Risk-related Disclosures by Non-finance Companies: Portuguese Practices and Discloser Characteristics

Abstract

Purpose — We assess the risk-related disclosure practices in annual reports for 2005 of Portuguese companies in the non-finance sector.

Design/methodology/approach — We conduct a content analysis of a sample of 81 companies (42 listed and 39 unlisted). In considering corporate governance effects, the sample is reduced to the 42 listed companies that are required to disclose a corporate governance report.

Findings —Implementation of IAS/IFRS and the European Union's Modernisation Directive in 2005 did not affect the quantity and quality of risk-related disclosures positively. Disclosures are generic, qualitative, and backward-looking. Public visibility (as assessed by size and environmental sensitivity) is a crucial influence in explaining risk-related disclosures: companies appear to manage their reputation through disclosure of risk-related information. Agency costs associated with leverage are important influences also. In listed companies, the presence of independent directors improves the level of risk-related disclosures.

Research limitations —Content analysis does not allow readily for in-depth qualitative inquiry. The coding instrument is subject to coder bias. Information about risk can be provided in sources other than annual reports. The study is confined to one year/one country and pre-dates the global financial crisis (2008) and the implementation of IFRS 7 (2007).

Originality/value — The results point to the desirability of enhancing accountability by mandating further disclosure of substantive and relevant risk-related information in company annual reports. The risk-related disclosures observed are shown to be explained by a confluence of agency theory, legitimacy theory and resources-based perspectives.

Key Words: Risk, Management, Agency, Legitimacy, Resources-based, Portugal

Paper type: Research paper

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Risk-related Disclosures by Non-finance Companies: Portuguese Practices and Discloser Characteristics

Introduction

There have been many calls to reduce asymmetries of access to corporate information and to improve the measurement and disclosure of risk-related matters (Szegö, 2002; Beretta & Bozzolan, 2004; Mohobbot, 2005). Such calls have been prompted by the inadequacy of risk reporting practices (Solomon *et al.*, 2000).

Most existing studies of risk-related disclosures [RRD] are based on empirical evidence from Anglo-Saxon, Dutch and Germanic countries (Abraham & Cox, 2007; Carlon *et al.*, 2003; Deumes & Knechel, 2008; Kajüter, 2006; Lajili & Zéghal, 2005; Lajili, 2007; Linsley & Shrives, 2006); French and Latin countries (Beretta & Bozzolan, 2004; Combes-Thuélin *et al.*, 2006); Asia-Pacific countries (Amran *et al.*, 2009; Mohobbot, 2005); and Arab countries (Hassan, 2009). Generally, these prior studies have found that RRD are vague, generic, qualitative, backward looking, and inadequate for the information needs of stakeholders.

Previous literature has focused mainly on explaining RRD in terms of stakeholder theory (Anram *et al.*, 2009), institutional theory (Hassan, 2009) or agency theory (Abraham & Cox, 2007; Deumes & Knechel, 2008; Lajili, 2007). The present study is a response to the call by Roberts *et al.*, (2005, p. 6) "for greater theoretical pluralism and more detailed attention to board processes and dynamics." We proceed by proposing a theoretical framework based on a confluence of agency theory, legitimacy theory and resources-based perspectives. Such a framework was suggested by Roberts *et al.* (2005) and Aguilera (2005) but has not been used hitherto. We use this framework to address the thinness of empirical evidence by analysing disclosures of risk exposures and risk management practices in the annual reports for 2005 of non-finance companies

registered by the Portuguese Stock Exchange regulator, *Comissão do Mercado de Valores Mobiliários* [CMVM]. Thus, we aim to ameliorate the incompleteness of prior research studies, and do so in the context of a different (and under-researched) European Latin country, Portugal.

In the accounting regulatory setting in Portugal in 2005, Portuguese listed companies became obliged to comply with International Accounting Standards [IAS/IFRS] and the Modernisation Directive (Directive 2003/51/EC) of the European Parliament and Council (enacted into Portuguese law by Decree-law 35/2005). These two regulatory initiatives demanded extra RRD. A setting of regulatory change such as this has not featured previously in descriptive risk-related disclosure studies of non-finance companies. Findings reported in previous literature relate to periods prior the implementation of IAS/IFRS or the Modernisation Directive in 2005. The timing of the present study will help to determine whether the adoption of these two regulatory initiatives affected the quantity and quality of RRD positively.

Our results reveal that the adoption of IAS/IFRS and the Modernisation Directive did not affect the *quantity* and *quality* of RRD positively. Risk information disclosures were mainly vague, generic, qualitative, backward-looking, dispersed throughout the annual report, and inadequate for the information needs of stakeholders. They confirm the results of Beretta and Bozzolan (2004), Carlon *et al.* (2003), Combes-Thuélin *et al.* (2006), Kajuter (2006), Lajili and Zéghal (2005), and Linsley and Shrives (2006). Important influences on RRD are found to be reputation and litigation costs in companies with high public visibility (typically large companies in environmentally sensitive industries) and often with high levels of leverage. Agency costs were found likely to be reduced by the engagement of a Big4 auditing firm. When considering the

sub-sample composed only of the 42 listed companies, the monitoring provided by independent directors also appeared to reduce agency costs.

In the following section we develop an analytical framework to contextualise the regulatory setting in Portugal, review previous literature, and develop hypotheses for testing. Thereafter, we explain our research method, report results, and present conclusions.

Analytical Framework

Regulatory Background

For financial years starting on January 1, 2005, Regulation 1606/2002 of the European Commission required companies with securities traded on a regulated market to prepare consolidated accounts in accord with IAS. Accounting treatments for financial risks were established by such standards as IAS 1 (*Presentation of Financial Statements*), IAS 32 (*Financial Instruments: Presentation*) and IAS 39 (*Financial Instruments: Recognition and Measurement*). These standards focused mainly on financial risk exposures and financial risk management policies. Other risk factors which could arise from contingent liabilities or contingent assets were dealt with by IAS 37 (*Provisions, Contingent Liabilities and Contingent Assets*). IFRS 7 (*Financial Instruments: Disclosures*) became obligatory after January, 2007, although its adoption before 2007 was recommended.

In 2005, companies not having securities traded on the Portuguese capital market were required to prepare their annual accounts in accord with the Portuguese Accounting Plan [PAP]. Additional mandatory risk-related disclosures were required by Accounting Directives [AD] such as AD 17 (*Future Contracts*), AD 27 (*Segmental Reporting*), and AD 29 (*Environmental Issues*). Non-finance companies were also

required to comply with some RRD demanded by corporate governance practice recommendations issued by the CMVM[1]. Further, in 2005 the enactment into Portuguese law of the Modernisation Directive of the European Parliament and Council required companies to describe their main risks and uncertainties in the management report. In respect of financial instruments companies were required also to describe their financial risk exposures and risk management activities related to financial risks.

In this study, risk information disclosures are classified as mandatory if they are provided as a consequence of an explicit accounting rule or security exchange requirement. If the disclosed item involves management's judgment or discretion in terms of materiality and significance, it is classified as voluntary[2].

Prior Literature on Risk-Related Disclosures

Several studies have noted the inadequacy and vagueness of RRD. Carlon *et al.* (2003) found that the application of risk reporting requirements related to financial instruments was diverse, and that there was a large variation in the content and detail of voluntary risk reporting by Australian mining companies. In Italian and Canadian listed companies, voluntary RRD were mainly qualitative and focused on past and present risks rather than future risks (Beretta & Bozzolan, 2004; Lajili & Zéghal, 2005). Linsley and Shrives (2006) found that RRD by UK listed companies were mainly qualitative, but that they were prone to report forward-looking risk information. Kajüter (2006) found that mandatory RRD of German companies in management reports was vague; that few RRD were precise and detailed; that most risks were described insufficiently; and that it was difficult to distinguish risks in terms of criticality. Some other studies have commented on the difficulty of assessing company risk profiles because of unstandardized presentation of risk in annual reports and because of the dispersal of

RRD throughout the annual report (Combes-Thuélin *et al.*, 2006; Linsley & Shrives, 2006).

Studies of motivations for RRD have focused mainly on exploring voluntary disclosures of internal controls (Deumes & Knechel, 2008); voluntary RRD in annual reports and MD&A sections (Mohobbot, 2005; Beretta & Bozzolan, 2004); mandatory RRD in the management report (Kajuter, 2006); and voluntary and mandatory RRD in annual reports (Abraham & Cox, 2007; Amram *et al.*, 2009; Hassan, 2009; Lajili, 2007; Linsley & Shrives, 2006).

We adopt a broad concept of risk (including downside risk and upside risk) by considering whether risk is perceived as a threat (bad news) or as an opportunity to mitigate risk (good news). We regard risk to be any opportunity or prospect (or any hazard, danger, harm, threat or exposure) that has affected the economic and financial situation of a company or may affect it in the future. Risk is regarded to include actions taken to manage, mitigate or deal with any opportunity, prospect, hazard, harm, threat, or exposure; and the description and evaluation of internal control system effectiveness. We draw on findings of that companies make more risk management disclosures than risk disclosures in an attempt to promote an image of pro-active management (Combes-Thuélin *et al.*, 2006),

Literature on RRD can be divided into three major groups, according to how the dependent variable is measured. As shown in Table 1, prior studies have used content analysis to build the dependent variable using sentences as the recording unit (Amran *et al.*, 2009; Beretta & Bozzolan, 2004; Kajüter, 2006; Lajili, 2007; Linsley & Shrives, 2006; Mohobbot, 2005), or words (Abraham & Cox, 2007), or disclosure indexes (Deumes & Knechel, 2008; Hassan, 2009). The present study uses sentence counts.

(Insert Table 1 about here)

Motives for RRD have been explained by agency theory, political costs theory, stakeholder theory, signalling theory, institutional theory, and a proprietary costs perspective (Kajuter, 2006; Mohobbot, 2005). Hassan (2009) used the institutional theory notion of social legitimacy; Amran *et al.*, (2009) drew upon stakeholder theory; and Abraham and Cox (2007), Deumes and Knechel (2008), and Lajili (2007) used agency assumptions to explain motivations for RRD. Table 1 presents the explanatory variables and empirical findings of each of the major studies. Some conflicting results are revealed. The studies explain several identical relationships between explanatory variables and the dependent variable, but by recourse to different theories. The present study conciliates this theoretical conflict by proposing a theoretical framework that has been suggested in prior literature, but not tested: that is, by explaining RRD as being grounded in agency theory, legitimacy theory and resources-based perspective (Roberts *et al*., 2005; Aguilera, 2005).

Development of Hypotheses

Agency theory

Agency theory explains how information asymmetry between shareholders, managers and creditors can be reduced by monitoring the opportunistic attitudes of managers. (Jensen & Meckling, 1976). If shareholders and creditors do not observe companies' risk management activities directly, they will tend to institute monitoring systems to increase the flow of information about those activities, and to reduce uncertainty (Linsmeier *et al.*, 2002). In the absence of such monitoring mechanisms, managers seem more likely to perform opportunistically by withholding relevant information or by manipulating reporting to their advantage by making misleading disclosures (Latham & Jacobs, 2000). Four monitoring mechanisms (discussed below) are: the nature of the

specific ownership structures (Abraham & Cox, 2007; Deumes & Knechel, 2009; Kajüter, 2006; Lajili, 2007); the way the board of directors is composed (especially in terms of the number of independent non-executive directors) (Abraham & Cox, 2007; Lajili, 2007; Deumes & Knechel, 2008); the independence of audit committees (Fraser & Henry, 2007), and the type of external auditor appointed (Oliveira *et al.*, 2004).

Ownership Structure

In more concentrated ownership structures, agency costs are usually lower than in more diffuse structures involving outside ownership (Jensen & Meckling, 1976; Ball *et al.*, 2000; Deumes & Knechel, 2008). Because larger shareholders play an active role in monitoring and controlling a firm, and are more willing to discipline poorly performing management, they can mitigate agency costs by intervening actively (Birt *et al.*, 2006). Thus, there is less need for RRD. In more diffuse structures, agency problems increase because small shareholders find it more difficult to monitor the activities of management (Barako *et al.*, 2006), and so greater levels of disclosure are expected.

However, the literature offers two opposing views of the relationship between ownership structure and voluntary disclosure: convergence of interests and management entrenchment. Jensen and Meckling (1976) suggest that when the shareholding of the largest shareholder is high, and outside investors perceive that he/she behaves to maximize firm value, convergence of interests between them can occur. Outside investors will impose fewer contractual constraints on the firm, reducing agency costs**.** Since agency costs are lower there will be weaker incentives for the largest shareholder to manipulate or withhold information. There will be incentives to maintain levels of disclosure consistent with the maximization of firm value. Therefore, a positive relationship is expected between owners' holdings and disclosure.

In the case of management entrenchment, Morck *et al.* (1988) argue that moral hazard problems will occur and information asymmetries increase, so that consequently, a negative relation between insider holdings and disclosure should be expected.

Furthermore, Jung and Kwon (2002) present opposing views of the role of institutional holders/blockholders: active monitoring and strategic alignment. If institutional holders/blockholders are seen as long-term investors they can work as effective devices of monitoring management. Thus, a positive relation between their shareholdings and disclosure is expected. But under the strategic alignment hypothesis, institutional holders/blockholders and owners cooperate, thereby reducing monitoring, such that a negative relationship is expected between their holdings and disclosure. Bushee and Noe (2000) contend that the relationship between voluntary disclosure and ownership structure depends on the investment planning strategies of institutional investors.

Previous RRD literature has found divergent results. Lajili (2007) and Kajuter (2006) found negative relations. Abraham and Cox (2007) found negative and positive relations, and Mohobbot (2005) did not find any relation at all.

Hypothesis 1: There is an association between concentrated ownership structures and the volume of RRD in an annual report.

Independent Non-Executive Directors

Theoretically, independent non-executive directors monitor the activities of executive directors indirectly (Donnelly & Mulcahy, 2008). But non-executive directors are exposed to higher levels of risk, personally. This is because, by acting as corporate outsiders, they usually have little involvement in a company's daily management (Lim *et al.*, 2007). They have incentives to demand the disclosure of more information to

balance the levels of risk to their personal reputation. In theory, independent non-executive directors are not influenced by corporate insiders. Thus, a higher level of disclosure can be expected from companies with a higher proportion of independent directors (Lopes & Rodrigues, 2007). Consequently, to reduce agency costs, companies with a higher percentage of independent directors will be prone to disclose more information.

Hypothesis 2: There is a positive association between the proportion of independent (non-executive directors) on the board and the volume of RRD in an annual report.

Audit Committee Independence

As companies become larger, complex and diversified, it becomes more difficult for boards to retain effective control and to manage risks. As a consequence, responsibility for control is often delegated to employees. Where such delegation occurs, it is understandable that boards would require support from organization-wide monitoring mechanisms, such as audit committees (Fraser & Henry, 2007). However, for an audit committee to be effective it should be independent and include non-executive directors (Turley & Zaman, 2004). Therefore, companies with a higher proportion of non-executive directors serving on their audit committee are likely to attach greater importance to RRD and to the reduction of agency costs.

Hypothesis 3: There is a positive association between audit committee independence and the volume of RRD in an annual report.

Auditor Type

Companies with high agency costs tend to contract higher quality auditing firms — the Big4 international auditing firms (Jensen & Meckling, 1976). These larger and well-known auditing firms tend to encourage companies to disclose more information to maintain the audit firms' reputation and avoid reputational costs to them (Chalmers & Godfrey, 2004).

Hypothesis 4: There is a positive association between the engagement of a Big4 international auditing firm and the volume of RRD in an annual report.

Leverage

Companies with high levels of debt tend to be highly leveraged, more speculative and riskier. Debt-holders have greater power over the financial structure of such companies. From an agency theory perspective, creditors of highly leveraged companies have strong incentives to encourage management to disclose more information (Amran *et al.*, 2009). Most prior literature has not found any significant relationship between RRD and leverage (Abraham & Cox, 2005; Amran *et al.*, 2009; Linsley & Shrives, 2006; Mohoboot, 2005). A possible explanation seems likely to be that monitoring information can be furnished by means other than in the annual report (Leuz *et al.*, 2004).

Hypothesis 5: There is an association between leverage and the volume of RRD in an annual report.

Legitimacy theory and resources-based perspective

Managers have incentives to increase the transparency of RRD by conforming to rules and stakeholder expectations. Stakeholders are interested in RRD because they "supply critical resources, *place something of value 'at risk'*, and have sufficient power to affect the performance of the enterprise" (Post *et al.*, 2002, p. 8, italics applied).

Resources-based perspectives address the link between a firm's valuable resources and its performance (Branco & Rodrigues, 2006a). To be valuable, resources should be difficult to imitate and, therefore, help in developing competitive advantages. One such valuable resource is corporate reputation— an intangible asset that is nurtured to fulfil stakeholders' expectations and attract investors and resources (Galbreath, 2005). Stakeholders "will come to the firm attracted by the information content of its reputation" (Sabaté & Puente, 2003, p. 281). Therefore, the economic rationale for building corporate reputation is to "reflect the extent to which external stakeholders see a firm as 'good' and not 'bad'" (Roberts & Dowling, 2002, p. 1078).

Like legitimacy, reputation must be gained, maintained or restored (Suchman, 1995). Greater levels of public visibility imply a greater level of stakeholders' interest. Consequently, greater levels of legitimacy and corporate reputation will be required to manage the crucial stakeholders who provide resources to organizations and affect their ability to operate (O'Sullivan & O'Dwyer, 2009). This legitimation process rests strongly on the influential perceptions of crucial stakeholders of the firm's actions and activities, based on a specified level of public disclosure (O'Sullivan & O'Dwyer, 2009). Disclosure of risk information will help to ameliorate litigation risks and potential reputational damages. Thus, legitimacy is maintained through a legitimation process to manage corporate reputation and achieve the best interests of stakeholders by disclosure (Bebbington *et al.*, 2008). Commonly, proxies for public visibility have included size, and industry variables (Branco & Rodrigues, 2008a, 2008b).

Size

Brammer and Pavlin (2008, p. 124) argue that "larger firms (...) tend to be more visible to relevant publics [crucial stakeholders]." It is likely that larger companies will consider RRD as a way to enhance corporate reputation through disclosure. This is because greater levels of public visibility imply a closer scrutiny from stakeholders (Amram *et al.*, 2009; Branco & Rodrigues, 2008a).

Hypothesis 6: There is a positive association between company size and the volume of RRD in a company annual report.

Environmental Sensitivity

Risks are firm-specific (Beretta & Bozzolan, 2004). Manufacturing industries and politically and environmentally sensitive industries (such as oil, gas, or high technology) are prone to disclose more information (Brammer & Pavlin, 2008; Cooke, 1992; Hannifa & Cooke, 2002). Environmentally sensitive companies have greater social pressures in terms of stakeholder scrutiny. Managers of such companies have incentives to make more RRD to influence stakeholders' perceptions of corporate reputation and management skills.

Hypothesis 7: There is a positive association between the level of environmental sensitivity in an industry and the volume of RRD in the annual reports of companies in that industry.

Control variables

Company Listing Status

Company listing status has been used as a proxy for public visibility (Branco & Rodrigues, 2006b; Leventis & Weetman, 2004). Listed companies are considered to be more visible than other companies, they tend to receive more attention from the general public and are subject to more extensive media coverage (Branco & Rodrigues, 2006b). But, listed companies usually have greater agency costs (Oliveira *et al.*, 2006; Lopes & Rodrigues, 2007). Thus, greater levels of RRD are expected.

Accounting Standards

The accounting standards adopted can generate different levels of disclosure. In our sample some companies adopted the PAP, and others adopted IAS/IFRS for the first time.

Research Method

Sample

We analysed RRD in the consolidated annual reports for 2005 of a sample of 81 Portuguese companies registered by the CMVM[3]. Our sample comprised all 42 non-finance companies listed on the regulated Euronext Lisbon market as at December 31, 2005, together with 39 non-finance companies not listed on any regulated market. When considering corporate governance effects, our sample was reduced to the 42 listed companies, since only listed companies are required to disclose a corporate governance report.

Dependent Variables

We used content analysis to quantify RRD. Our specific measure was formulated from categories used by Abraham and Cox (2007). We developed three risk exposure

categories: financial risk [FR], non-financial [NFR], and risk management framework [RMFW]. These categories were used to calculate the dependent variable: risk-related disclosure level.

Four semantic properties of the information disclosed were used in the content analysis:

- *economic sign* (monetary/non-monetary);
- *type of measure* (past/future);
- *outlook* (good/bad/neutral); and
- *type of disclosure* (voluntary/mandatory) (Beretta & Bozzolan, 2004; Linsley & Shrives, 2006).

Abraham and Cox (2007) used words as the recording unit and only analysed the narrative content. We assess the narrative content of the annual reports using sentences as the recording unit, in view of the findings of Milne and Adler (1999) that sentences are more reliable than words and pages in capturing thematic approaches. Information in graphs and tables was coded after establishing specific decision rules based on methods used by Linsley and Shrives (2006) and Beattie and Thomson (2007). The risk-related disclosure level for the j^{th} company was calculated as:

$$RRDj = \sum_{i=0}^{sa} fr_{ij} + \sum_{i=0}^{sa} nfr_{ij} + \sum_{i=0}^{sa} rmfw_{ij}$$

where

fr_{ij} = number of financial risk sentences for the sentence attribute i in the j^{th} company;

nfr_{ij} = number of non-financial risk sentences for the sentence attribute i in the j^{th} company;

$rmfw_{ij}$ = number of risk management framework sentences for the sentence attribute i in the j^{th} company; and

sa = number of sentence attributes (sa = 24).

To assure the reliability of the content analysis, we followed the methods outlined by Krippendorf (2004). Our coding drew upon procedures used by Lajili and Zéghal (2005), and Linsley and Shrives (2006). Content analysis of the entire sample was performed by the first author, informed by his prior coding of an initial sample of five annual reports with another (independently operating) coder. The prior coding helped refine a set of pre-established decision rules which were then applied to another sample of five annual reports that were coded independently by the two coders. Scott's *pi* measure of inter-rater reliability was 0.81 — a level considered acceptable in analysis of corporate report disclosures (Hackston & Milne, 1996).

Independent and Control Variables

Table 2 presents definitions of independent variables and control variables, together with the signs of these variables as they are likely to be predicted by agency theory, legitimacy theory and resources-based perspective.

(Insert Table 2 about here)

Consistent with Deumes and Knechel (2008), and Lajili (2007) we used shareholdings greater than 10 per cent [TOP10], and minority controlling votes [MCV] (assessed by the highest proportion of voting rights that belong to a single shareholder), as proxies for ownership structures. These two proxies were highly correlated. A principal component analysis was also applied and an ownership structure index was computed to overcome potential collinearity. Only one component, explaining 87 per cent of the total variance, was extracted (Eigenvalue>1). The principal components analysis was validated by the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO = 0.50) and Bartlett's test of sphericity (χ^2 = 58.67; $p \leq 0.01$). Internal

consistency was corroborated by the high level of Cronbach's Alpha (0.85). The component extracted represents a unique composite ownership structure index for the j^{th} company:

$$OWNERSHIP\ STRUCTURE_j = 0.931*TOP10_j + 0.931*MCV_j$$

The variable "independent non-executive directors" was proxied by the proportion of independent non-executive directors on the board (Deumes & Knechel, 2008).

The variable "audit committee independence" was proxied by the proportion of non-executive directors to total board members.

The variable "auditor type" was measured by a dummy variable that was assigned 1 if the auditing firm was a Big 4 firm, and 0 otherwise (Deumes & Knechel, 2008; Lopes & Rodrigues, 2007; Oliveira *et al.*, 2006).

"Leverage" was measured by the ratio of total debt to total assets (Abraham & Cox, 2007; Amran *et al.*, 2009; Deumes & Knechel, 2008; Hassan, 2009).

"Size" was assessed using the variables total assets [TA], total sales [TS] and number of employees [NE] (Branco & Rodrigues, 2008a, 2008b). These size variables were highly correlated. Principal component analysis was applied to generate an index for size. Only one component, explaining 88 per cent of the total variance, was extracted (Eigenvalue > 1). The principal components analysis was validated by the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO = 0.73) and Bartlett's test of sphericity (χ^2 = 208.03; $p \leq 0.01$). Internal consistency was corroborated by the high level of Cronbach's Alpha (0.93). The component extracted represented a unique composite size index for the j^{th} company:

$$SIZE_j = 0.928*TA_j + 0.963*TS_j + 0.929*NE_j$$

"Environmental sensitivity" was measured by assigning 1 if the company belonged to an environmentally sensitive industry (such mining, oil and gas, chemicals, construction and building materials, forestry and paper, steel and other metals electricity, gas distribution and water), and 0 otherwise (Branco & Rodrigues, 2008b).

Control Variables

A "company's listing status" was assigned 1 if the company was listed on one or more regulated stock exchange markets, and 0 otherwise.

The variable "Accounting Standards" was measured by considering the accounting frame of reference adopted by each company in 2005. Companies which adopted IAS/IFRS were assigned 1, and 0 otherwise.

Empirical models

The estimation models test whether factors associated with agency theory [A] and legitimacy theory and resources-based perspective [LRb] affect the volume of RRD in company *j* when we control for other company-level drivers of disclosure [C].

$$RRD_j = f\,(A_j, LRb_j, C_j) + \upsilon_j$$

Results

Descriptive Analysis

Table 3 (Panel A) identified 3,582 sentences containing RRD: 1,323 were of FR factors, 1,860 were of NFR factors, and 399 were of RMFW factors.

(Insert Table 3 about here)

RMFW disclosures included descriptions of risk management systems (usually provided in corporate governance reports). Although this type of information is important from a legitimacy perspective (Bhimani, 2009) it is unlikely to help readers understand whether the internal control system is effective, since it was descriptive, generic and often vague.

The top band of Table 3 (Panel A) shows that the total number of sentences of bad news disclosure (n=1,548) and good news disclosure (n=1,611) are almost equal. These results are at odds with prior findings of higher levels of good news disclosures (Linsley & Shrives, 2006). However, they are consistent with agency theory, legitimacy theory and resources-based perspectives: that is, managers promote an image of pro-activity by disclosing almost the same levels of risk and risk management information in order to reduce asymmetries (Combes-Thuélin *et al.*, 2006).

About one third of risk disclosures were followed by discussion of how those risks are managed. If markets believe implicitly that "no news is bad news", and if companies did not disclose bad news, this would be interpreted as hiding some problems (Lundholm & Winkle, 2006). Therefore, in accord with legitimacy theory and resource-based perspectives, managers decrease reputation costs by disclosing bad news to increase the credibility of their reporting (Deegan & Gordon, 1996; Skinner, 1994).

The second band of Table 3 (Panel A) shows that backward-looking RRD are much more frequent than forward-looking disclosures. These results are consistent with Beretta and Bozzolan (2004) and Lajili and Zéghal (2005), but are inconsistent with Linsley and Shrives (2006). These findings are also consistent with legitimacy theory and resources-based perspectives incentives: backward-looking information usually is more reliable and has less potential to harm reputation.

The third band of Table 3 (Panel A) shows a much greater frequency of non-monetary RRD than monetary disclosures, consistent with Beretta and Bozzolan (2004), Lajili and Zéghal (2005), and Linsley and Shrives (2006). About a quarter of all RRD are quantitative, divided equally between tabular and narrative disclosures. About three quarters of the tabular information disclosed liquidity difficulties and provided details of counterparty default. The desire of managers to engage in non-monetary disclosures helps convey understanding of their performance, aids legitimation, and promotes a good reputation and image – all in accord with legitimacy theory and resources-based perspectives.

The fourth and bottom band of Table 3 (Panel A) shows that voluntary NFR disclosures are much greater than mandatory disclosures. From a legitimacy and resources-based perspective, NFR disclosures are important: they provide information about business risks such as strategic, operational, and environmental risk. This is helpful to stakeholders in assessing whether a business is performing according to their expectations. Mandatory FR disclosures are significantly greater than voluntary disclosures.

Table 3 (Panel B) presents the tests of the differences in the means (medians) of risk-related sentence attributes for each risk-related category, and confirms previous discussion.

Table 4 shows the mean number of RRD sentences was 44.22 (range 4 to 143, s.d. 30.79). Some companies made very few disclosures. Of the 81 company annual reports analysed, only two disclosed principal risks and uncertainties clearly. Only 15 aligned strategy with risk disclosure.

(Insert Table 4 about here)

Generally, most companies did not distinguish between company-specific risks, industry-specific risks, and general risks. Only one third of companies discussed risk matters in a special section of the management report or in the notes. Only two companies included information about negative changes on external ratings; and only four entered clear conclusions about the effectiveness of their internal control systems. Two companies identified the models used to measure risk (internal scorings, stress scenarios, repricing gap and liquidity gap). Three companies disclosed the use of VaR (or similar) statistics (Earnings-at-Risk, Cash flow-at-Risk) to measure risk and discussed the statistical method used (Monte Carlo simulation or Risk Metrics), the range of confidence (95 or 99 per cent), and the holding period (5 days, 10 days or 3 months). One company disclosed a quantitative VaR threshold. Two companies disclosed the results of sensitivity analysis related to foreign currency and interest rate risks, but did not explain the methods and assumptions used. In general, the RRD seemed perfunctory. They were probably unhelpful in informing investors about the impact of each risk factor on company performance.

Table 4 shows that the proportion of independent directors (mean = 0.14) on the board is very low compared to the proportion recommended by the CMVM of 0.25. The independence of the audit committee (mean = 0.36) is also low, possibly impairing RRD. The mean values for ownership structure confirm that Portugal has many family-dominated companies with a complex network of ownership, and a substantial number of shares owned by other companies or one single shareholder (mean = 0.57) (Mota, 2003). The variables for proportion of independent directors and for audit committee independence were only computed for listed companies (N = 42) because only listed companies disclose this information in their corporate governance reports.

Bivariate Analysis

Pearson correlation coefficients were determined among continuous variables and Spearman correlation coefficients were determined between categorical and continuous variables, as presented in Table 5. The magnitude of the correlation coefficients and value inflated factors suggests that multicollinearity is minimal (Table 5).

(Insert Table 5 about here)

Correlations between independent variables and RRD are significant (p-value < 0.01) for independent non-executive directors, audit committee independence, size, auditor type (p-value < 0.05) environmental sensitivity, (p-value < 0.1) ownership structure, and leverage, all with signs as predicted. Positive and significant (correlations p-value < 0.01) were found between the control variables and RRD.

Multiple Regressions

OLS multiple regressions were used to test the interrelationship between the various independent and control variables and RRD. The assumptions underlying the regression models were tested for autocorrelation, multicollinearity, heteroscedasticity, outliers and influential observations, and the normality of residuals. Four influential observations were removed from the analysis. The Kolmogorov-Smirnov Lilliefors test suggested that the raw dependent variables and the continuous independent variables were not distributed normally. Therefore, before running the regression models, dependent variables and continuous independent variables were transformed to normal scores using Blom's transformation (Cooke, 1998).

Table 6 shows that the regression model for listed and unlisted companies is statistically significant (p-value < 0.01) for RRD ($adj.\ R^2 = 0.26$)[4].

(Insert Table 6 about here)

RRD is associated positively with size (p-value < 0.01), environmental sensitivity (p-value < 0.05), auditor type (p-value < 0.1), leverage (p-value < 0.1), and company listing status (p-value < 0.1). Hypotheses H4, H5, H6 and H7 are supported. According to legitimacy theory and resources-based perspective, larger companies, and companies with higher levels of environmental sensitivity, disclose more risk-related information to manage stakeholders' perceptions about corporate reputation. According to agency theory, leveraged companies, and companies audited by Big4 auditing firms, disclose more risk-related information to reduce agency costs. Listed companies disclose more risk-related information than unlisted companies — this can be explained either by legitimacy theory or agency theory.

The variable, accounting standards, is not statistically significant. The adoption of IAS/IFRS did not affect levels of RRD positively.

Prior literature has found positive and significant associations between RRD and independent non-executive directors (Abrahamson & Cox, 2007; Lajili, 2007). Using the sub-sample of the 42 listed companies, Table 6 shows that the regression model is significant (p-value < 0.01) for RRD (*adj.* R^2 = 0.32). RRD is associated positively with independent non-executive directors (p-value < 0.05). This supports H2. According to agency theory, independent non-executive directors are important in reducing agency costs. This may be the reason why H1 is not supported. In an encouraging sign, it appears they are pressing for disclosure even in companies with concentrated ownership. H3 (audit committee independence) was not supported. But, in most cases, the non-executive director members of the audit committee were independent.

Table 7 summarises the results of our hypothesis testing. Public visibility (size and environmental sensitivity) is associated positively with total RRD, consistent with the legitimacy and resources-based perspectives adopted in this paper. The variables leverage and auditor type are positively associated with total RRD, as is independent non-executive directors, but in listed companies only. This result is consistent with agency theory.

(Insert Table 7 about here)

Results for ownership structure are consistent with Abraham and Cox (2007), Bushee and Noe (2000), and Mohobbot (2005), all of whom did not find any relation between ownership structure and RRD. Abraham and Cox (2007) and Bushee and Noe (2000) conclude that non-significant results are related to the investment planning strategies of institutional investors.

The non-significant relation between RRD and audit committee independence is consistent with Turley and Zaman (2004) who report that the effect of audit committee in controlling agency costs associated with high leverage is inconclusive. From the viewpoint of Fraser and Henry (2007) the contribution of audit committee independence to enterprise risk management is unclear. This corroborates Spira's (2003) call for more research to investigate the benefits of audit committees.

Conclusions

Our results support explanations of RRD that are based on a combination of agency theory, legitimacy theory and resources-based perspectives. Public visibility, assessed by size and environmental sensitivity, is a crucial part of company strategy to enhance legitimacy and manage corporate reputation through disclosure of risk-related

information. Additionally, agency costs associated with leverage and the engagement of a Big4 international auditing firm are also important in explaining RRD. Based on an analysis of 42 listed companies, we conclude that independent non-executive directors are important in reducing agency costs in terms of RRD.

Our results also confirm that the adoption of high quality accounting standards (IAS/IFRS) did not render any improvement in the *quantity* of RRD. Similarly, the adoption of the Modernisation Directive did not improve the *quality* of RRD. We reveal Portuguese companies in the non-finance sector as adopting generic risk reporting practices that lack comparability and transparency. Consequently, reader usefulness is impaired. This is consistent with prior research that has found a special focus on qualitative RRD (Beretta & Bozzolan, 2004; Lajili & Zéghal, 2005; Linsley & Shrives, 2006) and backward-looking RRD (Beretta & Bozzolan, 2004; Lajili & Zéghal, 2005). However, our results differ from Linsley and Shrives (2006) who, in a UK context, found RRD focused on forward-looking and good news information. The difference can be attributed to the divergent environmental contexts of the studies: there is far less emphasis on investors' interests and the information needs of securities markets in Portugal than in the UK.

By reporting mainly qualitative and backward-looking RRD Portuguese managers reduce exposure to litigation costs. Although quantitative and forward-looking information would be more relevant to decision needs, such disclosure is less common because of potential inaccuracy and exposure to litigation costs.

The results reported should be useful to accounting and risk regulators by providing information about the inadequacies of RRD in Portugal and a more complete picture of risk components and determinants. When we think about risk in global terms,

we should consider not only agency variables but also factors associated with visibility, legitimacy and reputation.

Several limitations should be noted. First, the subjectivity in the coding instrument is likely to affect reliability. Second, it would be useful to supplement our results with results obtained using a qualitative research method (such as interviews). Third, information about risk can be provided in sources other than annual reports, such as interim reports, press-releases, web sites, or prospectuses. Fourth, the study is confined to one year/one country analysis and pre-dates the global financial crisis [GFC] of 2008 and the operationalization of IFRS 7 in January, 2007. Future research should analyse the years before, during and after the turmoil caused by the GFC.

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Table 1: Prior literature on determinants of RRD based on firm's characteristics

	Dependent variable								
					Sentences		Words	Disclosure index	
Explanatory variables	Amran *et al.*, (2009)	Lajili (2007)	Linsley and Shrives (2006)	Kajüter (2006)	Mohobbot (2005)	Beretta and Bozzolan (2004)	Abraham and Cox (2007)	Deumes and Knechel (2008)	Hassan (2009)
Size:									
Total sales		+	+		+	+	+		0
Total assets			0	+	+				
Market capitalization			+						
Total revenues	+		0						
Sum of market value of equity and book value of debt								+	
Leverage/Level of risk:									
Product and geographic diversification	0								
Debt to equity ratio	0		0		0		0	+	+
Asset cover			0						
Beta factor		0	0						
Ratio of book value of equity to market value of equity			0		0				
Quiscore			0						
BiE index			+						
Innovest EcoValue'21 ^{TM}			+						
Variance of 60 month stock returns							+		
Board composition:									
Number of independent non-executive directors		+					+		
Independent outside directors/total directors								+	
Number of non-executive dependent directors							0		
Number of executive directors							0		
Total number of directors		+							
Ownership structure:									
Minority controlling votes		–							
Free-floats				+					
In house managed pension funds							–		
Outside managed pension funds							0		
Life assurance funds							+		
Top 10 shareholder's holdings, and holdings of individuals/foreigners					0				
Shareholdings of non-managers greater than 5%								–	
Shareholdings of managers greater than 5%								–	
Profitability									
Return on assets					0				
Return on equity					0			+	
CEO base salary and stock/options		0							
Reserves									0
Dual Listing							Y	Y	
Industry	Y	0		Y		0	Y	Y	Y
Foreign subsidiaries/total subsidiaries								+	
Sales growth per year								0	
Book value of inventory/total of assets								0	
Book value of receivables/total of asstes								0	
Auditor quality (Big6/5)								0	

Y: statistically significant; +: positive and statistically significant relation; –: negative and statistically significant relation; 0: no relation found

Table 2: Definition and predicted signs for independent and control variables

Variables	*Definition*	*Predicted Sign*
Panel A: Independent Variables		
Agency theory		
Ownership Structure	Shareholdings greater than 10%.	?
	Minority controlling votes assessed by the highest proportion of voting rights that belong to a single shareholder	?
Independent Non-Executive Directors[a]	Proportion of independent non-executive directors in the board.	+
Audit Committee Independence	Proportion of non-executive directors in the audit committee.	+
External Auditor Quality	Dummy variable =1 if auditing firm is a Big 4 firm; 0 otherwise.	+
Leverage	Debt ratio = total debt to total assets	?
Legitimacy theory and resources-based prespective		
Size	Total assets (100^3 Euros)	+
	Total sales (100^3 Euros)	+
	Number of employees	+
Environmental Sensitivity	Dummy variable = 1 if company belongs to an industry environmentally sensitive; 0 oherwise	+
Panel B: Control Variables		
Company Listing Status	Dummy variable = 1 if company is listed on one or more regulated stock exchange markets; 0 otherwise.	+
Accounting Standards	Dummy variable = 1 if company adopted IAS/IFRS; 0 otherwise.	?

[a] Our definition of independent directors is consistent with that provided by Regulation 7/2001, article 1, from CMVM, which does not permit family members (Regulation 7/2001 from the CMVM, amended by the Regulation 3/2006, states in its 1st article, nº 2, al. (f) that these members must not have any relation, whatsoever, with the owning family).

Table 3: Frequencies and differences in the means (medians) of risk-related sentence attributes

	Risk -related disclosures	Financial risk	Non-financial risk	Risk management framework
Panel A: Frequencies of risk-related categories for each sentence attributes				
Bad News	1,548	751	795	2
Good News	1,611	452	1,009	150
Neutral News	423	120	56	247
Past	3,335	1,205	1,732	398
Future	247	118	128	1
Non-Monetary	2,701	641	1,661	399
Monetary	881	682	199	0
Voluntary	2,189	325	1,695	169
Mandatory	1,393	998	165	230
Total	3,582	1,323	1,860	399
Panel B: Differences in means (medians) of risk-related sentence attributes				
Bad news – Good news	-0.78	3.69 ***	-2.64	-1.83 ***
	(3.00)	(4.00) ***	-(1.00)	(0.00) ***
Past – Future	38.12 ***	13.42 ***	19.78 ***	4.90 ***
	(32.00) ***	(11.00) ***	(17.00) ***	(2.00) ***
Non-monetary – Monetary	22.47 ***	-.51	18.05 ***	4.93 ***
	(16.00) ***	(0.00)	(15.00) ***	(2.00) ***
Voluntary – Mandatory	9.83 ***	-8.31 ***	18.89 ***	-.75
	(9.00) ***	-(7.00) ***	(16.00) ***	(1.00)

Paired sample *t* -tests (Wilcoxon rank tests) are used to test the difference in means (medians).

Difference statistically significant at a: ***0.01 level (two-tailed); **0.05 level (two-tailed); *0.1 level (two-tailed).

Table 4 – Descriptive statistics for the sample firms

	Unit of measurement	N	Minimum	Maximum	Standard Deviation	Mean
Continuous variables						
Risk-related disclosures	Number of sentences	81	4.00	143.00	30.79	44.22
Shareholdings greater than 10%	Percentage	81	0.00	1.00	0.25	0.74
Minority controlling votes	Percentage	79	0.10	1.00	0.29	0.57
Independent non-executive directors	Percentage	42	0.00	0.44	0.17	0.14
Audit committee independence	Percentage	42	0.00	1.00	0.47	0.36
Leverage	Debt ratio	81	0.15	9.47	0.83	1.03
Total assets	100^3 Euros	81	3.57	44,536.12	6,298.35	2,350.27
Total sales	100^3 Euros	81	0.00	22,800.00	3,105.02	1,102.76
Number of employees	Count	81	0.00	68,218.00	9,134.47	3,327.23
Dummy variables						
			Frequency	Per cent		
Auditor type	Dummy = 1	81	46	56.79		
	= 0		35	43.21		
Environmental sensitivity	Dummy = 1	81	44	54.32		
	= 0		37	45.68		
Company listing status	Dummy = 1	81	42	51.85		
	= 0		39	48.15		
Accounting standards	Dummy = 1	81	53	65.43		
	= 0		28	34.57		
	Total		81	100.00		

Definition of variables:

Shareholdings greater than 10% = percentage of qualified shareholdings greater than 10%; Minority controlling votes = highest percentage of voting rights that belong to a single shareholder; Independent non-executive director = percentage of independent non-executive directors in the board; Audit committee independence = percentage of non-executive directors in the audit committee; Auditor type = 1 if the auditing firm is a Big4 firm, and 0 otherwise; Leverage = ratio of total debt to total assets; Environmental sensitivity = 1 if the company belongs to an environmentally sensitive industry, and 0 otherwise; Company listing status = 1 if the company is listed on one or more regulated stock exchange markets, and 0 otherwise; Accounting standards = 1 if the company adopted IAS/IFRS, and 0 otherwise).

Table 5 – Bivariate relationships for the independent and control variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Correlations (Pearson) among continuous variables										
(1) Risk-related disclosures	1.00									
(2) Ownership structure	-0.16 *	1.00								
(3) Independent non-executive directors	0.42 ***	-0.28 **	1.00							
(4) Audit committee independence	0.49 ***	0.10	0.36 **	1.00						
(5) Leverage	0.15 *	-0.05	0.00	-0.05	1.00					
(6) Size	0.39 ***	0.03	0.44 ***	0.74 ***	-0.06	1.00				
Panel B: Correlations (Spearman) between the categorical and continuous variables										
(7) Auditor type	0.34 ***	-0.04	0.19	0.33 ***	-0.24 **	0.48 ***	1.00			
(8) Environmental sensitivity	0.23 **	-0.05	-0.28 ***	-0.12	0.06	-0.07	0.18 *	1.00		
(9) Company listing status	0.34 ***	-0.50 ***	.	.	0.05	0.19 **	0.24 **	0.01	1.00	
(10) Accounting standards	0.31 ***	-0.34 ***	.	.	0.01	0.39 ***	0.33 ***	-0.03	0.76 ***	1.00

Definition of variables:
Ownership structure = Principal components analysis (Shareholdings greater than 10%; Minority controlling votes); Independent non-executive director = percentage of independent non-executive directors in the board; Audit committee independence = percentage of non-executive directors in the audit committee; Auditor type = 1 if the auditing firm is a Big4 firm, and 0 otherwise; Leverage = ratio of total debt to total assets; Size = Principal components analysis (Total assets; Total sales; Number of employees); Environmental sensitivity = 1 if the company belongs to an environmentally sensitive industry, and 0 otherwise; Company listing status = 1 if the company is listed on one or more regulated stock exchange markets, and 0 otherwise; Accounting standards = 1 if the company adopted IAS/IFRS, and 0 otherwise).

Significant at the: ***0.01 level (one-tailed); **0.05 level (one-tailed); *0.1 level (one-tailed).

Table 6 – Results of regression model for RRD

Variables	Pred. Sign	Risk-related disclosures			
		Listed and unlisted companies		Listed companies	
Intercept		-0.59	-(2.60) †††	-0.11	-(0.32)
Ownership structure	?	-0.04	-(0.31)	0.17	(0.79)
Independent non-executive directors	+			0.43	(1.13) **
Audit committee independence	+			0.34	(2.57)
Auditor type	+	0.35	(1.48) *	0.32	(0.88)
Leverage	?	0.19	(1.89) †	-0.01	-(0.03)
Size	+	0.31	(2.53) ***	0.10	(0.34)
Environmental sensitivity	+	0.42	(2.06) **	0.43	(1.56)
Company listing status	+	0.54	(1.65) *		
Accounting standards	?	-0.19	-(0.57)		
R^2 *(F-stat)*		0.33	(4.90) †††	0.44	(3.62) †††
Adj. R^2		0.26		0.32	
Durbin-Watson		2.32		2.05	
Max. VIF		2.88		3.71	
N		77		40	

Dependent and independent continuous variables were normalised using Blom's transformation. Figures in parentheses are *t*-satistics. White heteroskedasticity-consistent standard errors, when necessary.

Regression models: $RRD_j = f\ (A_j, LRb_j, C_j) + \upsilon_j$

Definition of variables:

Ownership structure = principal components analysis (Shareholdings greater than 10%; Minority controlling votes); Independent non-executive director = percentage of independent non-executive directors in the board; Audit committee independence = percentage of non-executive directors in the audit committee; Auditor type = 1 if the auditing firm is a Big4 firm, and 0 otherwise; Leverage = ratio of total debt to total assets; Size = principal components analysis (Total assets; Total sales; Number of employees); Environmental sensitivity = 1 if the company belongs to an environmentally sensitive industry, and 0 otherwise; Company listing status = 1 if the company is listed on one or more regulated stock exchange markets, and 0 otherwise; Accounting standards = 1 if the company adopted IAS/IFRS, and 0 otherwise).

Significant at the: ***0.01 level (one-tailed); **0.05 level (one-tailed); *0.1 level (one-tailed)

Significant at the: †††0.01 level (two-tailed); ††0.05 level (two-tailed); †0.1 level (two-tailed)

Table 7 - Summary of the results from the hypotheses testing

Variables	Predicted signal	Risk-related disclosures
Ownership structure	?	Not significant
Independent non-executive directors	+	Significant[a]
Audit committee independence	+	Not significant[b]
Auditor type	+	Significant
Leverage	?	Significant and positive
Size	+	Significant
Environmental sensitivity	+	Significant

[a, b] These significant relations have been found in listed companies. Only these companies disclosed information about the number of independent non-executive directors and composition of audit committees in their corporate governance reports.

Notes

[1] Recommendation 3/2005 requires management to describe the existing internal control system.

[2] The mandatory disclosure requirement in the Modernisation Directive is vague and permits management's discretion. To overcome potential classification problems we considered the disclosures mandatory if they were made in sections of the management report specifically devoted to risk management.

[3] In a few cases, when consolidated accounts were not available, we used annual reports.

[4] The exclusion of outliers and influential observations improved the explanatory power of the regression model.