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# Corporate risk reporting: Analysis of risk disclosures in the interim reports of public Portuguese non-financial companies

*Divulgación de los riesgos corporativos: análisis de la divulgación de riesgos en los informes intermedios de empresas no financieras portuguesas cotizadas*

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## Abstract

Fast changing environments, globalization, coupled with financial scandals, and the advance of information technologies made corporate risk a very central issue in management and accounting. Current governance codes require that management disclose in annual reports its responsibility for the adequacy of risk management and internal control systems and the disclosure of risk and uncertainties faced by companies are required by both governance codes and corporate reporting. This study seeks to capture risk disclosure patterns adopted by public Portuguese companies in interim reports and to investigate whether the audit quality may explain the observed risk disclosures practices. Manual content analysis has been carried out in the interim reports of 35 non-financial Portuguese firms ranked by decreasing market capitalization to create indexes of corporate risk disclosure, which have been used for observing the tone of disclosure and for testing an explanatory model with proxies of audit quality together with other explanatory variables widely used in disclosure research. Results point out that quantified risk disclosure prevails in interim reports and that firm's risk disclosure policies are not influenced by auditor's quality. This work contributes to academic and regulatory environments, filling the gap about risk disclosure in the interim report, identifying the nature of corporate risk disclosures, assessing the quality of risk information and updating research about determinants of risk disclosure in interim reports.

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*JEL classification:* G32, M41, M42, M48

*Keywords:* Corporate risk disclosures practices; audit quality; interim reports; public non-financial Portuguese firms.

## Resumen

Los entornos cambiantes, la globalización, junto con los escándalos financieros y el avance de las tecnologías de la información, hicieron del riesgo corporativo un tema central en la gestión y la contabilidad. Los códigos de gobierno actuales requieren que la administración revele en sus informes anuales su responsabilidad sobre la adecuación de los sistemas de gestión de riesgos y de control interno y, tanto los códigos de gobierno como los informes corporativos, requieren la divulgación del riesgo y las incertidumbres que enfrentan las empresas. Este estudio pretende captar los patrones de divulgación de riesgos adoptados por las empresas portuguesas cotizadas en los informes financieros provisionales e investigar si la calidad de la auditoría puede explicar las prácticas de divulgación de riesgos observadas. El análisis manual de contenido se llevó a cabo en los informes provisionales de 35 empresas portuguesas no financieras, cotizadas, clasificadas según la capitalización de mercado decreciente para construir los índices de divulgación del riesgo corporativo, que se utilizaron para observar la naturaleza de la divulgación y para testar un modelo explicativo con variables de calidad de auditoría junto con otras variables explicativas ampliamente utilizadas en la investigación de la divulgación. Los resultados señalan que la divulgación cuantificada del riesgo prevalece en los informes provisionales y que las políticas de divulgación de riesgos de las empresas no están influenciadas por la calidad de los auditores. La investigación contribuye tanto para el entorno académico como para el regulatorio, cubriendo la brecha sobre la divulgación de riesgos en los informes provisionales, identificando la naturaleza de las revelaciones de riesgo corporativo, evaluando la calidad de la información de riesgo y actualizando la investigación sobre los determinantes de riesgo en informes provisionales.

*Códigos JEL:* G32, M41, M42, M48

*Palabras clave:* Prácticas de divulgación de riesgos corporativos; calidad de auditoría; informes provisionales; empresas no financieras portuguesas cotizadas.

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## Introduction

According to the IASB (2015) conceptual framework, the general objective of financial reporting is to provide useful information. To achieve this goal financial reporting must include information about risks and uncertainties faced by companies. Otherwise existing and potential investors, lenders and other stakeholders will not be able to properly assess the risk profile of companies that is necessary for the decision making process (Cea García, 1995; ICAEW, 1999).

In the last decades there was an increase of research about corporate risk disclosure (Abraham & Cox, 2007; Allini, Manes, Francesca, & Hussainey, 2016; Madrigal, Guzmán, & Guzmán, 2015; Linsley & Shrive, 2006; Oliveira, Rodrigues, & Craig, 2011); most of them conclude that risk information is not enough (Kravet & Muslu, 2013), triggering doubts about the quality and utility of disclosed risk information (Abraham & Shrive, 2014).

Studies in this field registered different research objectives and methods varying from the identification, by means of manual content analysis, of the nature of risk information included in the narrative sections of firms reports (Abraham, Solomon, & Stevenson, 2007; Abraham

& Cox, 2007; Amran, Bin, & Hassan, 2009; Atan, Marahun, Kadir, & Jusoff, 2010; Beretta & Bozzolan, 2004; Berger & Gleißner, 2006; Combes-Thuélin, Henneron, & Touron, 2006; Dobler, Lajili, & Zéghal, 2011; Lajili & Zéghal, 2005; Linsley & Shrive, 2006; Mohobbot, 2005; Oliveira *et al.*, 2011; Rajab & Schachler, 2009; Semper & Beltrán, 2009) to OLS looking to find firm related variables that may explain the level of risk disclosures (Abraham *et al.*, 2007; Abraham & Cox, 2007; Amran *et al.*, 2009; Atan *et al.*, 2010; Beretta & Bozzolan, 2004; Dobler *et al.*, 2011; Madrigal *et al.*, 2015; Linsley & Shrive, 2006; Mohobbot, 2005; Neri, 2010; Oliveira *et al.*, 2011; Semper & Beltrán, 2009; Vandemaele, Vergauwen, & Michiels, 2009) or assess the utility of disclosed risk information (Campbell, Chen, Dhaliwal, Lu, & Steele, 2014; Kravet & Muslu, 2013). As in other broad corporate disclosures studies, research in risk disclosure investigated firm specific features, as size, risk, profitability, industry or cross listing.

More recently, under agency, stakeholders or legitimacy theories, due to the relevant role that corporate governance and auditing are expected to play in achieving transparency and avoiding misleading financial reporting, accounting research focused on internal and external corporate governance devices and audit quality as variables that may explain observed financial reporting and disclosure. Following this trend, risk disclosure research has recently investigate corporate governance variables that may explain disclosure (Allini *et al.*, 2016; Al-Maghzom, Hussainey, & Aly, 2016; Elshandidy & Neri, 2014; Mokhtar & Mellett, 2013; Ntim, Lindop, & Thomas, 2013). However, except for audit size, auditing quality has not, so far, been observed as intensively.

Elzahar and Hussainey (2012) acknowledged that studies on the determinants of risk disclosure have been performed mostly on annual reports and, to the best of our knowledge, the tone of risk disclosure information assessed by the semantic properties of narratives has been studied only in annual reports (Dobler *et al.* 2011; Linsley & Shrive 2006). Despite the fact that annual reporting is intended as the main source of information for decision making (Solomon, Solomon, Norton, & Joseph, 2000), and the relevant role it plays in disclosing risks and uncertainties faced by companies, some authors like Hassan and Marston (2010) propose that the annual report is not sufficient, arguing that other means, such as interim reports, provide more timely information.

Deliberately, we want to carry out in interim reports the kind of research that has been applied in annual reports to observe the “nature of risk disclosures, examining time orientation, whether they are monetarily quantified and if good or bad risk news is disclosed” (Linsley & Shrive, 2006, p. 387).

This paper contributes to filling the gap in the literature about risk disclosure in the interim report and advancing the research of audit quality as a possible determinant of risk disclosure, answering to the call of Elzahar and Hussainey (2012) for further research on the topic of corporate risk disclosure in interim reports.

The study addresses two main research questions: (i) whether the semantic features of corporate risk disclosures in the interim reports have the same trends that extent literature reveals for annual reports and (ii) whether the level of corporate risk disclosure in the interim reports is explained by audit quality.

Research focuses on risk disclosures made by 35 public Portuguese non-financial companies in its 2014 first half year (1H2014), reports sorted by decreasing market capitalization, using univariate and multivariate statistics on risk disclosure indexes crafted by manual content analysis.

Findings show that quantified risk disclosures are higher in number than unquantified risk disclosures, although the pattern of all others remains the same as in the annual reports. Accordingly, interim report can be considered less boilerplate, which can be explained by the unique nature of this type of report more focused on performance data and with more relaxed disclosure requirements.

Findings also point to no association between proxies of audit quality and risk disclosure indexes, except for Audit Tenure which presents an inverse relationship, indicating that the number of years an auditor stays in a firm is not a condition for better risk disclosure in first half year interim reports. Disclosure policies of sampled firms are not influenced by auditor quality despite the reputational auditor risk that may exist.

The rest of the paper is organized as follows: next section briefly reviews the literature, states the hypothesis for testing and presents the analytical framework. Results, along with their analysis and discussion are presented in a separate section. The last section contains conclusions and suggestions for future research.

## **Theoretical background and hypothesis**

### *Risk disclosure*

The general objective of financial reporting is providing information that is useful to existing and potential investors, lenders and other stakeholders of the entity (IASB 2015). Financial statements alone do not succeed in achieving this goal, as they only display past numeric information related to events that verify the definitions of financial statements elements and that can be measured in a reliable way (IASB, 2015). Notes to financial statements and other complementary information is needed to assure that information needs of users are adequately satisfied.

The Report of the Task Force on Risk and Uncertainties (AICPA, 1987) first, and later the Jenkins Report (AICPA, 1994) have pioneered the call for qualitative and prospective information (Abraham *et al.*, 2007) to be disclosed “through the eyes of management” including strategy and the main risks and uncertainties faced by companies. The recent models of integrated reporting validate and reinforce the pertinence of this need (De Villiers, Rinaldi, & Unerman, 2014) where information about firms main risks is always requested. Today the Management Discussion and Analysis in the United States of America, the Corporate Report in the United Kingdom and the Management Commentary of the IASB all include a chapter, or equivalent section, on risk factors.

Main benefits for companies arising from sound risk disclosure are thought to be the reduction of information asymmetries and the reduction of the cost of capital (Deumes, 2008; Deumes & Knechel, 2008; ICAEW, 1999, 2011; Linsley & Shrive, 2000, 2005, 2006; Schrand & Elliott, 1998; Solomon *et al.*, 2000) resulting in a strong incentive for companies to disclose. For users and markets, main benefits should be the possibility of adapting the risk profile of companies and investors (Abraham, Marston, & Darby, 2012), the better allocation of capital in markets, increased transparency and the consequent enhancement of economic efficiency.

Traditional costs of disclosure, such as the cost of producing information (Deumes & Knechel, 2008; Solomon & Cooper, 1990) disclosure of proprietary information (Healy & Palepu, 2001; ICAEW, 2011; Schrand & Elliott, 1998) and litigation and loss of reputation

(Deumes & Knechel, 2008; ICAEW, 2011) are usually considered limitations that result in incentives to avoid disclosing risks.

The public good nature of firms' information, which may lead to the underproduction of risk information and the possibility that firms do not internalize externalities arising from their risk disclosure decisions, justified that regulators imposed rules for risk disclosure in order to ensure the proper functioning of the markets (Leftwich, 1980; Leuz & Wysocki, 2008; Watts & Zimmerman, 1978).

However, even in the presence of mandatory disclosure, managers always have discretionary decision about what is actually disclosed (Lang & Lundholm, 1993; Wallace, Naser, & Mora, 1994), and despite theoretical economic benefits and mandatory disclosure, existing research usually point to the insufficiency and inadequacy of risk disclosure (ICAEW, 1997, 2011; Kravet & Muslu, 2013).

### *Interim reporting*

Usefulness of financial information is enhanced if it is timely (IASB, 2015). Timeliness means having information available to decision-makers in time to can influence their decisions. Generally, the older the information is the less useful it is, although some information may continue to be timely long after the end of a reporting period. These reasons justified the mandatory interim corporate reporting for, at least, listed companies, being an effective way to improve corporate risk disclosure. In Portugal, the regulation on the semiannual information of listed companies is stated in the Portuguese Securities Code, requiring that it should contain a description of the main risks and uncertainties for the second half of the year. Regulation of the Portuguese securities market commission also requires additional elements that should be disclosed, in particular the minimum elements laid down in IAS 34 (IASB, 2000) which includes condensed financial statements and selected notes with an explanation of the main events and changes that allows users to understand the changes in financial position and performance since the end of the last annual report. As the interim report is intended to be an update on the latest set of annual financial statements less information may be disclosed when compared with annual financial statements.

There is a lack of research addressing corporate risk disclosure in interim reports. Elzahar and Hussainey (2012) analysed a sample of 72 companies in the United Kingdom revealing a small association with corporate governance variables; Filzen (2015) analyzed the "Risk factors" chapter of quarterly reports of listed companies in the United States of America concluding that mandatory requirements by the SEC are succeeding towards a more timely disclosure of bad news.

### *Nature of disclosures on corporate risk*

A seminal stream of research on this topic has been the analysis of features of risk disclosures made by companies, relying on manual content analysis in the narrative parts of its annual reports.

After constructing a codification instrument defining the different risk types and semantic features to identify, text is read by one or more coders who classify the codifying unit (words, sentences or pages) in order to craft different indexes of risk disclosure. Those indexes are

later compared, enabling researchers to conclude about the way corporate risk is disclosed and ideally, about the “quality” (Beretta & Bozzolan, 2008) of the disclosed information.

This kind of studies were carried in different settings (the most part in one country) by different researchers (Abraham *et al.*, 2007; Abraham & Cox, 2007; Amran *et al.*, 2009; Atan *et al.*, 2010; Beretta & Bozzolan, 2004; Berger & Gleißner, 2006; Combes-Thuélin *et al.*, 2006; Dobler *et al.*, 2011; Lajili & Zéghal, 2005; Linsley & Shrives, 2006; Mohobbot, 2005; Oliveira *et al.*, 2011; Rajab & Schachler, 2009; Semper & Beltrán, 2009).

Main findings were that disclosures have been higher in number about non-financial risks (as opposed to financial risks), in grater quantity relating to past events, in a non-quantified manner, disclosing predominantly good news. Those findings lead to the conclusion that companies, having to comply with regulation or by an agency or legitimacy motivation, disclose boilerplate in the annual report, that is, risk information with few informational content (Dobler *et al.*, 2011; ICAEW, 1997; Linsley & Shrives, 2006; Oliveira *et al.*, 2011; Rajab & Schachler, 2009).

Our first set of hypotheses relates to the research question of concluding whether the semantic features of corporate risk disclosures in the interim reports have the same trends that existing literature reveals for annual reports.

#### *Disclosure of financial and non-financial risks*

Disclosure of financial risks is subject to greater mandatory regulation while that of non-financial risks is more arbitrary (Dobler, 2008; Mokhtar & Mellett, 2013). Albeit Abraham & Cox (2007) did not find a trend in the disclosure of risk types, other studies (Dobler *et al.*, 2011; Jia, Munro, & Buckby, 2016; Linsley & Shrives, 2006; Oliveira *et al.*, 2011) found that the number of non-financial risks disclosures together surpass the number of financial risk disclosures.

We therefore formulate the hypothesis

H1 – The number of non-financial risk disclosures is significantly higher than the number of financial risk disclosures

#### *Quantification of risk disclosures*

The disclosure of risks quantifying the impact of an event is assumed to provide more useful information and it would be desirable that companies disclose risks in a quantified manner (Beretta & Bozzolan, 2004; Linsley & Shrives, 2006). The difficulty in quantifying risks and the prospective nature of risk information, which could expose managers to litigation, motivate mangers to disclose risks without quantifying impacts. Indeed, prior research shows few disclosures of risks with quantification of their impacts (Dobler, 2008; Dobler *et al.*, 2011; Linsley & Shrives, 2006; Oliveira *et al.*, 2011).

Accordingly, we formulate the Hypothesis:

H2 – The number of non-quantified risk disclosures is significantly higher than the number of quantified risk disclosures

#### *Time orientation of risk disclosures*

Prospective information is assumed to be more useful than information related to past. Managers interested in signaling their skills and abilities should disclose information that



is future oriented. However, uncertainty associated to risk information (Dobler, 2008) leads managers to avoid potential litigation. Also, prior research shows few risk disclosures related with future events and main results confirm that the number of past risk disclosures is higher than future risk disclosures (Dobler *et al.*, 2011; Oliveira *et al.*, 2011). Yet the possibility remains that managers disclose risk information with any time orientation.

Accordingly, we formulate the Hypothesis:

H3 – The number of risk disclosures related with past events is significantly higher than the number of risk disclosures related with future events

H3a – The number of risk disclosures with time orientation is not significantly different from the number of risk disclosures without time orientation.

### *Risk disclosures impact*

The concept of Risk encompasses both upside and downside risk (ICAEW, 1997; Linsley & Shrives, 2006); Managers may have mixed and contradictory incentives in disclosing such type of risk information. On one hand they would prefer to disclose only risk information with positive impact (good news) motivated by legitimacy incentives; on the other hand, they would prefer to disclose risk information with negative impact (bad news) in a way that may exempt them from responsibilities as prescribed by attribution theory or by impression management theory (Merkl-Davies, Brennan, & McLeay, 2011). Existing research did not find significant differences between the disclosure of good and bad news (Linsley & Shrives, 2006; Oliveira *et al.*, 2011). It is also possible that disclosures could be made that have an undefined impact (neither good nor bad news) (Linsley & Shrives, 2006; Mokhtar & Mellett, 2013).

Therefore, we formulate the hypotheses:

H4 – The number of risk disclosures with positive impact is not significantly different from the number of risk disclosures with negative impact.

H4a – The number of risk disclosures with impact is not significantly different from the number of risk disclosures without impact.

### **Association studies on corporate risk disclosure**

Another area of research in this topic has been carried out in studies that seek to identify, by means of multivariate analysis, associations between the level of risk disclosure, in general also captured by manual content analysis of the annual reports, and some specific variables of companies in order understand which factors may affect the disclosure of risk information by firms. This research has been conducted by different authors, with company size being the factor most widely associated (positively) with risk disclosures indexes (Abraham *et al.*, 2007; Abraham & Cox, 2007; Amran *et al.*, 2009; Atan *et al.*, 2010; Beretta & Bozzolan, 2004; Dobler *et al.*, 2011; Linsley & Shrives, 2006; Mohobbot, 2005; Neri, 2010; Oliveira *et al.*, 2011; Semper & Beltrán, 2009; Vandemaele *et al.*, 2009). Profitability was found to be unrelated with corporate risk disclosures (Lajili & Zéghal, 2005; Mohobbot, 2005; Neri, 2010; Semper & Beltrán, 2009), as well as company risk represented by leverage (Abraham *et al.*, 2007; Abraham & Cox, 2007; Amran *et al.*, 2009; Atan *et al.*, 2010; Dobler *et al.*, 2011; Lajili & Zéghal, 2005; Linsley & Shrives, 2006; Mohobbot, 2005; Rajab & Schachler, 2009; Semper & Beltrán, 2009). Few studies have found firm risk associated with risk disclosures (Hassan,



2009; Oliveira *et al.*, 2011). For industry type research presents mixed conclusions with studies showing no association (Abraham & Cox, 2007; Atan *et al.*, 2010; Beretta & Bozzolan, 2004) and others showing association (Amran *et al.*, 2009; Hassan, 2009; Rajab & Schachler, 2009). For corporate governance variables, studies usually presents positive association (Abraham & Cox, 2007; Oliveira *et al.*, 2011; Semper & Beltrán, 2009; Vandemaele *et al.*, 2009) as well as for cross listing (Abraham & Cox, 2007; Rajab & Schachler, 2009).

Our second set of hypotheses relates to the research question of concluding whether corporate risk disclosure could be explained by audit quality.

From an agency (Jensen & Meckling, 1976) and stakeholders (Friedman & Miles, 2002) theories perspective, financial information is crucial as a device to reduce asymmetries. The better the financial information is, the better financial markets and economies perform. Auditing, enhancing the credibility of financial information, is expected to play an important role in the proper functioning of capital markets (Francis, 2004).

Audit quality may be defined by as the joint probability of the auditor finding a material misstatement in financial statements or the accounting system of the audited client and that the auditor will report the discovered material misstatement (De Angelo, 1981). DeFond and Zhang (2014) defines audit quality as a greater assurance of high financial reporting quality. Also it appears to be influenced by auditor's competence and independence (Malek & Saidini, 2013).

Due to auditor risk reputation that may arise from being associated with clients that adopt unsound reporting practices, auditors have incentives to encourage their clients to disclose comprehensive financial information (Clarkson, Ferguson, & Hall, 2003; Craswell & Taylor, 1992) including information about risks and uncertainties.

Regulation about the audit of interim reporting vary across countries. In Portugal there is no requirement for listed companies to audit or review interim reporting. Nevertheless, information about risks and uncertainties must be obtained from proper systems of risk management and internal control. One could expect that the quality of external auditors, who must to audit those risk management and internal control systems of companies in an ongoing basis and perform procedures to certify that annual financial statements are free from material misstatements, could be associated with risk disclosure indexes even in interim reporting, considering that reputational incentives exists for auditors to encourage clients to adopt sound financial reporting practices (Craswell & Taylor, 1992) which includes risk disclosure.

Audit quality, being a complex concept, is usually represented by proxies that, according to DeFond and Zhang (2014), can be input or output based. Input based proxies refer to observable inputs to the audit process and encompasses auditor specific characteristics, such as auditor size, and audit fees. We also introduce audit tenure as proxy for audit quality.

### **Auditor size**

Large auditors firms (also designed by Big N) usually have higher competences and for that reason they would be able to provide high audit quality to their clients (De Angelo, 1981) as well as better post-audit services. This is due to their capacity of having better training and better facilities. In addition, as auditor reputational risk is higher for large audit firms, it becomes an incentive for recommending their clients to adopt good reporting practices.

Accordingly, it is expected that companies being audited by a Big4 would perform better in risk disclosure, and that motivates our Hypothesis:

H5 – There is a positive association between the number of risk disclosures and being audited by a Big4.

### **Audit fees**

The price auditors charge their clients is ordinarily used as a proxy of audit quality (Yang, Yu, Liu, & Wu, 2017). Audit fees may be seen as the “economic cost of efficient auditors” (Salehi, Moradi, & Paiydarmanesh, 2017, p. 37) and incorporate the expected cost of poor quality earnings (Hribar, Kravet, & Wilson, 2014).

Firms with lower quality financial reporting and disclosure will expect to pay more for the audit service as a result of additional audit hours needed to respond to an assessed high client risk.

Shannon, Steven and Nathan (2010) found that audit fees paid to Big 4 firms increase in moments when risk of misstatements in financial statements due to error or fraud increase. Salehi *et al.* (2017) did not find a relationship between audit fees and quality of disclosure while Yang *et al.* (2017), in a work on 10 k filings using a text mining approach, found a positive association between disclosures of different risks types and audit fees. Hribar *et al.* (2014) suggests that while additional audit work may have some impact in improving a firm’s accounting quality, is not expectable that could convert a bad financial reporting firm in a good financial reporting firm. Also, it is expectable to find a negative association between unexplained audit fees and accounting quality.

Accordingly, we state our hypothesis as follows:

H6 – There is a negative association between the number of risk disclosures and the value of audit fees

### **Audit tenure**

The selection continuity of auditors may have different impact in audit quality. On one hand, long auditing mandates increases the auditor’s experience and knowledge in the client’s industry (Myers, Myers, & Omer, 2003) and make it possible to be better familiarized with client business processes and features (Carcello, Hermanson, Neal, & Riley, 2002) improving audit quality. On the other hand, long auditing mandates may undermine independency from the client, and affect audit quality negatively (Deis & Giroux, 1992).

Our hypothesis is as follows:

H7 – There is no association between the number of risk disclosures and the number of years the auditor has in the firm

### **Analytical framework**

#### *Sample*

This study analyses the risk disclosures made in the 1H2014 interim report of a sample of 35 non-finance Portuguese firms listed in the Lisbon stock market on 30<sup>th</sup> June 2014, headquartered in Portugal with year-end at December 31<sup>st</sup>, ranked by decreasing market capitalization.

Portugal was selected once a study exists for risk disclosure in annual reports in this country (Oliveira *et al.*, 2011) and responding to the feat of Elzahar and Hussainey (2012) for increasing research in interim reporting may yield better results observing similar settings.

All companies that fit the criteria above were selected from the main stock market index (PSI20). Additional companies were selected from PSI-General index, matching the same criteria until we reached 35 companies. The type of filters adopted intends to homogenize the sample, avoid biased conclusions and obtain more comparable information. The practice of excluding financial companies has been widely adopted (Abraham & Cox 2007; Al-Shammari 2014; Elzahar & Hussainey 2012) as financial companies have different disclosure requirements that should be analyzed separately (Linsley & Shrives 2006). The sample size (35 companies) is in line with some similar studies and is considered reasonable having in mind that manual content analysis is a huge time consumer technique (Beattie & Thomson, 2007).

## Methodology

One single coder (one of the authors) performed manual content analysis over the course of five months, on the narrative sections of interim reports, namely the management report and the notes to financial statements more likely to contain risk information such as provisions, impairments, contingent assets and debts, events occurred after year-end and risk factors when available. The chosen coding unit was the sentence in its context as it is the one that, most likely, allows reliable data to be obtained (Milne & Adler, 1999). Like Linsley and Shrives (2006), to ensure reliability, ten reports have been codified twice which made it possible to fine-tune the coding rules defined previously.

A sentence has been codified as risk disclosure if the reader was informed of any opportunity or expectation or any danger, threat, damage or exposure that had or may have an impact on the company, or management of any of these opportunities, expectations, hazards, threats, damages and exposures.

The coding instrument was adapted from Linsley and Shrives (2006) where risks have been classified in two main categories: financial and non-financial risks. As attributes of disclosure (semantic characteristics), we adopted the quantification (quantified and non-quantified), time orientation (past, future and no time orientation) and impact (good news, bad news or neutral).

Accordingly, 13 risk disclosure indexes have been crafted to be used to test the different hypothesis. With the necessary adaptations, all indexes shown below have the content that we present for the index of total disclosures:

$$TRD = \sum_{i=1}^n fr_i$$

Where, for total risk disclosures:

TRD is the total number of risk disclosures observed

$n$  is the number total of companies in the sample

$fr_i$  is the number of risk disclosures observed in company  $i$

Table 1 shows the risk indexes considered.

Table 1

Disclosure indices

Disclosure Indices	
TRD	Number of risk disclosures
FR	Number of financial risk disclosures
NFR	Number of non-financial risk disclosures
QR	Number of quantified risk disclosures
NQR	Number of non-quantified risk disclosures
FT	Number of risk disclosures about future
PAS	Number of risk disclosures about past
WTOR	Number of risk disclosures with time outlook
NTOR	Number of risk disclosures without time outlook
POS	Number of risk disclosures with a positive impact
NG	Number of risk disclosures with a negative impact
IMP	Number of risk disclosures with impact
NT	Number of risk disclosures without impact

Source: self-elaboration

Data related with proxies for auditor size and control variables used in the OLS model were gathered directly from interim reports and audit fees was collected from 2014 annual reports (this information is not mandatory in interim reporting). Audit tenure was extracted from the annual report of corporate governance of listed entities in Portugal (CMVM, 2014) and industry type (Industry Classification Benchmark) was gathered from the Euronext's website, resulting in nine different industry types. Once existing literature refers different disclosure patterns for industrial and non-industrial firms (Elzahar & Hussainey, 2012), the nine types were collapsed into two, as follows: Industrial (Oil & Gas, Basic Materials, Industrials, Consumer Goods and Healthcare); Non-industrial (Consumer Services, Telecommunications, Utilities and Technology).

The proxies for audit quality together with control variables widely used in disclosure studies (size, leverage, profitability and industry type) were regressed in an OLS model as follows:

$$TRD = \beta_0 + \beta_1 AF_i + \beta_2 ATEN_i + \beta_3 AS_i + \beta_4 SIZE_i + \beta_5 LEV_i + \beta_6 ROE_i + \beta_7 IND_i + \varepsilon_i \quad (1)$$

Where:

TRD is the index of total risk disclosures

$\beta_0$  – The Intercept

$\beta_1 \dots \beta_7$  – Regression coefficients

AF is the expenditure with audit fees at year end 2014 for company *i*.

ATEN is the natural logarithm of the number of years that auditors of company *i* have in the year end 2014.

AS is a dummy variable that assume the value 1 if the auditor of company *i* in the year end 2014 is a BIG4 and the value 0 otherwise.

SIZE is the natural logarithm of Total Assets of company *i* in the 1H2014.

LEV is the ratio Total Debt/Total Assets of company *i* in the 1H2014.

ROE is Return on Equity calculated in the ratio Net Income/Equity of company *i* in the 1H2014. IND is a dummy variable that assumes value 1 if the company *i* belongs to an industrial activity sector and 0 otherwise.

$\varepsilon$  – Error term

## Results: analysis and discussion

### *Semantic features of corporate risk disclosures*

The descriptive statistics by risk category for the sample are included in Table 2 and Table 3. The univariate statistics of semantic features are also presented in Table 3.

There were found 7.649 risk related disclosures, of which 6.080 are non-financial risk disclosures. Results show a substantial dispersion meaning that firms in the sample do not have identical disclosures policies, in line with previous studies based on manual content analyses in small samples.

The average of the total risk disclosures was 218.54, an amount that should be interpreted in the context of the in-depth content analysis that has been performed.

Table 2  
Descriptive statistics by risk category

	Mean	St. Deviation	Min	Max	Total
TRD	218.54	165.13	47	668	7 649
FR	44.83	39.01	5	157	1 569
NFR	173.71	137.42	23	553	6 080

TRD = Total risk disclosure; FR= Financial risk disclosures; NFR = Non-financial risk disclosures

The number of quantified risk disclosures is higher than non-quantified risk disclosures; Risk disclosures about the past are significantly higher than about the future or without time outlook. Regarding impact, sampled companies disclosed 3.277 sentences with positive impact, 2.176 sentences with negative impact and 2.196 sentences without impact.

On average, companies disclosed more non-financial risk information than financial risk information, which allow for hypothesis 1 to be confirmed. This result is consistent with the one achieved by Dobler et al.(2011), Jia et al.(2016) and Linsley and Shrives (2006) on their studies on annual reports.

Regarding semantic features, we found that, on average, quantified risk disclosures are higher than non-quantified risk disclosures, so we must to reject the hypothesis 2. This important finding goes against patterns of risk disclosure found by previous studies in annual reports (Dobler et al., 2011; Jia et al., 2016; Linsley & Shrives, 2006; Oliveira et al., 2011).

There is no specific mandatory regulation that justifies this different pattern when compared to annual reporting. It can be argued that this is related to the nature of interim reporting intended to update the information disclosed on previous annual report and to inform about of the performance of that period. These reports are smaller in number of pages and have a higher focus on return and performance, matters that requires more quantified data. On the other hand, in the absence of a so mandatory and complete requirements as in annual reports, one can also argue that managers have no need to make boilerplate disclosure just for complying with regulation.

Concerning time orientation, risk disclosures referring to past events have been found in higher number than those referring to future events. Therefor the hypothesis 3 is confirmed in total risk disclosure index as well in financial and non-financial risk disclosure indices. This finding corroborates the results obtained by Beretta and Bozzolan (2004), Dobler et al.(2011) and Oliveira et al. (2011) in annual reports, being in line with theory prescribing that managers avoid legacy costs or reputation loss, which can arise from the disclosure of forward looking risk information, that, intrinsically, lacks reliability (Linsley & Shrives, 2006; Oliveira et al., 2011). On average, risk disclosures about the past or future exceed disclosures without time outlook, so the empirical evidence does not allow us to confirm the hypothesis 3a.

Table 3  
 Descriptive and univariate statistics

	Mean	Std. Desv.	Min	Max	Total	t	Sig.
TRD	218.54	165.13	47	668	7.649		
NFR	173.71	137.42	23	553	6.080		
FR	44.83	39.01	5	157	1.569		
NFR - FR						6.552	0.000***
NQR	93.71	93.19	16	354	3.280		
QR	124.83	83.88	21	325	4.369		
NQR - QR						-2.849	0.007**
FR_NQR	16.97	17.96	0	65	594		
FR_QR	27.86	26.32	3	115	975		
FR_NQR - FR_QR						-2.856	0.007**
NFR_NQR	76.74	82.64	8	349	2.686		
NFR_QR	96.97	65.14	9	257	3.394		
NFR_NQR - NFR_QR						-2.096	0.044*
WTOR	188.51	132.97	35	524	6.598		
NTOR	30.03	38.26	0	144	1.051		
WTOR - NOTR						8.931	0.000***
FR_WTOR	32.80	28.85	5	133	1.148		
FR_NTOR	12.03	18.90	0	84	421		
FR_WTOR - FR_NTOR						4.196	0.000***
NFR_WTOR	155.71	114.72	22	475	5.450		
NFR_NTOR	18.00	26.82	0	101	630		
NFR_WTOR - NFR_NTOR						8.648	0.000***
PAS	176.20	123.28	32	509	6.167		
FT	12.31	13.43	0	54	431		
PAS - FT						8.478	0.000***
FR_PAS	31.69	28.02	5	128	1.109		
FR_FT	1.11	1.53	0	5	39		
FR_PAS - FR_FT						6.639	0.000***
NFR_PAS	144.51	105.99	19	463	5.058		
NFR_FT	11.20	12.71	0	53	392		
NFR_PAS - NFR_FT						8.037	0.000***

TRD = Total risk disclosure; NFR = Non-financial risk disclosures; FR = Financial risk disclosures; NQR = Non-quantified risk disclosures; QR = Quantified risk disclosures; WTOR = Risk disclosures with time outlook; NTOR = Risk disclosures without time outlook; FT = Future risk disclosures; PAS = Past risk disclosures about past.  
 \*  $p < 5\%$ , \*\*  $p < 1\%$ , \*\*\*  $p < 0.1\%$ .



Table 3 (continuation)

Descriptive and univariate statistics

	Mean	Std. Desv.	Min	Max	Total	t	Sig.
IMP	155.80	120.22	26	489	5.453		
NT	62.74	53.04	11	226	2.196		
IMP – NT						6.460	0.000***
FR_IMP	27.14	23.85	2	114	950		
FR_NT	17.69	19.17	1	64	619		
FR_IMP - FR_NT						2.987	0.005**
NFR_IMP	128.66	104.35	17	420	4.503		
NFR_NT	45.06	39.45	6	163	1.577		
NFR_IMP - NFR_NT						6.381	0.000***
POS	93.63	77.52	16	349	3.277		
NG	62.17	49.89	10	183	2.176		
POS – NG						3.689	0.001***
FR_POS	14.54	12.92	0	55	509		
FR_NG	12.60	12.80	0	65	441		
FR_POS - FR_NG						1.193	0.241
NFR_POS	79.09	69.98	10	333	2.768		
NFR_NG	49.57	41.19	7	155	1.735		
NFR_POS - NFR_NG						3.641	0.001***

POS=Risk disclosures with a positive impact; NG=Risk disclosures with a negative impact; IMP=Risk disclosures with impact; NT=Risk disclosures without impact

\* p < 5%, \*\* p < 1%, \*\*\* p < 0.1%.

Regarding the impact of disclosures, risk disclosures with impact are significantly higher in number than risk disclosures without impact, so hypothesis 4a is rejected. Breaking down disclosures with impact we observe that disclosures of good news/positive impact surpass disclosures of bad news/negative impact rejecting the hypothesis 4. These results are consistent with Beretta and Bozzolan (2004), Linsley and Shrives (2006), Mohobbot (2005) and Rajab and Schachler (2009) in annual reports and support the argument that managers can hide bad news for managing their own image or interest (Clatworthy & Jones, 2003; Dobler, 2008; Linsley & Shrives, 2006) since they do not incur in legal or reputational costs.

Results are the same whether we consider total risk disclosures index or risk disclosures indexes by risk category (financial/non-financial). The only exception is the financial risk disclosure index, when comparing positive and negative impact of disclosures. In this case there is no statistical differences between good and bad news, in line with results of Oliveira *et al.* (2011).

#### *Determinants of corporate risk disclosure – audit quality*

The descriptive statistics of variables considered in the OLS model are presented in Table 4 and the correlation matrix is presented in Table 5.

Table 4  
Descriptive statistics of OLS independent variables

Portugal				
Pane A: Continuous variables				
	Mean	St. Deviation	Min	Max
LN_A	20.66	1.60	17.12	24.42
LEV	0.71	0.21	0.07	1.33
ROE	-2.20	16.81	-56.72	15.50
AF	524 813.29	1 008 234.87	51 867.00	5 925 202.00
ATEN	1.85	0.85	0.00	3.26
Pane B: Dummy variables				
	Dummy	N	%	
IND	0	16	46	
	1	19	54	
AS	0	4	11	
	1	31	89	

Notes: LN\_A: Natural log total assets, LEV: Leverage (Debt/Total Assets), ROE: Return on equity, AF: auditor fees, ATEN: auditor tenure, IND: industry, AS: auditor size (Big4).

Table 5  
Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Correlation (Pearson) among continuous variables								
(1) Total risk disclosure	1.000							
(2) Size	0.648***	1.000						
(3) Leverage	-0.134	-.131	1.000					
(4) Profitability	0.033	-.020	-.257	1.000				
(5) Audit fees	0.492**	0.589***	.029	.121	1.000			
(6) Auditor tenure	-.253	.049	-.128	.171	.186	1.000		
Panel B: Correlation (Spearman) between categorical and continuous variables								
(7) Audit type	.325	.218	.018	.062	.302	-.201	1.000	
(8) Industry	.048	.048	.296	.074	.102	.325	.211	1.000

\*  $p < 5\%$ , \*\*  $p < 1\%$ , \*\*\*  $p < 0.1\%$ .

All the OLS assumptions such as autocorrelation, multicollinearity, heteroscedasticity, outliers and influential observations, as well as normality of residuals were assessed to assure stability of the regression models.

Table 6  
 Results of regression models

	TRD			FR			NFR		
	B	t	VIF	$\beta$	t	VIF	$\beta$	t	VIF
Intercept		-1,861			-,724				
LN_A	0,492	2,979**	1,670	0,310	1,550	1,670	0,503	3,091**	1,670
LEV	-0,100	-0,698	1,247	-0,318	-1,839	1,247	-0,029	-0,209	1,247
ROE	0,050	0,366	1,150	-0,042	-,251	1,150	0,072	0,534	1,150
IND	-0,033	-0,226	1,319	0,187	1,055	1,319	-0,093	-0,644	1,319
AF	0,250	1,493	1,723	0,249	1,227	1,723	0,230	1,392	1,723
AS	0,067	0,497	1,127	-0,002	-,013	1,127	0,082	0,611	1,127
ATEN	-0,346	-2,42*	1,252	-0,063	-,362	1,252	-0,398	-2,824**	1,252
<i>Model fit</i>									
R <sup>2</sup>		,560			,354			,572	
Adjusted R <sup>2</sup>		,446			,186			,461	
F-statistic		4,903**			2,111			5,158***	
Durbin-Watson		1,817			2,035			1,850	

Notes: TDR: Total risk disclosure; FR: Financial risk disclosures; NFR: Non-financial risk disclosures; LN\_A: Natural log total assets; LEV: Leverage (Debt/Total Assets); ROE: Return on equity; IND: industry; AF: auditor fees, AS: auditor size (Big4); ATEN: auditor tenure.

\*  $p < 5\%$ , \*\*  $p < 1\%$ , \*\*\*  $p < 0.1\%$ .

Findings indicate that the regression model is statistically significant (F-statistic=4.903;  $p < 0.01$ ) for TRD with an explanatory power (adjusted R<sup>2</sup>) of 0.446.

Given the scarce research in interim reports, it must be taken into account that the data obtained are mostly compared to that obtained in the research in annual reports. TRD is positively related to size ( $p < 0.01$ ) confirming the existing literature findings (Elshandidy & Neri, 2014; Hassan, 2014; Madrigal *et al.*, 2015; Linsley & Shrives, 2006; Mohobbot, 2005; Ntim *et al.*, 2013; Oliveira *et al.*, 2011; Semper & Beltrán, 2009). Profitability (ROE) did not show association with risk disclosure indexes in line with Al-Shammari (2014), Elshandidy, Fraser, and Hussainey (2013) and Elzahar and Hussainey (2012). The same results were found for Industry type, opposed to findings of Amran *et al.* (2009), Elzahar and Hussainey (2012), but confirming those of Abraham and Cox (2007), Beretta and Bozzolan (2004) and Mokhtar and Mellett (2013). For firms risk (leverage), the negative association found also has no statistical significance, which is opposed to findings of Oliveira *et al.* 2011 and Hassan (2009), but confirms the results of Abraham and Cox (2007) and Amran *et al.* (2009) in annual reports.

Concerning proxies used for audit quality, size represented by Big4 was found to not have a relation with risk disclosure indexes which contradicts prior research from Mohd Ali and Taylor (2014) and Oliveira *et al.* (2011), who found a positive association, and Hassan (2014) and Ntim *et al.* (2013), who found a negative association, but is in line with Elshandidy and Neri (2014) and Buckby, Gallery and Ma (2015) who also did not found association. Audit fees also did not show association with risk disclosure indexes in opposition with findings of

Yang *et al.* (2017). Audit tenure revealed a negative association which means the sample firms disclosing more risk information are those with less auditor tenure. In this case, there is no previous research in risk reporting.

Despite the arguments presented previously on theoretical background, hypothesis H5 – auditor size, H6 – audit fees and H7 – auditor tenure are rejected for risk disclosure in interim reports.

We also run the regression model for Financial risk disclosures and Non-financial risk disclosures. In the non-financial risk disclosures index, findings are the same obtain with total risk disclosure index. The model for Financial Risk disclosure was not considered statistically significant. Table 7 summarizes hypotheses and results.

Table 7  
Summary of hypotheses

Nº	Hypotheses	Accept /Reject
H1	The number of non-financial risk disclosures is significantly higher than the number of financial risk disclosures	Accept
H2	The number of non-quantified risk disclosures is significantly higher than the number of quantified risk disclosures	Reject
H3	The number of risk disclosures related with past events is significantly higher than the number of risk disclosures related with future events	Accept
H3a	The number of risk disclosures with time orientation is not significantly different from the number of risk disclosures without time orientation.	Reject
H4	The number of risk disclosures with positive impact is not significantly different from the number of risk disclosures with negative impact.	Reject
H4a	The number of risk disclosures with impact is not significantly different from the number of risk disclosures without impact.	Reject
H5	There is a positive association between the number of risk disclosures and being audited by a Big4	Reject
H6	There is a negative association between the number of risk disclosures and the value of audit fees	Reject
H7	There is no association between the number of risk disclosures and the number of years the auditor has in the firm	Reject

Source: Self elaboration

## Conclusions, limitations and final remarks

The study addresses two main research questions: (i) whether the semantic features of corporate risk disclosures in the interim reports have the same trends that extent literature reveals for annual reports and (ii) whether the level of corporate risk disclosure in the interim reports is explained by audit quality.

In relation to our first research question, we can conclude that the interim report does not show the same trends of semantic characteristics of corporate risk disclosure compared to those

reported in the literature for annual reports. In fact, quantified risk disclosures are higher in number than unquantified risk disclosures, although the pattern of all others remains the same as in annual reports. Overall, these findings lead to the conclusion that the interim report can be considered less boilerplate. This can be explained by the unique nature of this type of report more focused on performance data and with more relaxed disclosure requirements. There is room for speculation on whether the absence of strong risk disclosure requirements leads managers to not disclose boilerplate.

Regarding the second research question, we did not find the size of the auditor and audit fees as explanatory factors of the amount of risk disclosure on interim reports, while the audit tenure revealed with an inverse relationship. All control variables with the only exception of size were found as not explanatory of risk disclosure indexes. Firms size was found to have a very strong effect on the level of risk disclosures confirming the trend widely observed in prior research (Dobler *et al.*, 2011; Madrigal *et al.*, 2015; Linsley & Shrides, 2006; Oliveira *et al.*, 2011) while neither profitability (ROE) nor Industry type explain risk disclosure. Also, firms risk (leverage) does not explain risk disclosure, thus, neither revealing nor concealing arguments referred to by Dobler (2008) are favored.

As two proxies of audit quality (Big4 and audit fees) were found to have no explanatory capacity and audit tenure revealed an inverse relation, we have to consider that, in this setting, firms risk disclosure policies are not influenced by auditors quality whether or not reputational auditor risk exists.

Manual content analysis is a very time-consuming process, resulting in smaller samples. This limitation can be overcome in the future using electronic content analysis tools. Also, despite rigor along all the process to achieve reasonable levels of reliability, subjectivity may always play a part. As in all similar empirical studies, these types of constraints have to be considered when interpreting results, setting conclusions and making generalizations. Furthermore comparing results with other empirical studies can be influenced by differences in samples, time periods, data gathering process and statistical methods applied.

This research has several empirical contributions which could be of interest for both academics and regulators. It contributes to fill the gap in research about risk disclosure in the interim report, identifying the nature of corporate risk disclosures and assessing the quality of risk information. It also updates research about determinants of risk disclosure in interim reports, namely observing the role of audit quality.

Considering the scant academic work about risk disclosure in interim reports, we encourage future studies to observe other settings comparing results of different countries and enlarging the scope of the determinants of risk disclosure.

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