accounting estimates? | 3,77 | 0,96 | 2 | 4 | 5 |
| C4 | To what extent does the company provide a comparison of the results of current accounting period with previous accounting periods? | 3,32 | 0,75 | 2 | 3 | 4 |
| C5 | To what extent is the information in the annual report comparable to information provided by other organizations? | 3,94 | 0,63 | 3 | 4 | 5 |
| C6 | To what extent does the company presents financial index numbers and ratios in the annual report? | 3,13 | 0,92 | 1 | 3 | 5 |
| **Timeliness** | | | | | | |
| T1 | How many days did it take for the auditor to sign the auditors' report after book year end? | 3,52 | 0,68 | 2 | 4 | 5 |

## Appendix 10. Operational measures used for the qualitative characteristics 2006.

| Qualitative characteristics | Items | Mean | Std. Dev. | Min. | Median | Max. |
|---|---|---|---|---|---|---|
| **Relevance** | | | | | | |
| R1 | To what extent does the presence of the forward-looking statement help forming expectations and predictions concerning the future of the company? | 3,10 | 0,75 | 2 | 3 | 5 |
| R2 | To what extent does the presence of non-financial information in terms of business opportunities and risks complement the financial information? | 3,68 | 0,60 | 2 | 4 | 5 |
| R3 | To what extent does the company use fair value instead of historical cost | 3,06 | 0,36 | 2 | 3 | 4 |
| R4 | To what extent do the reported results provide feedback to users of the annual report as to how various market events and significant transactions affected the company? | 3,84 | 0,37 | 3 | 4 | 4 |
| **Faithful representation** | | | | | | |
| F1 | To what extent are valid arguments provided to support the decision for certain assumptions and estimates in the annual report? | 3,16 | 0,86 | 2 | 3 | 5 |
| F2 | To what extent does the company base its choice for certain accounting principles on valid arguments? | 3,58 | 0,72 | 2 | 4 | 5 |
| F3 | To what extent does the company, in the discussion of the annual results, highlight the positive events as well as the negative events? | 2,87 | 0,43 | 2 | 3 | 4 |
| F4 | Which type of auditors' report is included in the annual report? | 4,06 | 0,25 | 4 | 4 | 5 |
| F5 | To what extent does the company provide information on corporate governance? | 3,68 | 0,65 | 3 | 4 | 5 |
| **Faithful representation** | | | | | | |
| U1 | To what extent is the annual report presented in a well organized manner? | 3,45 | 0,62 | 2 | 4 | 4 |
| U2 | To what extent are the notes to the balance sheet and the income statement sufficiently clear? | 3,55 | 0,62 | 2 | 4 | 4 |
| U3 | To what extent does the presence of graphs and tables clarifies the presented information? | 5,00 | 0,00 | 5 | 5 | 5 |
| U4 | To what extent is the use of language and technical jargon in the annual report easy to follow? | 3,13 | 0,56 | 2 | 3 | 4 |
| U5 | What is the size of the glossary? | 2,16 | 1,51 | 1 | 1 | 5 |

| Qualitative characteristics | Items | Mean | Std. Dev. | Min. | Median | Max. |
|---|---|---|---|---|---|---|
| **Comparability** | | | | | | |
| C1 | To what extent do the notes to changes in accounting policies explain the implications of the change? | 3,48 | 1,00 | 1 | 4 | 5 |
| C2 | To what extent do the notes to revisions in accounting estimates and judgments explain the implications of the revision? | 3,03 | 0,41 | 2 | 3 | 4 |
| C3 | To what extent did the company adjust previous accounting period's figures, for the effect of the implementation of a change in accounting policy or revisions in accounting estimates? | 2,65 | 1,11 | 1 | 2 | 5 |
| C4 | To what extent does the company provide a comparison of the results of current accounting period with previous accounting periods? | 3,35 | 0,71 | 2 | 3 | 4 |
| C5 | To what extent is the information in the annual report comparable to information provided by other organizations? | 3,58 | 0,62 | 3 | 4 | 5 |
| C6 | To what extent does the company presents financial index numbers and ratios in the annual report? | 3,26 | 1,00 | 1 | 3 | 5 |
| **Timeliness** | | | | | | |
| T1 | How many days did it take for the auditor to sign the auditors' report after book year end? | 3,48 | 0,72 | 1 | 4 | 5 |

## Appendix 11. Operational measures used for the qualitative characteristics 2007.

| Qualitative characteristics | Items | Mean | Std. Dev. | Min. | Median | Max. |
|---|---|---|---|---|---|---|
| **Relevance** | | | | | | |
| R1 | To what extent does the presence of the forward-looking statement help forming expectations and predictions concerning the future of the company? | 3,42 | 0,92 | 2 | 3 | 5 |
| R2 | To what extent does the presence of non-financial information in terms of business opportunities and risks complement the financial information? | 4,06 | 0,68 | 3 | 4 | 5 |
| R3 | To what extent does the company use fair value instead of historical cost | 3,03 | 0,18 | 3 | 3 | 4 |
| R4 | To what extent do the reported results provide feedback to users of the annual report as to how various market events and significant transactions affected the company? | 4,03 | 0,41 | 3 | 4 | 5 |
| **Faithful representation** | | | | | | |
| F1 | To what extent are valid arguments provided to support the decision for certain assumptions and estimates in the annual report? | 3,74 | 0,68 | 2 | 4 | 5 |
| F2 | To what extent does the company base its choice for certain accounting principles on valid arguments? | 3,77 | 0,50 | 2 | 4 | 4 |
| F3 | To what extent does the company, in the discussion of the annual results, highlight the positive events as well as the negative events? | 3,26 | 0,68 | 2 | 3 | 5 |
| F4 | Which type of auditors' report is included in the annual report? | 4,10 | 0,30 | 4 | 4 | 5 |
| F5 | To what extent does the company provide information on corporate governance? | 3,71 | 0,82 | 2 | 4 | 5 |
| **Faithful representation** | | | | | | |
| U1 | To what extent is the annual report presented in a well organized manner? | 3,77 | 0,43 | 3 | 4 | 4 |
| U2 | To what extent are the notes to the balance sheet and the income statement sufficiently clear? | 4,03 | 0,55 | 3 | 4 | 5 |
| U3 | To what extent does the presence of graphs and tables clarifies the presented information? | 5,00 | 0,00 | 5 | 5 | 5 |
| U4 | To what extent is the use of language and technical jargon in the annual report easy to follow? | 3,10 | 0,75 | 2 | 3 | 4 |

| | | | | | | |
|---|---|---|---|---|---|---|
| U5 | What is the size of the glossary? | 2,06 | 1,53 | 1 | 1 | 5 |

| Qualitative characteristics | Items | Mean | Std. Dev. | Min. | Median | Max. |
|---|---|---|---|---|---|---|
| **Comparability** | | | | | | |
| C1 | To what extent do the notes to changes in accounting policies explain the implications of the change? | 3,77 | 0,62 | 2 | 4 | 5 |
| C2 | To what extent do the notes to revisions in accounting estimates and judgments explain the implications of the revision? | 3,23 | 0,50 | 3 | 3 | 5 |
| C3 | To what extent did the company adjust previous accounting period's figures, for the effect of the implementation of a change in accounting policy or revisions in accounting estimates? | 2,55 | 0,93 | 2 | 2 | 5 |
| C4 | To what extent does the company provide a comparison of the results of current accounting period with previous accounting periods? | 3,48 | 0,57 | 2 | 4 | 4 |
| C5 | To what extent is the information in the annual report comparable to information provided by other organizations? | 3,87 | 0,67 | 3 | 4 | 5 |
| C6 | To what extent does the company presents financial index numbers and ratios in the annual report? | 3,42 | 1,03 | 1 | 4 | 5 |
| **Timeliness** | | | | | | |
| T1 | How many days did it take for the auditor to sign the auditors' report after book year end? | 3,42 | 0,76 | 1 | 3 | 5 |

## Appendix 12. Operational measures used for the qualitative characteristics 2008.

| Qualitative characteristics | Items | Mean | Std. Dev. | Min. | Median | Max. |
|---|---|---|---|---|---|---|
| **Relevance** | | | | | | |
| R1 | To what extent does the presence of the forward-looking statement help forming expectations and predictions concerning the future of the company? | 3,58 | 0,89 | 2 | 4 | 5 |
| R2 | To what extent does the presence of non-financial information in terms of business opportunities and risks complement the financial information? | 4,35 | 0,61 | 3 | 4 | 5 |
| R3 | To what extent does the company use fair value instead of historical cost | 3,03 | 0,18 | 3 | 3 | 4 |
| R4 | To what extent do the reported results provide feedback to users of the annual report as to how various market events and significant transactions affected the company? | 4,29 | 0,53 | 3 | 4 | 5 |
| **Faithful representation** | | | | | | |
| F1 | To what extent are valid arguments provided to support the decision for certain assumptions and estimates in the annual report? | 4,00 | 0,63 | 2 | 4 | 5 |
| F2 | To what extent does the company base its choice for certain accounting principles on valid arguments? | 3,94 | 0,51 | 3 | 4 | 5 |
| F3 | To what extent does the company, in the discussion of the annual results, highlight the positive events as well as the negative events? | 3,52 | 0,63 | 2 | 4 | 5 |
| F4 | Which type of auditors' report is included in the annual report? | 4,06 | 0,25 | 4 | 4 | 5 |
| F5 | To what extent does the company provide information on corporate governance? | 3,90 | 0,79 | 3 | 4 | 5 |
| **Faithful representation** | | | | | | |
| U1 | To what extent is the annual report presented in a well organized manner? | 3,94 | 0,51 | 3 | 4 | 5 |
| U2 | To what extent are the notes to the balance sheet and the income statement sufficiently clear? | 4,32 | 0,48 | 4 | 4 | 5 |
| U3 | To what extent does the presence of graphs and tables clarifies the presented information? | 5,00 | 0,00 | 5 | 5 | 5 |
| U4 | To what extent is the use of language and technical jargon in the annual report easy to follow? | 3,26 | 0,73 | 2 | 3 | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| U5 | What is the size of the glossary? | 2,10 | 1,54 | 1 | 1 | 5 |

| Qualitative characteristics | Items | Mean | Std. Dev. | Min. | Median | Max. |
|---|---|---|---|---|---|---|
| **Comparability** | | | | | | |
| C1 | To what extent do the notes to changes in accounting policies explain the implications of the change? | 4,00 | 0,73 | 2 | 4 | 5 |
| C2 | To what extent do the notes to revisions in accounting estimates and judgments explain the implications of the revision? | 3,29 | 0,53 | 3 | 3 | 5 |
| C3 | To what extent did the company adjust previous accounting period's figures, for the effect of the implementation of a change in accounting policy or revisions in accounting estimates? | 2,61 | 1,02 | 2 | 2 | 5 |
| C4 | To what extent does the company provide a comparison of the results of current accounting period with previous accounting periods? | 3,48 | 0,57 | 2 | 4 | 4 |
| C5 | To what extent is the information in the annual report comparable to information provided by other organizations? | 4,19 | 0,65 | 3 | 4 | 5 |
| C6 | To what extent does the company presents financial index numbers and ratios in the annual report? | 3,45 | 1,03 | 1 | 4 | 5 |
| **Timeliness** | | | | | | |
| T1 | How many days did it take for the auditor to sign the auditors' report after book year end? | 3,52 | 0,68 | 2 | 4 | 5 |

## Appendix 13. SPSS output quantity

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Average quantity* 05-06 | ,110273 | 62 | ,0428506 | ,0054420 |
| | Average quantity* 07-08 | ,123126 | 62 | ,0407110 | ,0051703 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | Average quantity* 05-06 & Average quantity* 07-08 | 62 | ,738 | ,000 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | Average quantity* 05-06 - Average quantity* 07-08 | -,0128532 | ,0302905 | ,0038469 | -,0205456 | -,0051609 | -3,341 | 61 | ,001 |

* Quantity is measured by as the total number of words in the three risk sections as a percentage of the total words in the annual report

## Appendix 14. SPSS output quantity

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Average quantity* 05-06 | 7615,63 | 62 | 5155,894 | 654,799 |
| | Average quantity* 07-08 | 8887,85 | 62 | 5130,672 | 651,596 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | Average quantity* 05-06 & Average quantity* 07-08 | 62 | ,788 | ,000 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | Average quantity* 05-06 - Average quantity* 07-08 | -1272,226 | 3346,462 | 425,001 | -2122,068 | -422,384 | -2,993 | 61 | ,004 |

* Quantity is measured by as the total number of words in the three risk sections.

## Appendix 15. SPSS output quality

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Average quality 05-06 | ,684331 | 62 | ,0426590 | ,0054177 |
| | Average quality 06-07 | ,727042 | 62 | ,0386344 | ,0049066 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | Average quality 05-06 & Average quality 06-07 | 62 | ,403 | ,001 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | Average quality 05-06 - Average quality 07-08 | -,0427113 | ,0445277 | ,0056550 | -,0540192 | -,0314034 | -7,553 | 61 | ,000 |

## Appendix 16. SPSS output risk categories

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Jaar0506 | ,80481 | 62 | ,119737 | ,015207 |
| | Jaar0708 | ,90460 | 62 | ,093831 | ,011917 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | Jaar0506 & Jaar0708 | 62 | ,478 | ,000 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | 95% Confidence Interval of the Difference | | | | |
| | | Mean | Std. Deviation | Std. Error Mean | Lower | Upper | | | |
| Pair 1 | Jaar0506 - Jaar0708 | -,099790 | ,111350 | ,014142 | -,128068 | -,071513 | -7,057 | 61 | ,000 |

## Appendix 17. Risk category scores per company

| Company | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|
| Aalberts Industries | 0,909 | 0,727 | 0,909 | 0,909 |
| Ahold | 1,000 | 1,000 | 1,000 | 1,000 |
| AKZO Nobel | 0,818 | 0,727 | 1,000 | 1,000 |
| Arcadis | 0,636 | 0,545 | 0,727 | 0,909 |
| ASM International | 0,818 | 0,818 | 0,909 | 0,909 |
| ASML | 0,818 | 0,818 | 0,727 | 1,000 |
| BAM | 0,727 | 0,818 | 1,000 | 1,000 |
| Boskalis | 0,727 | 0,818 | 0,909 | 0,909 |
| Crucell | 0,455 | 0,909 | 0,909 | 1,000 |
| CSM | 0,818 | 0,818 | 0,909 | 1,000 |
| DRAKA | 0,636 | 0,636 | 0,818 | 0,909 |
| DSM | 0,909 | 0,818 | 0,909 | 0,909 |
| Fugro | 0,727 | 0,727 | 0,818 | 0,818 |
| Heijmans | 0,818 | 0,818 | 0,909 | 0,818 |
| Heineken | 0,909 | 1,000 | 1,000 | 1,000 |
| Imtech | 0,545 | 0,636 | 0,727 | 0,727 |
| KPN | 0,909 | 0,909 | 1,000 | 1,000 |
| OPG | 0,727 | 0,818 | 0,909 | 0,909 |
| Nutreco | 0,909 | 0,909 | 1,000 | 1,000 |
| Ordina | 0,727 | 0,636 | 0,636 | 0,727 |
| Philips | 1,000 | 1,000 | 1,000 | 1,000 |
| Randstad | 0,818 | 0,909 | 0,909 | 0,909 |
| Reed Elsevier | 0,818 | 0,909 | 0,818 | 0,818 |
| SBM Offshore | 0,727 | 0,727 | 0,909 | 0,909 |
| Ten Cate | 0,727 | 0,818 | 0,909 | 0,909 |
| TNT | 0,909 | 0,909 | 0,909 | 0,909 |
| Unilever | 0,727 | 0,727 | 0,727 | 0,727 |
| USG People | 0,727 | 0,727 | 1,000 | 1,000 |
| Vopak | 0,818 | 1,000 | 1,000 | 0,909 |
| Wessanen | 0,818 | 0,818 | 0,818 | 1,000 |
| Wolters Kluwers | 0,909 | 0,909 | 0,909 | 0,909 |

## Appendix 18. Market Capitalization per company (in €)

| Company | 2005 | 2006 | 2007 | 2008 | LN 2005 | LN 2006 | LN 2007 | LN 2008 |
|---|---|---|---|---|---|---|---|---|
| Aalberts Industries | 1095000000 | 1609000000 | 1387000000 | 523000000 | 20,814 | 21,199 | 21,050 | 20,075 |
| Ahold | 9845128808 | 12538764680 | 11098101340 | 13736636740 | 23,010 | 23,252 | 23,130 | 23,343 |
| AKZO Nobel | 11202665229 | 13266052403 | 14372664842 | 6820193665 | 23,139 | 23,308 | 23,389 | 22,643 |
| Arcadis | 553302482 | 945000000 | 958767972 | 564948911 | 20,131 | 20,667 | 20,681 | 20,152 |
| ASM International | 748567907 | 865027932 | 904587334 | 334334806 | 20,434 | 20,578 | 20,623 | 19,628 |
| ASML | 8190923000 | 8988545160 | 9435659160 | 5508943500 | 22,826 | 22,919 | 22,968 | 22,430 |
| BAM | 1735227302 | 1818011101 | 2091491027 | 866586059 | 21,274 | 21,321 | 21,461 | 20,580 |
| Boskalis | 1608738018 | 2144984025 | 3574386340 | 1424263400 | 21,199 | 21,486 | 21,997 | 21,077 |
| Crucell | 778029183 | 1257100000 | 744400000 | 716600000 | 20,472 | 20,952 | 20,428 | 20,390 |
| CSM | 1644000000 | 1924000000 | 1428000000 | 711000000 | 21,220 | 21,378 | 21,080 | 20,382 |
| DRAKA | 470556781 | 917628600 | 818133207 | 265636226 | 19,969 | 20,637 | 20,523 | 19,398 |
| DSM | 6586842292 | 6918929398 | 5395775483 | 2973622046 | 22,608 | 22,658 | 22,409 | 21,813 |
| Fugro | 1841747180 | 2491971800 | 3689611200 | 1539201930 | 21,334 | 21,636 | 22,029 | 21,155 |
| Heijmans | 878423770 | 1002881180 | 621805590 | 81848200 | 20,594 | 20,726 | 20,248 | 18,220 |
| Heineken | 13121519627 | 17644344761 | 21639203589 | 10707574446 | 23,298 | 23,594 | 23,798 | 23,094 |
| Imtech | 717211990 | 1262643022 | 1327659490 | 929548752 | 20,391 | 20,956 | 21,007 | 20,650 |
| KPN | 18222022325 | 20770497781 | 23799355369 | 16543600942 | 23,626 | 23,757 | 23,893 | 23,529 |
| OPG | 882843000 | 1298166000 | 1109450000 | 543081000 | 20,599 | 20,984 | 20,827 | 20,113 |
| Nutreco | 1288240000 | 1674617000 | 1355114000 | 806242000 | 20,977 | 21,239 | 21,027 | 20,508 |
| Ordina | 540154539 | 653418700 | 502600000 | 117817465 | 20,107 | 20,298 | 20,035 | 18,585 |
| Philips | 31500000000 | 31624000000 | 31436000000 | 12765000000 | 24,173 | 24,177 | 24,171 | 23,270 |
| Randstad | 4243900000 | 6083400000 | 3150700000 | 2466900000 | 22,169 | 22,529 | 21,871 | 21,626 |
| Reed Elsevier | 15068758592 | 16645617140 | 17825418934 | 9572905915 | 23,436 | 23,535 | 23,604 | 22,982 |
| SBM Offshore | 2350800000 | 3665000000 | 3095000000 | 1361000000 | 21,578 | 22,022 | 21,853 | 21,031 |
| Ten Cate | 450552538 | 489024162 | 501795161 | 384668761 | 19,926 | 20,008 | 20,034 | 19,768 |
| TNT | 12671999973 | 13773768440 | 10713085203 | 4953900256 | 23,263 | 23,346 | 23,095 | 22,323 |
| Unilever | 33065665815 | 35494863390 | 43125401655 | 29733378318 | 24,222 | 24,293 | 24,487 | 24,116 |
| USG People | 563577311 | 2089827047 | 1181895584 | 599116798 | 20,150 | 21,460 | 20,890 | 20,211 |
| Vopak | 1586871168 | 2222618847 | 2423085452 | 1686167712 | 21,185 | 21,522 | 21,608 | 21,246 |
| Wessanen | 929858697 | 734135750 | 735313920 | 314344650 | 20,651 | 20,414 | 20,416 | 19,566 |
| Wolters Kluwers | 5200000000 | 6700000000 | 6300000000 | 3900000000 | 22,372 | 22,625 | 22,564 | 22,084 |

## Appendix 19. Turnover per company (in €)

| Company | 2005 | 2006 | 2007 | 2008 | LN 2005 | LN 2006 | LN 2007 | LN 2008 |
|---|---|---|---|---|---|---|---|---|
| Aalberts Industries | 1055019000 | 1440347000 | 1702523000 | 1750752000 | 20,777 | 21,088 | 21,255 | 21,283 |
| Ahold | 44496000000 | 44872000000 | 28152000000 | 25722000000 | 24,519 | 24,527 | 24,061 | 23,971 |
| AKZO Nobel | 13000000000 | 13737000000 | 10217000000 | 15415000000 | 23,288 | 23,343 | 23,047 | 23,459 |
| Arcadis | 999743000 | 1235479000 | 1497516000 | 1722139000 | 20,723 | 20,935 | 21,127 | 21,267 |
| ASM International | 726400000 | 877491000 | 955239000 | 747362000 | 20,404 | 20,593 | 20,677 | 20,432 |
| ASML | 2528967000 | 3597104000 | 3808679000 | 2953678000 | 21,651 | 22,003 | 22,061 | 21,806 |
| BAM | 7424931000 | 8646131000 | 8953755000 | 8834766000 | 22,728 | 22,880 | 22,915 | 22,902 |
| Boskalis | 1155721000 | 1353614000 | 1868529000 | 2093847000 | 20,868 | 21,026 | 21,348 | 21,462 |
| Crucell | 32729000 | 131567000 | 203786000 | 267157000 | 17,304 | 18,695 | 19,133 | 19,403 |
| CSM | 2618000000 | 2421400000 | 2485600000 | 2599300000 | 21,686 | 21,608 | 21,634 | 21,679 |
| DRAKA | 1878700000 | 2529400000 | 2816200000 | 2706800000 | 21,354 | 21,651 | 21,759 | 21,719 |
| DSM | 8195000000 | 8380000000 | 8757000000 | 9297000000 | 22,827 | 22,849 | 22,893 | 22,953 |
| Fugro | 1160615000 | 1434319000 | 1802730000 | 2154474000 | 20,872 | 21,084 | 21,313 | 21,491 |
| Heijmans | 2835317000 | 2942078000 | 3731854000 | 3630990000 | 21,765 | 21,802 | 22,040 | 22,013 |
| Heineken | 10796000000 | 11829000000 | 12564000000 | 14319000000 | 23,102 | 23,194 | 23,254 | 23,385 |
| Imtech | 2379172000 | 2838910000 | 3346308000 | 3859443000 | 21,590 | 21,767 | 21,931 | 22,074 |
| KPN | 11811000000 | 11941000000 | 12461000000 | 14427000000 | 23,192 | 23,203 | 23,246 | 23,392 |
| OPG | 2229024000 | 2281042000 | 2476650000 | 2730225000 | 21,525 | 21,548 | 21,630 | 21,728 |
| Nutreco | 3002400000 | 3009000000 | 4021100000 | 4943100000 | 21,823 | 21,825 | 22,115 | 22,321 |
| Ordina | 443884000 | 530411000 | 665402000 | 696473000 | 19,911 | 20,089 | 20,316 | 20,362 |
| Philips | 30395000000 | 26976000000 | 26793000000 | 26385000000 | 24,138 | 24,018 | 24,011 | 23,996 |
| Randstad | 6638500000 | 8186100000 | 9197000000 | 14038400000 | 22,616 | 22,826 | 22,942 | 23,365 |
| Reed Elsevier | 7542000000 | 7935000000 | 4584000000 | 5334000000 | 22,744 | 22,795 | 22,246 | 22,397 |
| SBM Offshore | 1519300000 | 1989000000 | 2871000000 | 3060000000 | 21,142 | 21,411 | 21,778 | 21,842 |
| Ten Cate | 686500000 | 770500000 | 886000000 | 1032600000 | 20,347 | 20,463 | 20,602 | 20,755 |
| TNT | 10105000000 | 9948000000 | 10885000000 | 11152000000 | 23,036 | 23,021 | 23,111 | 23,135 |
| Unilever | 39672000000 | 39642000000 | 40187000000 | 40523000000 | 24,404 | 24,403 | 24,417 | 24,425 |
| USG People | 1977609000 | 3536836000 | 3887681000 | 4024965000 | 21,405 | 21,986 | 22,081 | 22,116 |
| Vopak | 687300000 | 781400000 | 883500000 | 939300000 | 20,348 | 20,477 | 20,599 | 20,661 |
| Wessanen | 1876800000 | 1590300000 | 1579800000 | 1602800000 | 21,353 | 21,187 | 21,181 | 21,195 |
| Wolters Kluwers | 3374000000 | 3693000000 | 3413000000 | 3374000000 | 21,939 | 22,030 | 21,951 | 21,939 |