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(In)Consistency Between Private and Public Disclosure on Enterprise Risk Management and Its Determinants

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Abstract Worldwide governance organizations and regulators have recently called for more enhanced disclosures about how organizations manage risks. Enterprise Risk Management (ERM) is recognized as a value-contributing best practice even when legal standards do not require it (Whitman in Risk Manag Insur Rev 18(2):161–197, 2015), but public disclosure on such a process is not generally mandatory. In Italy emphasis on risk disclosure started in 2008 but it was the 2011 revision of the Corporate Governance (CG) code for listed companies to ask for the board commitment in disclosing, within the CG report, about the main internal control and risk management system's characteristics (Borsa Italiana in Codice di Autodisciplina, 2011). Given the proprietary nature of risk information in addition to the Italian capital market characteristics (small capitalization and presence of a dominant shareholder) and the lack of any mandate for what specific aspects board should disclose, the study aims at investigating a potential variation between private and public disclosure on ERM. Relying on the ERM concepts provided by the COSO framework (2004) the author submitted a survey seeking information about ERM practices within Italian listed companies. Such a private information is compared to public CG reports released by the same companies. The comparison shows companies tend to privately reveal a more effective ERM process than the one they publicly disclose. An examination of CG and firm's risk variables potentially determining higher variation—i.e. information inconsistency—supports proprietary costs theory rather than agency theory expectations. Thus showing the limits of voluntary disclosure dealing with risk management systems. The study might have international policy implications.

Keywords Enterprise risk management (ERM) · Private disclosure · Public disclosure · Information (in)consistency · Determinants

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1 Introduction

Worldwide, a number of corporate governance-focused entities have issued calls for effective risk management processes within organizations including the introduction of specific corporate governance (CG) bodies, such as Chief Risk Officers (CRO) and/or risk committees (Brown et al. 2009).

The European Directive 2001/65/EC on "transparency" introduced in Europe new requirements for management reporting including disclosure on risk. Further, the obligation in directive 2006/46/CE to describe the risk management systems requires also the explanation of risk management functions, policies, structures, and procedures. European financial companies are also required to have some risk process standards. Large banks, for instance, have to comply with the international regulatory framework Basel III (Directive 2013/36/EU and Regulation (EU) No. 575/2013). Likewise, insurance companies are subject to Solvency II (Directive 2009/138/CE) and they must complete their "Own Risk and Solvency Assessment (ORSA)" for filing with state insurance regulators. Those initiatives require to implement an effective and integrated risk management process and to report focusing on the enterprise risk management effectiveness. Further, other international voluntary disclosure initiatives ask for information relates to risk and risk management process [see for all the content elements of the Integrated Reporting framework (IIRC 2013)].

Enterprise Risk Management (ERM) definition in the current paper relies on the Enterprise Risk Management—Integrated Framework issued by Committee of Sponsoring Organizations of the Treadway Commission. It is the most adopted framework (Hayne and Free 2014) providing guidance about the key elements of an effective, top-down, enterprise-wide approach to risk management and defining ERM as "a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of the entity's objectives" (COSO 2004).

In response to so much international attention and push on ERM as part of good corporate governance, risk management information is expected to be increasingly sought by the firm's stakeholders and information users (Lajili and Zeghal 2005). Nevertheless, previous literature on risk disclosure has limited its focus on risk factors (Beretta and Bozzolan 2004; Linsley and Shrives 2005, 2006) rather than exploring the disclosure of ERM practices.

In Italy, emphasis on risk disclosure stems from a consultative document that was issued in 2008 by the Council of Italian Chartered Accountants (IRDCEC 2008) to assist entities with implementing the new directives' requirements (Elshandidy and Neri 2015). Specifically, since the 2011 revision of the CG code for listed companies it follows the board commitment in disclosing, within the CG report, about the main internal control and risk management system's characteristics (Borsa Italiana 2011; art. 7.C.1.d; see Table 1). Further, the 2015 review of the CG code compulsorily enhances the disclosure on the risk management process.

Table 1 Risk management duties according to the 2011 Italian CG code

Subject	Duties
Board of Directors (BoD)	– Lead the internal control and risk management (ICRM) system to favour the identification, measurement, management, and control of risks in the company and its subsidiaries, according to its risk appetite and its strategy – Evaluate, at least yearly, the suitability and the effectiveness of the ICRM system according to the characteristics of the company and its risk appetite – Endorse, at least yearly, the IC program, consulting the Board of Statutory Auditors (BoSA) and the ICR officer – Describe in the CG report the main features and the suitability of the ICRM system – Assess, in accordance with the BoSA, the results of the external audit – Appoint and overrule the internal audit manager, ensure the availability of his resources, and define his remuneration according to the company's policies
Internal Control and Risk (ICR) committee	– Evaluate, in collaboration with the chief financial officer, the external auditor, and the BoSA, the accuracy of the use of accounting principles – Give opinions about the approach to the identification of the firm's risks – Study the reports provided by the ICRM system and the internal audit function – Check the independency, suitability, effectiveness, and efficacy of the internal audit function – Report to the BoD, at least biyearly, about its activity and the suitability of the ICRM system
Internal Control and Risk (ICR) officer	– Identify the company's risks, with reference to the of the business, and report timely on risks to the BoD – Carry out the guidelines provided by the BoD, programming, executing, and managing the ICRM system, maintaining constant control of its suitability and effectiveness – Accomplish the coordination of the ICRM system with the operating and regulatory conditions – Ask for verifications from the internal audit function regarding compliance with rules and strategy, reporting to the BoD, the ICR committee, and the BoSA – Report timely to the ICR committee (in case of absence to the BoD) about identified critical issues

Source Florio and Leoni (2017)

The relationship between risk management disclosure and corporate governance is of interest to regulators because less concentrated ownership and independent directors are expected to reduce agency problems, and thus reduce the need for regulatory intervention in corporate reporting (Abraham and Cox 2007). Following this increasing push for transparency on ERM and considering most of accounting regulators—including corporate governance ones—do not ask for uniform and mandatory information about that, there is a call for examining this specific disclosure attempting to answer the overarching research question: To what extent are public disclosures consistent with what companies privately declare about their internal ERM process? The answer can be important especially in a setting where capital market is characterized by a dominant shareholder and expectation is that of greater information asymmetry overcame by an increasing regulatory demand for voluntary ERM disclosure (e.g. Italy).

Considering ERM is recognized as a value-contributing best practice in CG even when legal standards do not require it (Whitman 2015), this paper adopts the ERM fundamental concepts provided by COSO (2004) and operatively aims at investigating the consistency of ERM information in a setting of voluntary disclosure examining: (1) the nature and extent of variation between public disclosure compared to a private source of information on ERM practices and (2) the determinants of higher variation—interpreted as information inconsistency.

These two research questions can provide impetus to the debate in accounting regulation, here intended as including corporate governance regulations on risk management disclosure, and practice among national and international regulatory bodies as they try to harmonize their efforts. Thus, providing results which can show potential limits emerging from the practices and investigating the determinants of higher variation which may indicate the conditions under which this happens.

To answer the former research question, in line with Marshall and Weetman (2002) the author compared data collected from two disclosure sources: a private on-line survey submitted to all Italian listed companies, and the public CG reports drafted by the same respondents' companies. A score is developed for both the private and the public source of disclosure on ERM. The difference between the two scores allowed the identification of the level of disclosure variation on ERM and the investigation of the information (in)consistency.

Finally, to answer the second research question, adopting a theoretical comparative approach, the paper examines corporate governance factors (board independence and ownership's concentration) and firm's risk characteristics (leverage and market to book ratio) as determinants explaining information inconsistency about ERM practices. Therefore, the paper helps extending previous literature on risk disclosure focusing on ERM process instead of risk factors. In addition, prior research mainly analyzes entities in a non-financial setting while the current study takes into account also financial companies. Results showing how most of the companies' public reports are inconsistent with the private disclosure on the internal process shed insights that may support the need for more disclosure transparency. In particular, companies tend to not fully disclose information about ERM processes in place. That is, the private disclosure suggests more extensive ERM processes than public disclosures reveal.

The study finds that board independence, the extent of ownership's concentration, the extent of leverage, market to book ratio, companies size, financial industry, and years of ERM experience are factors associated with information inconsistency in the setting analyzed. Findings show the proprietary costs' limits of voluntary disclosure dealing with ERM systems, while supporting the decision of the Italian Corporate Governance committee to compulsorily enhance additional disclosure at the aim of improving transparency about these processes. The next section presents the prior studies on risk management disclosure that allow to motivate the need for an explicit focus on the ERM process disclosure and the theoretical background relying on managers' incentives theories used in the paper to develop the hypotheses. Sections about the research design, analysis and results are then provided. Finally, conclusions with a discussion of the key findings.

2 Theoretical Background and Hypotheses Development

Healy and Palepu (2001) claim investors view voluntary disclosures as credible information. Prior literature on risk disclosure has predominantly examined the nature and extent of risk disclosures and their influencing factors by applying content analyses to data collected from annual reports (Buckby et al. 2015). Indeed, most of the prior studies focused on the investigation of risk factors in terms of information quality (Beretta and Bozzolan 2004; Oliveira et al. 2011; Miihkinen 2012; Abraham and Shrives 2014), and their determinants (Linsley and Shrives 2005, 2006; Abraham and Cox 2007; Amran et al. 2009; Hassan 2009; Elshandidy et al. 2013; Elshandidy and Neri 2015). Differently, Buckby et al. (2015) focus on risk management practices disclosure in corporate governance reports.

Risk management information is expected to be increasingly sought by the firm's stakeholders and information users (Lajili and Zeghal 2005). The benefits of enhancing risk management disclosure could be many (Courtnage 1998). For instance, knowledge of the ERM may help investors in assessing the usefulness of financial reports in predicting future cash flows (Baxter et al. 2013). Investors in addition might incorporate risk information into their price decisions and thus improve the market liquidity by reducing information asymmetry (Campbell et al. 2014). Nevertheless, a key constraint on empirical research on management control systems is the lack of information on what corporations do internally (Zimmerman 2001).

Prior scant literature shows corporations disclose only minimal details of their risk management program (Tufano 1996; Maizatulakma et al. 2015; Buckby et al. 2015) and risk management disclosure becomes a compliance exercise (Collier et al. 2007). Further Marshall and Weetman (2002) find evidence that, even for specific risk management practices (i.e. disclosure of foreign exchange risk management) in a mandatory disclosure regime, companies persist to have information asymmetry. Specifically, companies tend to publicly disclose less information in the annual report compared to what they declare privately in a prior questionnaire.

Managers' incentives theories (agency and proprietary costs) are used in the current paper to explain potential variation in voluntary disclosures released by firms (privately vs. publicly). The most adopted agency theory proposes that in public companies the interests of managers diverge from those of the owners (Jensen and Meckling 1976). For the owners, solutions include corporate control mechanisms to counter managerial power and CG to monitor management and improve accountability (O'Sullivan 2000). In the risk literature agency theory has been widely used in the area of disclosure (Abraham and Cox 2007; Oliveira et al. 2011; Tao and Hutchinson 2013; Buckby et al. 2015) and ERM characteristics (Beasley et al. 2005, 2008).

Proprietary cost theory (Verrecchia 1983) instead focuses on the competitive disadvantage of greater disclosure. Proprietary costs indeed include not only the costs of preparing, disseminating and auditing information, but also the cost deriving from disclosing information which may be used by competitors and other parties in a way that is harmful for the reporting company (Prencipe 2004). The threat of economic disadvantage may give rise to disincentives to disclose risk information voluntarily (Dobler 2008). Proprietary cost theory argues that the incentive of disclosing information is a decreasing function of the potential costs attached to a disclosure, and that it is an increasing function of the favorableness of the news in a disclosure (Verrecchia 1983). Whether proprietary costs are higher than the benefits of full disclosure, managers have incentives to not disclose (Prencipe 2004). Abraham and Shrives (2014) adopt proprietary cost theory to explain the behavior emerging from their results, suggesting that company managers prefer providing formal rather than substantial risk disclosures.

2.1 Determinants Hypothesized to Affect Inconsistency on ERM Disclosure

A significant body of literature demonstrates that the monitoring function of corporate governance significantly influences the propensity for better voluntary disclosure (see Patelli and Prencipe 2007). Governance and ownership factors may play a vital role in firms' risk reporting because directors are accountable for the CG report prepared for shareholders. Thus, the governance arrangements of the board of directors can be expected to influence disclosure policy. In particular, relying on Patelli and Prencipe (2007), who focus on the Italian stock market which is dominated by companies characterized by the presence of a dominant shareholder, the current paper investigates two main mechanisms of CG that may affect agency costs in such a context.

First, the presence of independent directors (Abraham and Cox 2007; Lajili 2007). Independent directors are considered to enhance the quality of the board as they are expected to be more unbiased representatives of shareholders due to an assumed absence of conflicts of interest between the principal and the agent (O'Sullivan 2000). Furthermore, Chen and Jaggi (2000) argue that a board comprising more

independent directors is more likely to promote high quality performance-related disclosure. Thus, agency theory claims more independent directors may provide greater information on risk and ERM to reduce agency costs, resulting in reduced information asymmetry and lower inconsistency.

Previous research identifies a positive relation between the number of independent directors and voluntary risk disclosure (Abraham and Cox 2007; Oliveira et al. 2011).

Proprietary costs theory expectations are aligned to agency theory. Accordingly, companies with higher percentages of independent directors are expected to have a lower variation between public and private source of information on the ERM process. Thus, it is expected a negative association between the number of independent directors and greater variation between public and private source of information on the ERM process—i.e. inconsistency.

Hyp 1 There is a negative association between the number of independent directors and information inconsistency about the ERM process.

Second, the nature of the specific ownership structure (Abraham and Cox 2007; Kajüter 2006; Lajili 2007). In ownership structures more closely held, agency costs are generally lower (Ball et al. 2000). High concentrated ownership indeed plays a key role in controlling and monitoring the firm mitigating agency costs. Thus, in highly concentrated ownership structure, public disclosure is less needed and proprietary costs of voluntary disclosure higher. On the contrary, in companies less closely held there is more need to monitoring managers' activities, and a greater level of public disclosure is expected given its lower proprietary costs. Therefore, the inverse relation between agency costs and proprietary costs allow to hypothesize—according to both the theories—that highly closely held companies have low agency costs but higher proprietary costs. Thus, showing greater information inconsistency.

Hyp 2 There is a positive association between highly closely held companies and information inconsistency about the ERM process.

Although a range of disclosure studies have documented the impact of various influential CG factors on the level of risk management disclosures, little prior research has addressed the possible impact of companies' risk-related factors (Buckby et al. 2015). Because risk is inherently proprietary in nature (Woods et al. 2008), proprietary cost theory would suggest that higher risky companies disclose less information not willing to attract market attention. A first risk-related factor considered is leverage. Literature on the association between risk disclosures and leverage offers mixed results. Specifically, agency theory by Jensen and Meckling (1976) argues that highly leveraged firms have higher monitoring costs. Such firms may seek to reduce these costs by disclosing more information in their annual report narratives. Nevertheless, most of empirical studies (Linsley and Shrives 2006; Abraham and Cox 2007; Amran et al. 2009; Oliveira et al. 2011) find that leverage in listed companies does not significantly affect risk disclosure. Just Elshandidy et al. (2013) find a positive association between leverage and aggregated risk disclosures.

Whereas, proprietary cost theory suggests that debt is negatively related to corporate disclosure levels: managers of companies having less risk or a better risk management process have less costs of disclosing their better ability; companies having higher risks are less prone to disclose about them because of proprietary costs such as deriving from competitive reasons. To the best of author knowledge, no prior study investigated the relation between leverage and risk disclosure according to proprietary cost theory. Further in the Italian capital market there are factors that seem to support such a theory: firms are composed by a dominant shareholder (Patelli and Prencipe 2007; Allegrini and Greco 2013) find a negative but non-significant relation between leverage and the general level of disclosure. Thus, the current paper hypothesizes a positive relationship between leverage and greater variation between public and private source of information on ERM in the analyzed context.

Hyp 3 There is a positive association between company's leverage and information inconsistency about the ERM process.

Finally, a second risk-related factor is the market to book ratio (Francis et al. 2008; Baxter et al. 2013) measured as the ratio between the firm's market capitalization and the book value of shareholder's equity. According to agency theory and consistent with Buckby et al. (2015) bigger market to book ratio indicates greater expectations about future cash flows than a lower ratio. As future cash flows are inherently uncertain, high market to book ratio firms tend to have more volatile share prices than small market to book ratio firms. Thus, companies with larger market to book ratio are expected to disclose greater amount of information.

According to proprietary cost theory only firms financially sound may be able to trade off the benefits from additional disclosure with the cost of revealing potentially damaging information (Cormier and Magnan 2003). Thus, given higher market to book ratio is interpreted as greater expectation about future cash flows, it is expected these firms are able to better bear proprietary costs despite the greater financial risk and to disclose more information. Therefore, relying on the interpretation of both agency and proprietary cost theories it is expected a negative relation between the market to book ratio factor and greater variation between public and private source of information on the ERM process.

Hyp 4 There is a negative association between company's market to book ratio and information inconsistency about the ERM process.

3 Research Design

3.1 Sample Selection and Data: The Italian Institutional Context

In Italy the debate and regulation on corporate governance emerged around the 2000s. Both financial scandals and financial crisis of those years not only affected the US,

but also European countries, and Italy in particular (Florio and Leoni 2017). For this reason, several regulatory reforms took place and Italy was one of the former countries adopting a Corporate Governance (CG) Code drafted by the Italian stock exchange Corporate Governance Committee in 1999. Then reviewed in 2002, 2006, 2010, 2011, 2014 and in 2015. The code is based on the "comply or explain" principle according to which listed companies may decide whether to adopt it. If companies do not comply—fully or partially—they need to explain the reason. The changes in the Italian regulation highlight the importance of board structure and the independent directors as a means to overcome Italian market weaknesses such as the markedly concentrated ownership and the trend for large owners to expropriate minority shareholders (Elshandidy and Neri 2015).

Since the 2011 Corporate Governance revision, greatest attention has been put on risk with a specific appendix included to discuss the importance of risk management disclosure. The revision recommends the creation of an integrated system of internal control and risk management (Borsa Italiana 2011; art. 7.C.1.a). The Internal Control and Risk Management shall be integrated and treated as a unitary system focused on risks, and integrated within the overall organizational, administrative and accounting system of the firm (Florio and Leoni 2017). It follows the board commitment in disclosing, within the CG report, about the main internal control and risk management system's characteristics (Borsa Italiana 2011; art. 7.C.1.d; see Table 1).

Thus, the choice of an Italian sample may be useful from an international perspective considering the possible interest in the results by a European audience. The obligation in directive 2006/46/CE to describe the risk management systems requires the explanation of risk management functions, policies, structures, and procedures. The resulting risk governance requirements and recommendation for listed companies by each European member State reveals how the Italian context is the only one (not only at the European level) recommending and requiring through the Corporate Governance code or laws all the following:

– specific provisions describing the board responsibilities for risk management;
– the establishment of a board-level committee charged with risk management;
– the implementation of the internal control and risk management system;
– the identification of a person in charge of risk management (OECD 2014).

Further, in 2015 Risk Management duties were partially increased. Specifically, it was introduced the obligation to "transparently disclose in the Corporate Governance report the coordination among people and bodies designed to the Internal Control Risk Management System" (Borsa Italiana 2015; art. 7.C.1 lett. D). The Corporate Governance committee which approved the revised code invited the companies to apply the changes within the following year reporting. Thus, the recent 2015 review of the CG code compulsorily enhances the disclosure on the risk management process.

Furthermore, it has to point out how a mandatory description of the main risks and uncertainties is requested in the Management Discussion and Analysis (MD&A) section of the annual report since Legislative Decree no. 32/2007 that modified Article 2428 of the Civil Code (Elshandidy and Neri 2015). Therefore, managers have already to explain in detail all of the risks faced by their company during the past year, and

how they have managed these risks, in their annual reports. However, the focus of the current paper is on the ERM process disclosure, thus attention is on the annual CG report.[1]

The sample is drawn from companies listed into the ordinary market of the Italian Stock Exchange at the end of the years 2013 and 2015.[2] The year selection is driven by two main reasons. First, in 2011 there was the greatest amendment of the Italian Corporate Governance code effective from 2012. The choice of the year 2013 aims at reflecting a sufficient time for listed companies to achieve compliance to the 2011 revision of the code in particular about the risk management duties. Given the partially increased duties of the risk management system in 2015, CG reports referring to this fiscal year are the last ones before the revised code. Thus representing the last year in which companies can disclosure more information on internal control and risk management system on voluntary basis. Therefore, the period selection constitutes a time frame in which there have been no institutional changes about risk management duties to disclose in the CG report. Thus helping to better investigate the voluntary disclosure on the ERM process. Second, survey methodology asks for repeating the survey after two years at the aim of increasing reliability to the analysis.

In total, the author received 75 completed surveys (32 in 2013 and additional 43 in 2015). She excluded 9 companies because of incomplete questionnaires or due to missing CG reports (4 in 2013; 5 in 2015), leaving a final sample of 66 companies for the analysis.[3]

Table 2 provides the profile of the sample. In terms of positions held by the respondents, individuals serving in high-level positions (i.e., board members, internal auditors, Chief Risk Officers and top managers) represent more than 50% of the respondents. The classification of the represented industries relies on the Italian Stock Exchange (Borsa Italiana) website. More than one third of the respondents in the sample (34.84) are industrial (manufacturing) companies, followed by financial industry (19.70%) which includes both banks and insurance companies. Public services entities—mostly utilities—represent the 12.12% of the sample. In terms of

[1] An analysis on MD&A section has been done as a robustness check but information about the risk management process are exclusively provided in the CG reports.

[2] In line with prior studies to assure homogeneity of listing requirements, those companies listed in the Star Segment and the Nuovo Mercato Segment have been excluded from the analysis (see Beretta and Bozzolan 2004; Florio and Leoni 2017).

[3] The sample size depends on different reasons. First, the high difficulty of data access in Italy and to set data on this context given the small size of the Italian stock market. Second, the complexity of collecting data on internal processes as already highlighted by prior studies (Zimmerman 2001). Nevertheless, the overall response rate reflects about the 30% of the total number of Italian listed companies (on average 255 in the main Italian market in the considered time span excluding those companies not compliant to the CG code). In addition, the response rate is higher than previous studies adopting the survey methodology (see Beasley et al. 2005; Paape and Speklé 2012). Further, there are many prior studies on risk disclosure with a similar sample size (see for instance, Beretta and Bozzolan 2004; Allini et al. 2016). Finally, considering Italy is the 8th largest country in the world based on GDP and it has an advance environment in terms of risk management disclosure since 2011, the data collected represent the ERM practices of a large part of the Italian market capitalization (about the 40% of the total market capitalization in the years of analysis).

revenues size, almost 50% of the companies range between €25 million and €500 million. Only a few companies have revenues lower than €25 million. In addition, more than half of respondents (56.06%) indicate their organizations have adopted an enterprise risk management process for at least 3 years. Therefore, it is expected that ERM process as described both in the survey and in the CG reports is quite developed.

4 Three-Stage Approach

The analysis is based on a three-stage approach. First, to investigate the ERM internal practices, an online survey tool consisting of 30 questions has been structured relying on the ERM definition developed by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in the 2004 framework[4] and its fundamental concepts.[5]

The ERM definition reflects certain fundamental concepts, which are highlighted explicitly in the COSO framework, according to which "Enterprise risk management is:

1. A process, ongoing and flowing through an entity;
2. Effected by people at every level of an organization;
3. Applied in strategy setting;
4. Applied across the enterprise, at every level and unit, and includes taking an entity-level portfolio view of risk;
5. Designed to identify potential events that, if they occur, will affect the entity and to manage risk within its risk appetite;
6. Able to provide reasonable assurance to an entity's management and board of directors;
7. Geared to achievement of objectives in one or more separate but overlapping categories."

From the operational point of view, most of the survey's questions require a five-point scale response developed according to prior literature (see details in the Appendix). The two highest options are considered to represent an ERM implementation according to the COSO (2004) definition, while the three lowest options are not considered to be reflective of an ERM component. Survey data are coded according to the score obtained by respondents; a value of 0 is attributed in case of no answer to the items of interest related to each of the seven fundamental concepts.

[4]The author is aware of the changed ERM definition according to the recent COSO draft (2016) which states the following: *The culture, capabilities, and practices, integrated with strategy-setting and its execution, that organizations rely on to manage risk in creating, preserving, and realizing value.* However, given the intention to investigate the level of ERM implementation in the Italian setting the author choices to rely on the most adopted framework (Hayne and Free 2014; and as supported by results) at the period of analysis.

[5]Enterprise Risk Management—Integrated Framework Executive summary (2004).

Table 2 Profile of the sample

	2013	2015	Total number of respondents	% number of respondents
Respondents position held				
Board member	–	2	2	3.03
Chief risk officer	6	4	10	15.15
Internal auditor	6	3	9	13.64
Top manager (CEO/CFO)	4	10	14	21.21
Middle manager	10	17	27	40.91
Not available	2	2	4	6.06
N	28	38	66	100
Industry represented				
Chemical and basic material	–	1	1	1.52
Consumer goods	4	6	10	15.15
Consumer services	–	3	3	4.55
Financial	6	7	13	19.70
Health care	–	1	1	1.52
Industrial	10	13	23	34.84
IT	4	1	5	7.57
Oil and gas	–	2	2	3.03
Public services	4	4	8	12.12
Revenues				
€0 ≤ x ≤ €5 million	2	7	9	13.64
€5 million ≤ x ≤ €25 million	1	1	2	3.03
€25 million ≤ x ≤ €100 million	8	8	16	24.24
€100 million ≤ x ≤ €500 million	6	11	17	25.75
€500 million ≤ x ≤ €1 billion	3	8	11	16.67
x > €1 billion	8	3	11	16.67
Year of ERM adoption				
Less than 6 months	5	12	17	25.76
At least 1 year	3	9	12	18.18
At least 3 years	6	11	17	25.76
At least 5 years	12	5	17	25.75
10 years	2	1	3	4.55

The second stage of the analysis is based on the hand collection of respondents CG reports related to the year of survey collection (i.e. 2013 survey matched with 2013 CG report and 2015 survey with 2015 CG report). A thematic content analysis (Buckby et al. 2015) has been done on the CG reports section regarding the internal control and risk management system. Specifically, information has been categorized according to themes corresponding to the seven ERM fundamental concepts and related items of interest (see Table 3). Data have been categorized as categorical variables ranging from 0 to 5 to investigate public disclosure as well, where the value of 0 reflects no disclosure on the specific item.

Finally, once coded both the survey and the report for each company, the author summed up the scores attributed to each item to define an ERM score ranging from 0 to 53 for both the disclosure sources (private and public). To verify the level of ERM disclosure variation the author computes the difference between the scores attributed respectively to the report and the survey, specifically as:

$$ERM\_Variation\_Index = ERM\_Report\ Score - ERM\_Survey\ Score \quad (1)$$

ERM_Variation_Index if positive is interpreted as an overstatement in the public disclosure; vice versa, if negative, as an understatement of the ERM process in the public voluntary disclosure. To better analyze the extent of ERM_Variation_Index and its determinants, such a score is distinguished into two sets (high vs. low) representing the level of information INCONSISTENCY between the sources of disclosures. It amounts to the dummy dependent variable on which the hypothesized CG and firm's risk characteristics are regressed (as outlined below).

4.1 Research Model for Testing Hypotheses

A Probit model is used to test the association between INCONSISTENCY and the hypothesized determinants[6]:

$$\begin{aligned} INCONSISTENCY = {} & \beta_0 + \beta_1 BOARD + \beta_2 OWNERSHIP \\ & + \beta_3 LEVERAGE + \beta_4 MTB\_RATIO \\ & + \beta_5 CONTROL\ VARIABLES + \varepsilon \end{aligned} \quad (2)$$

Control variables are justified as following. First, based on agency theory, high-quality risk disclosure is needed for large firms to satisfy the requests of a larger group of stakeholders (Amran et al. 2009). In addition, larger companies have an incentive to improve investors' confidence and reduce political sensitivities by providing higher quality risk disclosure (Hassan 2009). Previous studies reveal a positive association between firm size and risk disclosure quantity (Linsley and Shrives 2005,

[6]A detailed definition of each variable is provided at Table 5.

Table 3 Description of report and survey coding

COSO ERM fundamental concepts	ERM items of interest	Description	Report (n = 66)		Survey (n = 66)		Test of difference	
			Mean	S.d.	Mean	S.d.	T-test of means (two-sided)	Test of median Wilcoxon test
1. A process, ongoing and flowing through an entity	1	Extent of ERM implementation	1.575758	2.327499	3.924242	1.256498	−8.8959***	−5.929***
2. Effected by people at every level of an organization	2a	Training activities about risk and risk management	0.1363636	0.7822328	3.318182	1.266845	−17.625***	−7.025***
	2b	Business plan resource allocation for ERM	1.69697	2.183643	2.969697	1.380855	−3.9513***	−3.557***
3. Applied in strategy setting	3	ERM relation with strategic planning	2.712121	2.021158	3.469697	1.349868	−3.0417**	−2.368**
4. Applied across the enterprise, at every level and unit, and includes taking an entity-level portfolio view of risk	4a	Identification and prioritization of risks	2.484848	2.451012	4.727273	0.5696275	−7.8719***	−5.687***
	4b	Methodology used for risk prioritization	1.060606	0.5038315	1.666667	0.4750169	−5.5177***	−4.588***
	4c	Extent of integration in risk prioritization	1.30303	1.968754	3.939394	0.8923398	−11.556***	−6.605***

(continued)

Table 3 (continued)

COSO ERM fundamental concepts	ERM items of interest	Description	Report (n = 66)		Survey (n = 66)		Test of difference	
			Mean	S.d.	Mean	S.d.	T-test of means (two-sided)	Test of median Wilcoxon test
5. Designed to identify potential events that, if they occur, will affect the entity and to manage risk within its risk appetite	5a	Frequency of risk reporting	1.363636	2.027779	3.636364	1.260481	−8.9105***	−6.096***
	5b	Temporal orientation of risk reporting	0.1818182	0.5793655	1.712121	0.4562439	−17.598***	−7.171***
6. Able to provide reasonable assurance to an entity's management and board of directors	6a	ERM process accountable person	1.742424	1.791524	2.484848	1.243351	−3.3193**	−3.169**
	6b	Frequency of ERM managers meetings	4.242424	1.627273	3.575758	1.489043	2.7690**	3.267**
7. Geared to achievement of objectives in one or more of separated but overlapping categories	7	Level of comprehensiveness (range) of risks considered	2.757576	2.411897	3.924242	1.206528	−3.9771***	−2.743**
Overall average score			21.29 out of 53		30.12 out of 53			

2006; Abraham and Cox 2007; Dobler et al. 2011; Elshandidy et al. 2013). In addition, larger companies also have the expertise and resources to cover the cost of producing high-quality disclosure (Miihkinen 2012). Proprietary cost theory indeed would suggest that managers in large firms will disclose more risk information than those in small firms having larger competitive disadvantage. Thus, both the theories support a negative relation between size and information inconsistency about the ERM process.

Second, literature also supported the relationship between performance measures and levels of disclosures. To investigate such relation, the current study analyzes the Tobin's Q ratio measuring the firm's performance on the capital market (Gordon et al. 2009; Hoyt and Liebenberg 2011; McShane et al. 2011). The higher Tobin's Q is, the better is the judgment expressed by the financial market about the company representing a measure of future investors' expectations (Florio and Leoni 2017). Agency theory suggests that managers disclose information for promoting personal interests as a number of prior studies documented the relation between managers' stock-based compensation and extent of disclosures (for all Murphy 1996). Proprietary cost theory would suggest that more profitable companies have lower costs of disclosing information, even if evidence show mixed results (Leuz 1999; Giner et al. 1997). Both the theories therefore suggest a negative relationship between profitability and information inconsistency about the ERM process.

Third, different industries may provide different risk and risk management process disclosure because of industry specific characteristics and regulations. Beretta and Bozzolan (2004) find no relation between industry and risk disclosure. Hassan (2009) instead find a significant relation with variation in corporate risk disclosure. Further, financial industry is quite specific operating under a greater layer of increased regulation and scrutiny (see Basel III; Solvency II; ORSA). As the financial companies constitute the 20% of the total sample, the current study controls for industry effects by including the financial industry as a control variable (Amran et al. 2009). In particular, financial companies being enforced of greater disclosure on risk management effectiveness are expected to signal a lower information inconsistency about the ERM process.

Finally, another factor that can affect ERM disclosure and specifically the (in)consistency between private and public disclosure is for how long the companies have adopted the process (defined as ERM experience). On one side, agency theory would suggest that companies implementing the ERM process for a longer time would be more willing to disclose about it. On the other side, companies having an ERM process for a longer period could incur in higher proprietary costs and therefore are expecting having a greater variation between private and public disclosure. As best of the author's knowledge no prior literature has examined such a relation.

5 Results and Analysis

5.1 Nature and Extent of ERM Disclosures Variation (RQ1)

Findings reveal that companies tend to give more information on their ERM process through the private source (survey) rather than in their public disclosure (CG report). Data provided by the on-line surveys about the internal ERM process are self-reported and cannot be independently verified. Nevertheless, all respondents indicate the company name and their e-mail contact (voluntary option). The author is not aware of any reason why a survey participant would willfully falsify their responses and she believes the responses obtained provide an opportunity to explore information about their internal ERM process. As a way of assurance and to find confirmation about the reliability of the answers, after the analysis, fifteen respondents have been randomly interviewed to better understand how the risk management disclosure process works and if they were in charge of it. The results of this "triangulation" check (Routhbauer 2008) confirmed their high knowledge of the risk management process and their key role in the preparation of the CG report section related to the disclosure of the Internal Control Risk Management System. Thus, assuring the reliability of the data collected through the survey.

Table 3 shows the mean and standard deviation values of each ERM item examined both in the survey and in the report. Additionally, it presents the results of a test of difference in mean and median. Results in detail show that the extent of ERM implementation (item 1) is one of the item most privately disclosed. On average it takes value of 3.9242, while in the public reports its extent is described on average with a value of 1.5758. The most highly privately disclosed item relates to the information about the identification and prioritization of risks (item 4a) with an average value near to the maximum of 5. Whereas, on the voluntary public disclosure side, it is disclosed for a value on average equal to 2.48. Among the most highly privately disclosed items there are also the ones referring to the extent of integration in risk prioritization (item 4c) and to the level of comprehensiveness of risks considered (item 7).

Looking at the public reports, the most highly disclosed factors are the ones referring to the application in the strategy setting (item 3) and to the frequency of risk managers' meetings (item 6b). Specifically, companies on average publicly disclose to link their ERM process to the strategic planning with a value of almost 3 out of the 5 scale, even if privately such a value results higher. The highest value corresponding to the item about the frequency of risk reporting is publicly declared higher than 4, that is at least annually; while in the private disclosure source companies on average declare a value lower than 4.

Overall, from what directly emerge from the surveys, companies on average indicated the presence of 39.12 out of the maximum 53 values that ERM survey score can assume. In contrast, their public CG reports revealed the presence of 21.29 out of the 53 values of the ERM report score. This suggests that while there may be a

high degree of ERM maturity (Beasley et al. 2015) within companies, those entities on average are not so willing to voluntary public disclose of it.

The test of difference (two-sided) in means reveals a significant univariate difference for all the twelve items of interest examined. Specifically, the mean is highly negative significantly different ($p < 0.001$) for the items related to: the extent of implementation, the training activities about risk and risk management, the business plan resource allocation for the ERM process, the identification and prioritization of risks, the methodology used for risk prioritization, the extent of integration in risk prioritization, the frequency of risk reporting, the temporal orientation of risk reporting and the level of comprehensiveness. With the exemption of the item related to the frequency of ERM managers' meetings presenting a positive significant difference in mean ($p < 0.05$), the remaining items related to the ERM relation with strategic planning and to the ERM process accountable person show a negative difference in mean ($p < 0.05$). Thus, with the exclusion of the frequency of ERM managers' meetings, all the items present a higher mean for data obtained from a private source of information compared to the public disclosure. Such results are also confirmed by the Wilcoxon test of difference in median.

Given these findings, the author further dug into the ERM voluntary disclosure and the differences between information privately obtained by the companies and publicly available. Figure 1 shows the distribution of the companies per each level of ERM_Variation_Index. The companies of the sample are normally distributed in a range from −40 to +7. With the exemption of the positive extreme of the range, all companies' ERM_Variation_Index present negative sign, stressing the lower level of public disclosure on ERM rather than that obtained from the private channel. The mean of the distribution (−17.86) is considered as the threshold to distinguish firms into two sets: high versus low ERM_Variation_Index (see Table 4). A low variation is considered to be in those firms falling in the interval [−17.86;

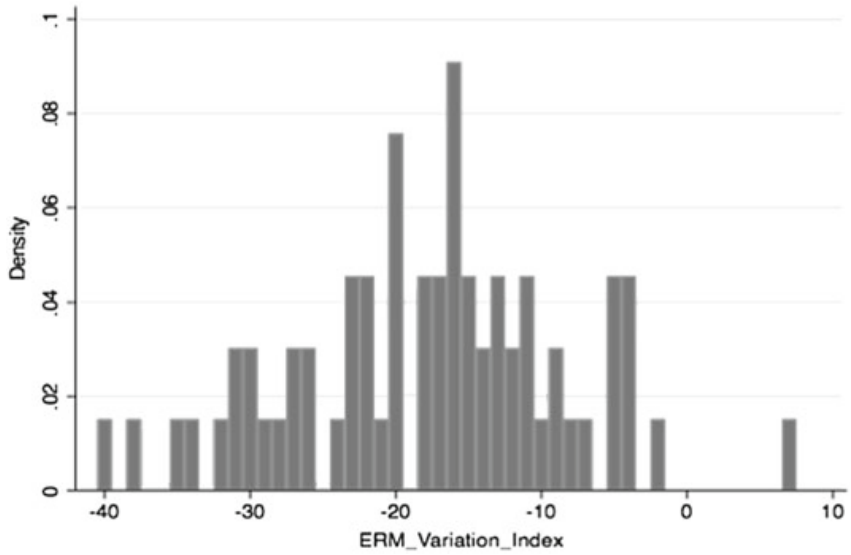

Fig. 1 Distribution of the companies per each level of ERM_Variation_Index

Table 4 ERM disclosure (in)consistency: high versus low variation

ERM_Variation_Index	# Companies	(In)consistency
−40	1	High variation/inconsistency
−38	1	
−35	1	
−34	1	
−32	1	
−31	2	
−30	2	
−29	1	
−28	1	
−27	2	
−26	2	
−24	1	
−23	3	
−22	3	
−21	1	
−20	5	
−18	3	
−17	3	Low variation/consistency
−16	6	
−15	3	
−14	2	
−13	3	
−12	2	
−11	3	
−10	1	
−9	2	
−8	1	
−7	1	
−5	3	
−4	3	
−2	1	
7	1	

+7] and it is interpreted as a higher level of information consistency. Vice versa, results external to such interval are considered to be representative of information inconsistency. According to such a distinction about half of the companies (35 out of 66) are consistent in term of ERM disclosure, while 31 are not. Thus, it follows the aim of the second research question of understanding which are the determinants of the ERM disclosure (in)consistency comparing the two opposite sets (high vs. low variation).

5.2 Determinants of Inconsistency Between Private Source of Information and Public Disclosure on ERM (RQ2)

Descriptive Statistics and Correlation Analysis. Descriptive statistics in Table 5 show the dependent (dummy) variable mean equals to 0.4696 meaning almost 47% of the companies tend to have high disclosure variation. Thereby, on the opposite side 53% of the companies have a low disclosure variation demonstrating relatively consistent private and public disclosures. Corporate governance factor such as board independence variable shows on average boards are composed by 44.48% of independent directors, representing less than half of the board. Companies for the 57.57% are owned by a single person controlling more than the 50% of the shares.[7] The accounting literature generally defines a company as dominated by a controlling shareholder when there is at least one owner who has 10% or more of the voting rights. It must be pointed out that Italian companies, even when listed on an official securities market, are in most cases family controlled. This means that even when a large portion of a company's equity is widespread among investors on the market, there is no real separation between owners and managers (Prencipe 2004).

For what concern firms' risk characteristics, the average amount of leverage is 61.27% showing Italian listed companies mostly rely on debt as tool for financing their activities. The systematic risk of the company on average is pretty high having a mean of 0.7552 (not shown in the Table). Market to book ratio has a mean of 2.831 interpreted as a pretty high undervaluation of stocks in the market. The average of the natural logarithm of revenues is equal to 12; for a better understanding of the amount of companies' revenues see details in Table 2. The market profitability of the companies is on average equals to 0.1083, confirming the undervaluation of the stocks value. Financial companies represent almost the 20% of the sample. Finally, regarding the years of ERM experience, companies on average declare to have implemented the process for a period ranging between 3 and 5 years.

The results of the Spearman rank correlation are presented in Table 6. They show a correlation at 10% level of market to book ratio and the control variable ERM experience with the dependent variable (INCONSISTENCY). Thus, suggesting potential associations also in the regression analysis. Few correlations among independent

[7]Additional descriptive statistics not inserted in Table 5a show ownership concentration in the sample is on average 47.86%.

Table 5 Descriptive statistics

Heading level	Mean	S.d.	Min.	Max.
Dependent variable				
Inconsistency	0.469697	0.5029053	0.00	1.00
Independent variables				
Board	0.4448	0.1582446	0.1538	0.8947
Concentration	0.5757576	0.4980147	0.00	1.00
Leverage	0.6127	0.2098272	0.00055	1.109
Market_to_book	2.831	4.422469	0.07895	26.33
Size_revenue	12.67	2.48213	8.16	23.24
TobinQ	0.1083272	0.5017228	0.0001009	2.901489
Financial	0.197	0.4007569	0.00	1.00
ERM_experience	2.651515	1.24644	1.00	5.00

Notes Variables are described as following: INCONSISTENCY = equal to 1 if ERM_Variation_Index is high, that is negatively beyond the mean (equals to −17. 86364), 0 otherwise (see Table 5). BOARD = number of independent directors out of the total number of directors; OWNERSHIP = a dummy variable equals to 1 if the highest percentage of shares owned by a single shareholder is over the 50%, 0 otherwise. LEVERAGE = defined as the ratio between total liabilities and total assets (sourced by Compustat database); MTB_RATIO = market to book ratio, measured as the market capitalization over the book value of shareholder's equity at the end of the year (Compustat database). SIZE_REVENUE = the natural logarithm of the total revenues (Compustat database); TOBINQ = performance on the capital market at the end of the year, measured as market value of equity plus book value of liabilities divided by the book value of assets (sourced by Compustat database). FINANCIAL = a dummy variable equals to 1 if the company belongs to the financial industry as classified by Borsa Italiana; ERM_experience = how long the companies declare to have adopted the risk management process [1 = less than 6 months; 2 = at least 1 year; 3 = at least 3 years; 4 = at least 5 years; 5 = at least 10 years]

variables are also found. Tests on multicollinearity and endogeneity suggest data do not present such issues.[8]

Inconsistency between Private and Public Disclosure: Determinants. Table 7 presents the results of the empirical Probit model developed to answer the second research question.

Results of the probit model show both the corporate governance characteristics are significantly associated to information inconsistency on ERM. Either the proxy for board independence and the variable related to the percentage of control present the expected sign. Results indeed show the number of independent directors has a negative significant impact on the information inconsistency about the ERM process ($p < 0.05$), while higher levels of ownership concentration positively affect such information inconsistency ($p < 0.1$). Hypotheses 1 and 2 are therefore supported.

[8]Multicollinearity was checked by the variance inflation factor (VIF) test. VIF value of 1.22 for this model ruled out a multicollinearity problem. IVprobit test for endogeneity displays no endogenous variables.

Table 6 Spearman rank correlation analysis

	INCONS.	Board	Owner.	Lev.	Mtb_ratio	Size_rev.	TobinQ	Fin.	ERM_exp
INCONS.	1.000								
Board	−0.080	1.000							
Ownership	0.132	0.111	1.000						
Leverage	0.192	0.204*	−0.082	1.000					
Mtb_ratio	−0.302*	0.012	−0.024	−0.084	1.000				
Size_revenue	0.025	−0.029	0.013	0.184	−0.211*	1.000			
TobinQ	−0.173	0.210*	−0.034	−0.127	0.139	0.139	1.000		
Financial	−0.008	0.176	−0.192	0.363*	−0.281*	−0.021	0.103	1.000	
ERM_exp	0.213*	0.188	−0.046	0.106	−0.154	0.203	0.154	−0.023	1.000

Notes *Correlation is significant at the 0.10 level (two-tailed)

Table 7 Probit model results

Inconsistency	Coefficient
Board	−0.0285908** (0.036)
Ownership	−0.7044636* (0.064)
Leverage	2.525829** (0.020)
Mtb_ratio	−0.1451485** (0.013)
Size_revenue	−0.1461361* (0.071)
TobinQ	6.501505 (0.154)
Financial	−0.9844539* (0.094)
ERM_experience	0.2729999* (0.086)
Constant	0.6978686 (0.579)
No. of observations 66 Prob > Chi^2 0.0025 Pseudo-R^2 0.2602	

Notes Amounts in parentheses are p-values. ***, **, * indicate significance at the 1%, 5%, 10% level, respectively

For what concern firm risk characteristics, a positive and significant result ($p < 0.05$) is found for leverage thus supporting the association stated in hypothesis 3 and contributing to prior mixed results. Results show firms more leveraged are generally less forthcoming in public disclosures about their ERM processes. A significant association ($p < 0.05$) is also found for the market to book ratio variable. In contrast to findings related to leverage, the relation with such a firm risk characteristic is negative. It indicates more consistent information on the ERM process at the companies' financial risk increase. Hypothesis 4 is also supported.

Among control variables companies size and industry have a negative significant association with the dependent variable ($p < 0.1$). This shows that bigger companies have more consistent disclosures supporting expectations. The variable related to industry shows that financial companies are negatively significant related to inconsistency, again supporting expectations. That is, given financial companies have different characteristics, and in particular stronger regulations about risk management it is expected they have greater disclosure consistency. Further, contrary to expectations market firm profitability is not associated to information inconsistency about the ERM process. Finally, interestingly the variable proxying for firm's ERM experience is positively significant associated ($p < 0.1$) to inconsistency; at the enhancement of

Table 8 Probit model on companies having lower versus greater ERM_experience

Inconsistency	Panel A Coefficient	Panel B Coefficient
Board	−0.0266093 (0.429)	−0.0315463* (0.074)
Ownership	0.4272366 (0.718)	1.027232** (0.047)
Leverage	4.977333** (0.025)	2.404916 (0.140)
Mtb_ratio	−1.08703 (0.045)**	0.0575061 (0.601)
Size_revenue	−0.0245758 (0.952)	−0.0912594 (0.288)
TobinQ	−18.4437 (0.541)	5.433301 (0.385)
Financial	−2.183997* (0.067)	0.1258688 (0.882)
ERM_experience	0.1982419 (0.962)	0.4190353 (0.785)
Constant	−0.0266093 (0.429)	−0.0315463* (0.074)
No. of observations	29	37
Prob > Chi^2	0.0024	0.1099
Pseudo-R^2	0.5740	0.2297

Notes PANEL A. Probit model on companies having lower ERM experience (ERM_experience < 3); PANEL B. Probit model on companies having greater ERM experience (ERM_experience ≥ 3)

ERM experience, measured in term of years of adoption, it is found greater information inconsistency about the process.

The tested model has an explanatory power with a pseudo-R^2 equal to 0.2602. Overall, results show that highest levels of disclosure variation on ERM are either associated to CG characteristics and to firm's risk characteristics.

Given the significance of the variable ERM experience, further investigation is requested on this aspect. At this aim the model is tested splitting companies into two sets: those having a shorter experience (less than 3 years of adoption) and those having a longer experience of ERM adoption (equal or longer than 3 years). Results are shown in Table 8 panel A and B, respectively.

Table 8 (panel A) shows how the explanatory power of the model increases to a pseudo-R^2 of 0.5740. Findings reflect a situation in which just firm's risk factors affect information inconsistency on ERM, supporting hypotheses 3 and 4. Specifically, leverage maintains a positive significant association ($p < 0.05$) and market to book ratio a negative significant association ($p < 0.05$) with inconsistency. Whereas, both

the CG variables lose their association with the dependent variable. Among the control variables just financial industry ($p < 0.1$) confirm prior results.

Examining data for companies declaring to adopt ERM for longer, Table 8 (panel B) shows instead just CG variables significantly affect ERM information inconsistency, supporting hypotheses 1 and 2. However, no other variable of the model appears affecting the dependent variable in this set.

To summarize, findings of the complete model reveal how both CG variables (board independence and ownership's concentration) and firm's risk factors (leverage and market to book ratio) affect information inconsistency on the ERM process. Nevertheless, controlling for the level of ERM process' experience, interestingly it emerges how in companies adopting the process in recently time the disclosure inconsistency is driven by firm's risk factors, while for companies more mature in terms of ERM adoption the inconsistency is driven just by CG characteristics.

Sensitivity Analysis. A sensitivity analysis on an identical model has been run using an alternative variable to the dummy related to the ownership concentration. Specifically, the highest percentage of shares owned by a single shareholder has been adopted. Results (not shown in the paper) confirm the significant association with the independent variables (hypotheses 1, 2, 3 and 4 are supported). Specifically, it shows a negative and significant relation between board independence, market to book ratio and inconsistency. Whereas, it shows a positive and significant association between ownership concentration and leverage with inconsistency. Among control variable just size maintains the significance.

The slight significance of financial companies' variable in the findings represented in Table 6 would suggest for further investigation. However, given impossibility to run the same model either on non-financial and financial companies because of the small sample of the latter (n = 13), Table 9 aims at showing the results of the model just on non-financial companies. Findings confirm the role of both risk factors in the association with information inconsistency (both hypothesis 3 and 4 are supported). CG variables play a partial role in the association with inconsistency: only board independence is found negatively significant (hypothesis 1 is supported; hypothesis 2 is not). Among control variables just size maintains its significance.

Finally, given six of the respondent companies participated to the survey both the years 2013 and 2015, an additional analysis has been run not considering the 2015 data for those companies. In such a way the sample for the two years become more homogeneous with 28 companies in 2013 and 32 in 2015. Results confirm all the hypotheses. Significant associations between CG variables (board independence and ownership concentration at $p < 0.05$) and firm's risk variables (leverage and market to book ratio at $p < 0.05$) are found. The control variables too are confirmed significant as in the original model: companies' size, financial companies and ERM experience (Table 10).

Table 9 Probit model on non-financial companies

Inconsistency	Coefficient
Board	−0.0391189** (0.012)
Ownership	0.5777792 (0.175)
Leverage	3.216437** (0.011)
Mtb_ratio	−0.1362497** (0.037)
Size_revenue	−0. 151717* (0.081)
TobinQ	1.272287 (0.411)
Financial	0.1420315 (0.141)
ERM_experience	1.235772 (0.397)
Constant	−0.0391189** (0.012)
No. of observations 53 Prob > Chi^2 0.0047 Pseudo-R^2 0.2789	

6 Discussion and Conclusions

Over the last years an increasing call has emerged at the international level for effective risk management processes within organizations and for greater transparency about that. Emerging academic research provides limited evidence about the ERM implementation around the world while still little is known about how companies publicly disclose information related to their ERM process. The current paper contributes to prior research offering meaningful insights about which factors companies disclose both publicly and privately, finding some variation between these two sources.

Variation determined as difference between information obtained from CG report and the submitted survey respectively, underlines how companies even if adopting an effective ERM process according to COSO (2004) are sometimes less willing to voluntary disclose of it. Specifically, companies tend to understate information about: the extent of their ERM process implementation; the training activities about risk and risk management put in place; the business plan resources allocated for the ERM process; the ERM relation with the strategic planning; the identification and prioritization of risks; the methodology used for risk prioritization; the extent of integration in risk prioritization; the frequency of risk reporting and its temporal orientation; the ERM process accountable person; and, the level of comprehensive-

Table 10 Probit model with no data 2015 for those companies answering both the survey's years

Inconsistency	Coefficient
Board	−0.0415123** (0.013)
Ownership	1.024538** (0.022)
Leverage	2.73705** (0.018)
Mtb_ratio	−0.1603119** (0.012)
Size_revenue	−0.1725365** (0.050)
TobinQ	6.833866 (0.161)
Financial	−1.040656* (0.097)
ERM_experience	0.4379525** (0.026)
Constant	1.015507 (0.444)
No. of observations 60 Prob > Chi^2 0.0020 Pseudo-R^2 0.2925	

ness of risks considered. These results support previous findings about the company managers' preference of providing risk related disclosure that are formal rather than substantial (Abraham and Shrives 2014; Tufano 1996) understating their effective ERM process.

On the contrary, companies tend to overstate information related to the frequency of ERM managers' meetings. This latter result may be explained by the risk management duties requested by the CG code. Specifically, the need to report to the board at least biyearly (see Table 1). Thus, suggesting potential "boiler plate" information (Woods et al. 2008). It follows, the study additionally investigates which are the determinants of ERM disclosure inconsistency identifying both CG and firms' risk characteristics as significant drivers of it. Among corporate governance characteristics, the association with board independence is stronger than the one between ownership's concentration and ERM disclosure inconsistency. The study also finds that firm's risk characteristics such as leverage and market to book ratio are significantly associated to ERM disclosure inconsistency, even if according to opposite signs. Companies having a greater level of debt tend to be more inconsistent on ERM disclosure supporting the results by Elshandidy et al. (2013) which identify leverage as a determinant of risk voluntary disclosure; while, companies having greater market to book ratio present a negative sign of the association, showing greater consistency. Both results support proprietary cost theory expectations. These findings

may contribute to prior results and to a still understudied relation between firm's risk characteristics and ERM process disclosure (Buckby et al. 2015).

Among control variables, firm size and financial industry have a light negative significant influence on ERM disclosure inconsistency. This in line with the expected sign according to both the tested theories. The latter finding about financial companies, in particular, suggests that the greater specific regulations requested for those firms—including also disclosure on ERM—is not so much reflected into their CG reports. In addition, it is found a positive and slightly significant relation with the so called ERM experience—the years of ERM adoption the companies declared. Such a positive relation appears to support proprietary cost theory according to which companies limit voluntary disclosure when proprietary costs emerge from it. Information on the ERM process is perceived proprietary in nature, mainly at the beginning of the companies ERM experience, thus affecting the decision by the firms to not fully disclose about it. Indeed, a deeper investigation shows this variable has an impact on results when the sample of companies is split according to a shorter or longer ERM experience. Such additional investigation helps to verify that for companies with lower ERM experience the greater disclosure inconsistency on the process is driven by firm's risk factors. In contrast, for those companies having greater ERM experience the drivers of disclosure inconsistency are corporate governance variables, in particular the fact of being closely held by a single owner, condition pretty common in the context analyzed. In line with the results by Buckby et al. (2015) which find that board independence does not impact on the level of risk management disclosure in the Australian context, the additional test finds that this factor does not affect so much inconsistency between public and private source of information on ERM. Thus suggesting that board independence acts just partially as control mechanisms of information asymmetry on such a topic. The relationship between ERM and CG is of interest to regulators because less concentrated ownership and independent directors are expected to reduce agency problems (Abraham and Cox 2007). Therefore, the results of the current study demand for carrying on the international reflection about the need for reducing regulatory intervention on corporate reporting.

Thus, all together the findings mainly support proprietary cost interpretation, the additional analysis based on the distinction of shorter versus longer ERM experience helps to orient even more towards such an interpretation in contrast to the agency one.

The paper has both theoretical and practical implications. First, from a theoretical point of view, it contributes to literature on risk disclosure focusing on risk management practices instead of risk factors. Second, the paper originally contributes to the literature benefiting of private information on the internal ERM process and comparing such information to public disclosure of it. In addition, the study investigates a new variable (ERM experience) which is found to affect the ERM process disclosure and that asks for future investigations. Third, prior research mainly analyzes non-financial setting while the current study takes into account also financial companies surprisingly showing that such industry does not affect so much the analyzed relation. Finally, results contribute to the recent risk management disclosure stream of literature not focusing on the annual report but investigating other kind of public

sources such as the CG reports (Buckby et al. 2015; Florio and Leoni 2017) extending prior studies focusing on the Italian context (Arena et al. 2011; Elshandidy and Neri 2015; Florio and Leoni 2017). In particular, the paper contributes to prior findings given the double perspective offered by data obtained through a survey compared to what companies publicly voluntary disclose. The resulting inconsistency between the two sources suggests a general understatement of public voluntary disclosure and a potential underestimation of the investors' benefits prior international literature identifies. Thus, due to perceived proprietary costs that companies suffer, additional research is needed to identify the potential benefits that companies might have when disclosing more informative disclosure on ERM.

From a practical point of view, the results appear to support the decision of the Italian stock exchange CG committee to increasing transparency through the compulsorily enhancement of the risk management process disclosure. In particular, given riskier companies tend to have higher variation scores, the findings would suggest not only for a mandatory disclosure regime but also for the adoption of a stricter rule-based approach instead of a principle-based approach. Indeed, just because riskier companies publicly disclose less, it is expected that if they are asked to be compliant to a principle-based approach on ERM process disclosure they continue to act in the same way (in the absence of a CG report audit). A further investigation of the same context after the year 2015 may provide empirical evidences on the superiority, or not, of a mandatory disclosure on risk management processes.

The paper's results may lead to contribute to the international increasing attention and push on Enterprise Risk Management (ERM) as part of good CG, and to the debate about the different investors' benefits from the enhancement of risk management disclosure (Baxter et al. 2013; Campbell et al. 2014). The study can shed light to understand if CG reports information content is informative to stakeholders given also the international increasing interest for the assessment of companies' "management and governance". Specifically, such assessment, with reference to the effectiveness of risk management processes, is based on information (mostly not publicly disclosed) provided by the entity to rating agencies as part of the credit evaluation process (see Standard & Poor's 2012). Therefore, finding public disclosure on ERM process is undervalued compared to the internal process described through private disclosure, the research empirically shows how—in the analyzed context—ERM public disclosure may not be informative about the effective quality of "management and governance". Thus, requiring further investigation.

Findings can also contribute to the academic call to investigate the dilemma between better and more regulation, in times where the issue of compliance and risk management becomes more important for top management (AIDEA 2017). The paper suggests the limits of voluntary disclosure regulation and the conditions under which this happened showing how companies tend to not fully disclose their effective internal ERM process. Specifically, the paper allows to identify the presence of disclosure's proprietary costs associated to CG and firm's risk characteristics, and the condition under which they became manifest—that is the years of ERM experience. These are factors the regulators should take into account when recommend informa-

tion on such a topic. Finally, the study can also contribute to the current debate about the Integrated Reporting (IIRC IR 2013).

The paper however presents many limitations. First of all, the sample size associated to the specificity of a voluntary disclosure context could affect the generalizability of results in different settings. Second, the construction of the variables leave room for alternatives; sensitivity analysis attempt to mitigate such a limitation. Future research that captures potential inconsistency between private and public disclosure on ERM in different settings could enable to extend the debate. Finally, an analysis of the same context after the 2015 CG code review may help to investigate changes in the behavior of the company under a stricter disclosure regime.

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Appendix: Survey

The survey questions about an ERM process were developed using the seven fundamental concepts defining ERM from the COSO framework as a basis. Twelve questions in the survey map to the seven fundamental concepts from COSO to operationalize them. Thus, scores based on the 12 factors were created based on the survey responses and scores based on the same 12 factors were created based on the reading of the CG reports. Specifically, as summarized in Table 3, the first concept—defining ERM as a process on-going and flowing through the entity—is composed by one factor identifying the extent of ERM implementation (Paape and Speklé 2012). The second concept relates to the participation extent of people at every level of the organization. Therefore, the two factors by which it is composed respectively ask for training activities (Beasley et al. 2015) and business plan resources allocated to the ERM process (NCSU & Protiviti report 2016). Both these factors indeed aim at widening the ERM scope among people within the organization.

The third fundamental concept is about the application in the strategy setting and thereby the factor investigates the relation of ERM with strategic planning (Frigo and Anderson 2011; Beasley et al. 2015; COSO framework draft 2016). The fourth concept is composed by three factors investigating the identification and prioritization of risks, the methodology used for risk prioritization, and the extent of integration[9] in risk prioritization to verify the application of the process across the enterprise (Arena et al. 2011; Paape and Speklé 2012). In particular, Arena et al. (2011) in their study based on the Italian setting find that generally an entity's risk evaluation method comprises a combination of qualitative and quantitative techniques. Also

[9]The integration concept introduced by Arena et al. (2011) refer to how risks are governed within all levels and functions of an organization.

other studies find a combination of the two methodologies (Woods 2009; Jordan et al. 2013; Mikes 2009). Thus, for this factor based on a three-point scale and related to the methodology used for risk prioritization, it is attributed a 1 only in the case both the methodologies are applied by the company, 0 otherwise.

Then, the ERM process according to the fifth concept needs to be designed to identify potential events that, if they occur, will affect the entity and to manage risk within its risk appetite. A crucial element to identify potential events is a frequent communication in terms of risk reporting (Paape and Speklé 2012). Thus, the current study aims to investigate the frequency of risk reporting and its temporal orientation (back vs. forward-looking). Considering the proactive aim of ERM, the coding choice is to attribute a 1 if respondents answer forward-looking, 0 otherwise.

The sixth concept relates to the ERM process' ability to provide reasonable assurance to an entity's management and board of directors. Beasley et al. (2005) is the first study identifying Chief Risk Officer role (or a person having the same role but with a different title) as a good proxy for ERM effectiveness. The presence of such a person in charge for the process can provide the requested reasonable assurance of the ERM process (Baxter et al. 2013; Ellul and Yerramilli 2013). Another related factor providing assurance to the process is the frequency of risk managers' meetings. Finally, the seventh concept geared to the achievement of objectives in one or more separate but overlapping categories is operationalized in a question asking for the level of comprehensiveness (i.e. range of risks) considered (Arena et al. 2011). Risks can be classified according many overlapping categories linked to the companies' goals, such as strategic, operative, compliance and reporting (COSO 2004; AICPA & NCSU 2016). Wider and more holistic level of risks comprehensiveness considered can contribute to overcame a silo-based approach and to the companies' objectives achievement.

For a detail about the survey/report factors and corresponding five-point scale answers see the following.

Concept 1. A process, ongoing and flowing through an entity

Item 1. How much has Enterprise Risk Management (ERM) process been implemented?

1. Risk management is mainly incident-driven; no plans exist to implement ERM.
2. We actively control risk in specific areas (e.g. health & safety, financial risk); we are considering to implement a complete ERM.
3. We identify, assess and control risk in specific areas; we are planning to implement a complete ERM.
4. We identify, assess and control strategic, financial, operational and compliance risks; we are in the process of implementing a complete ERM.
5. We identify, assess and control strategic, financial, operational and compliance risks; ERM is an integral part of the (strategic) planning & control cycle.

Concept 2. Effected by people at every level of an organization

Item 2. Are training activities about risk carried out?

1. Not at all
2. Minimally
3. Somewhat
4. Mostly
5. Extensively

Item 3. Are business plan resources allocated to ERM initiatives?

1. Not at all
2. Minimally
3. Somewhat
4. Mostly
5. Extensively

Concept 3. Applied in strategy setting

Item 4. To make stronger the responsibilities is there a relation between capital allocation, budget decisions and identified risks? Namely, risk management process is related to strategic planning?

1. Not at all
2. Minimally
3. Somewhat
4. Mostly
5. Extensively

Concept 4. Applied across the enterprise, at every level and unit, and includes taking an entity-level portfolio view of risk

Item 5. Do you identify and prioritize risks?

1. No at all
2. Minimally
3. Somewhat
4. Mostly
5. Extensively

Item 6. Which kind of methodology do you use to prioritize risks:

1. Qualitative: phenomenon description;
2. Quantitative: phenomenon description in monetary terms;
3. Both

Item 7. What is the extent of integration in risk prioritization?

1. Not at all widespread
2. Uncommon
3. Spread just at top levels: board and top management
4. Spread in the majority of the organization: board, top and middle managers
5. Enterprise widespread: board, top and middle managers and operative levels

Concept 5. Designed to identify potential events that, if they occur, will affect the entity and to manage risk within its risk appetite

Item 8. What is the frequency of general risk reporting?

1. Every 3 years or never
2. Once a year
3. Every 9 months
4. Twice a year (every 6 months)
5. Every 3 months or less

Item 9. Temporal orientation of risk reporting:

1. Past-looking (overcame risks)
2. Forward-looking (expected risks)

Concept 6. Able to provide reasonable assurance to an entity's management and board of directors

Item 10. Who is accountable for ERM process?

1. CEO
2. Internal Auditor
3. Board
4. Chief Risk Officer
5. Others (specify)

Item 11. ERM managers meeting: what is their frequency?

1. Every 3 years or never
2. Once a year
3. Every 9 months
4. Every 6 months
5. Every 3 months or less

Concept 7. Geared to achievement of objectives in one or more separate but overlapping categories

Item 12. What is the level of comprehensiveness—range of risks considered (strategic, operative, compliance and reporting risks…)?

1. Not at all
2. Minimally
3. Somewhat
4. Mostly
5. Extensively

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