

**Perceptions of Risk Management Practices**  
**through the reading of public corporate financial documents**

*Selena Aureli*

Department of Business Studies (Dipartimento di Scienze Aziendali)

University of Bologna (Polo di Rimini)

[selena.aureli@unibo.it](mailto:selena.aureli@unibo.it)

*Federica Salvatori*

Department of Business Administration

Faculty of Economics - University of Modena and Reggio Emilia

[federica.salvatori@unimore.it](mailto:federica.salvatori@unimore.it)

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**Abstract (max 200 words)**

The demand for risk management and risk disclosure has increasingly intensified, especially in the aftermath of the financial crisis. Despite the several advantages of risk reporting, companies may withhold information for many reasons. Accordingly, the present research investigates whether and how public disclosure supports stakeholders in understanding the risks and the risk management currently in practice. Secondly, it aims to understand whether the quality and quantity of risk disclosure is related to the maturity of the risk management systems adopted. Content analysis and questionnaires have been combined, focusing on Italian listed local utilities, which are exposed to several different risks. Results show that information mainly regard risks and specific company responses adopted and that there is not always a direct correspondence between the degree of corporate risk disclosure and the maturity of risk management practices implemented by the firm.

**Keywords**

Risk disclosure, public utilities, content analysis, risk management

## 1. Introduction

The demand for risk management and risk disclosure has increasingly intensified, especially in the aftermath of the financial crisis. Risk reporting comes from the risk monitoring and management processes adopted (Solomon *et al.*, 2000) and it is not a mere list of risks the company is exposed to, but also a description of their possible effects and management responses. As such, risk information provides a context within which to interpret corporate economic and financial performance and should generate a clearer and improved perception among stakeholders of the company's ability to identify and manage risks (Linsley and Shrives, 2000).

Despite the number of advantages of risk reporting, there could be many disincentives in disclosing complete information about risks (i.e. disclosure costs can exceed the related benefits). Accordingly, the present research investigates: i) whether and how public disclosure supports stakeholders in understanding the risks and the risk management applied in a company as well as its strategic intent.; ii) whether the quality and quantity of risk disclosure is related to the maturity of the risk management systems adopted.

Therefore, the research aims at:

1. analyzing corporate risk disclosure in terms of quantitative and qualitative information;
2. investigating whether it is possible to understand a company's approach to risk management through the information contained in mandatory and voluntary disclosure;
3. verifying whether a more transparent and detailed communication to external stakeholders is associated to the concrete adoption of a more mature risk management approach.

The focus is on Italian local utilities (e.g. water, gas, electricity, waste disposal utilities) listed at the FTSE Milan Stock Exchange. Utility companies' survival and value creation seem to be strictly related to risk management (PricewaterhouseCoopers, 2009) and its connection to the strategic process (Frigo, 2008), as it is also confirmed by many researches on risk management systems

applied to the utility sector (Dalglish and Cooper, 2005; Grigg, 2006; Shaw and Lewis, 2006; MacGillivray et al., 2007). Beyond the well-known issues in strategic management (McNabb, 2005), public utilities operate in a highly uncertain environment, facing several sector-specific risks (i.e. Grigg, 2006; Walker, 1998). The nature of the service they provide requires a particular attention to managing risks. Furthermore, in Italy the presence of local governments (LGs) as shareholders may create conflicts of interest (Confservizi, 2009). Lastly, listed companies must comply with more rules than non listed ones and also feel more pressure from the rating agencies and the capital markets in disclosing risk management practices.

In order to address the research aims, the paper is structured as follows. First the literature about risk management (with focus on local utility companies) and risk disclosure is reviewed (par. 2). Then, the methodology chosen is explained in par. 3, followed by results (par. 4 and 5), discussions and conclusions (par. 6).

## **2. Literature review**

### *2.1. Risk and risk management in public utilities*

After the privatization and liberalization waves, Italian local utilities are now mainly joint-stock companies which operate in a highly dynamic and uncertain legislative, socio-political and macroeconomic context that requires strategic vision, adaptability as well as anticipation to disruptive changes while being accountable to stakeholders about how initiatives are implemented and affect the assets and business processes (PricewaterhouseCoopers, 2009).

Additionally, they have to face specific difficulties in strategic planning such as the demand forecast (McNabb, 2005) and the potential conflicts of interest due to the multiple roles played by LGs (Confservizi, 2009). LGs have a regulatory and steering role over providers (which can only be formally autonomous firms) to assure they comply with technical, qualitative and economic standards without abusing their power (Broadbent and Guthrie, 2008) while being often also the

majority shareholders (Abatecole and Poggesi, 2007; Cristofoli and Vallotti, 2007; Grossi, 2007). As the need of managing and balancing several interests and values emerges, concerns about corporate governance rise (e.g. Grossi, 2007; Menozzi, 2009) and risk management is an aspect of governance to consider (Broadbent and Guthrie, 2008).

Although risk can be seen as just the possibility of a negative or harmful economic consequence of an event (Crouhy *et al.*, 2006), in the current paper it is rather conceived as both the chance of a potential loss and the opportunity for a gain (Rahardjo and Dowling, 1998; Liebenberg and Hoyt, 2003). When risk is intended as the possibility that future events might produce a reality different from expected (Renn, 1998), risk management copes with most of the long-range decisions and, nonetheless, with the strategy (Baird and Thomas, 1985) and the strategic objectives (Young and Tippins, 2001).

However, the consideration of strategic risks is quite recent and it results from a paradigm shift in risk management (Selim and McNamee, 1999), although different risk management approaches are claimed to co-exist in practice (Mikes, 2005). Years ago, organizations managed risk in a fragmented way (“silos” approach), addressing primarily insurable and financial risks within the single business unit or function. After some time, corporate risk management included a range of other risks (e.g. operational and reputational), and then followed an enterprise-wide approach (Beasley *et al.*, 2005) by which the interdependencies among risks are recognized, the company’s aggregated risk exposure is identified and risk management is linked to both corporate governance and the strategic objectives.

Several holistic risk management frameworks and standards have been developed, such as the COSO ERM framework, AS/NZS 4360:2004, ISO 31000: 2009. Their implementation in specific public utility sectors has been investigated, i.e. by Shaw and Lewis (2006) who showed the ERM implementation in a hypothetical electric utility, while MacGillivray *et al.* (2007) developed a capability maturity model to benchmark risk management within water utilities and applied it to 8 water utilities from UK, Australia and USA.

The effectiveness of a holistic risk management involves all the organization's levels, but the Board of Directors' commitment is definitively crucial. It ensures the consistency of the risk management processes designed and implemented by senior executives and risk management professionals while controlling that risk management procedures/practices are functioning as designed (Branson, 2010). The Board should devote meeting time to discuss and analyze information about the entity's risk management program and the most significant risks impacting on the achievement of strategic objectives. It also may assign primary risk oversight responsibility to a Risk Management Committee established within the Board. More and more often a Chief Risk Officer (CRO) is also appointed. The CRO improves decision making through good risk analytics and expert judgment and avoids overlaps among risk people and the strategy function (Mikes, 2010). The involvement of CFOs is equally important, since they have full understanding of the key activities that drive performance (Branson, 2010).

The above-mentioned frameworks share a common focus on the link between risk management and the strategic process. Thus, risk management strategy should be developed to align risk strategies, business objectives and key strategies (e.g. Frigo, 2008). It should also be integrated with the performance measurement (Cokins, 2009) and executive compensation (Aureli and Salvatori, 2012). First of all, objectives and strategies are set on the basis of a deep understanding of the internal and external context. Risks connected to each strategic alternative should be evaluated in order to choose the best strategy whose associated risks rest within the stakeholders' risk appetite and the established risk tolerance. The definition of the latter may be affected by LGs that may promote the adoption of physical and social criteria in risk assessment (Klinke and Renn, 2002).

Although the classification of risks could foster a "silos" view (Crouhy *et al.*, 2006), a distinction between strategic, business, operational and financial risks is useful. In public utilities, other sector-specific risks arise, such as environmental risk (English, 2000; Gough, 1997) and regulative risk (Walker, 1998).

Once the strategy has been set, events and scenarios (as well as their interrelation) that may impact on its implementation have to be identified using techniques such as SWOT analysis, interviews, questionnaires and capability analysis (COSO, 2004; IMA, 2007). In this stage, interrelation among events and risk drivers can be uncovered through an influence diagram.

Later, the closest people to the source of disturbance should carry risk assessment out through quantitative or qualitative techniques so to prioritize events. The overall entity risk or business unit risks should be assessed as well, recurring to aggregated risk measures or translating different risk measures to a common unit of measure (i.e. earning per share).

Then, action plans or risk responses (typically avoidance, reduction, transfer or acceptance) are developed and implemented for each prioritized risk and risk owners are appointed. After control activities, the risk management report and the risk management documentation are prepared on the basis of formal and informal information systems. Finally, risk management is communicated throughout the company and outside it. Measures that express the risk management maturity may be useful for improving it.

Regardless of the framework chosen and how robust the effort to identify risks is, some unknown risks will remain unknown at the end of the process (Modica and Rustichini, 1994), and public utilities need to be prepared for their possible occurrence (Apgar, 2006; Grigg, 2006; Kunreuther, 2006). Providing essential services to citizenry (Borgonovi, 1998), they have the duty of continuity of provision at certain standard level defined by the Authorities. Unjustified long interruption may cause the loss of the status of provider. Many tools are available at such regard such as scenario planning which helps managers to respond to exogenous shocks that could reasonably, albeit remotely, occur (Alvarez and Barney, 2008).

A highly effective Board must also have crisis management plans in place as well as a specific teams ready to act upon these plans in moments of crisis (NACD, 2006 and 2011).

Crisis management can be defined as the organization and coordination of activities in preparation for, and response to, events that prevent or impede normal organizational operations. Crises may be

addressed within an organization's business continuity management (BCM) that developed from contingency plans (BCP) and disaster recovery plans implemented in the mid 70's.

A disaster or catastrophe differs from a crisis because it leads to a collapse of a system and cause permanent and non-reparable damage within a system. Disaster also differs from risk, since the latter means the anticipation of the catastrophe (Beck, 2006). Thus crisis and catastrophe management cannot be confused with risk management, although they should be integrated (Shenkir *et al.*, 2010) in order to fully support public utilities in achieving environmental, social and financial performance. Finally, LGs, citizens and stakeholders in general should put particular pressure for knowing how the company manages risks and uncertainties and how well a firm would be able to cope with "unmanageable" risks (IACEW, 2001).

Such knowledge is expected to be in public reports where some risk information is mandatory. The literature has underlined that disclosure is wider in the utility sector than in others (Boesso and Kumar, 2007), however the adequateness of risk reporting in public utilities for supporting stakeholders in understanding whether and how those companies manage their risks needs further investigation.

## *2.2 Risk disclosure: legislative requirements and voluntary information*

Risk reporting is now a requirement for all companies. Its relevance has increased in the aftermath of corporate misconducts (and the on going financial crisis) when many corporate governance bodies and governments reacted with regulations and initiatives in order to improve governance models and promote risk management and disclosure (Grant and Visconti, 2006).

Beyond the International Accounting Standards (for example IFRS 7, IAS 1, IAS 32), different risk reporting requirements have been in place for years both in the US and in the European countries (ICAEW, 2011). Thus, a wide variety of disclosure exists at the international level, which also emerges among companies operating in the same country (e.g. Woods *et al.*, 2009). Such diversity endures also with reference to risk disclosure in banks (Pucci *et al.*, 2011).

In Europe, the Directive 2003/51/EC and 2004/109/EC played an important role. The latter requires that individual companies' annual reports shall include at least a fair review of the development and performance of the company's business, together with a description of the principal risks and uncertainties that it faces. A similar provision also applies to the reports of groups (Article 2 (10)). Moreover, the interim management report of public companies shall include a description of the principal risks and uncertainties for the remaining six months of the financial year (Article 4 (5)). Those Directives have changed the Italian Civil Code and the Finance Code making risk disclosure as a duty for all Italian companies, regardless they are listed or not.

Under the Article 2428 of the Civil Code and its interpretations given by the Italian Council of Certified Public Accountants, annual reports must indicate high impact and high probability risks (considered in their negative connotation) as well as uncertainties companies are exposed to (CNDCEC, 2009). Although each kind of risk should be reported, a specific focus concerns the disclosure of qualitative and quantitative information about financial risks associated to a significant recourse to financial instruments.

Furthermore, in 2001 the Italian Government adopted the legislative decree no. 231 which encouraged firms to adopt a suitable "Organizational, Management and Control model" that allows the identification of the risk areas where crimes (such as fraudulent accounting and corruption) are likely to be committed by directors and other key subjects and contributes to the definition of specific procedures for regulating the decision-making process and crime prevention.

Besides, listed companies must comply to the law no. 262/2005 which contributes towards transparency on financial markets by requiring effective internal control systems, a more attentive identification and analysis of risk areas and establishing additional responsibilities to managers and key process-owners.

In addition, listed companies might adopt the prescriptions of the Corporate Governance Code issued by the Committee for Corporate Governance of Listed Companies created by Borsa Italiana S.p.A. Among several prescriptions, the Code requires an effective process of risk identification,

measurement, management and monitoring for managing the company correctly and consistently to the strategic objectives. The Board is responsible for guiding and monitoring the internal control system, ensuring that the main risks, identified and reported by the CEO, have been properly detected and managed.

Several studies have investigated company risk disclosure arguing the wide variations in detail and clarity (Roulstone, 1999), a lack of uniformity, quantification, and potential upside effects of risk and value creation opportunities (Lajili and Zégha, 2005). Thus, researchers mainly underlined the existence of risk information gaps (Linsley and Shrives, 2006). About Italian companies, Beretta and Bozzolan (2004) have found that there is a formal risk disclosure, but a “substantial nondisclosure” of the expected impact of risk factors on future performance. Furthermore, with reference to risk management – a topic usually not requested as disclosure requirement by regulations (Dobler, 2008)–, research shows that just 1/3 of the companies investigated provide comprehensive disclosure on their enterprise risk management policies in the annual report or other publicly available source and only 8.4% indicate to have implemented a recognized risk management charter or standard (GovernanceMetrics International, 2009).

The inadequacy of risk disclosure has been strongly echoed by the on going financial crisis (ICAEW, 2011). However, it seems that a reinforcement of legislative frameworks does not necessarily turn into a better risk reporting (Dobler, 2005; Oliverira *et al.*, 2011; ICAEW, 2011). Indeed, even under a mandatory regime, the quality of risk reporting mainly depends on voluntary disclosure.

With reference to listed companies, voluntary communication should be quite widespread. An improved disclosure of the range of risks and uncertainties these companies are exposed to, their possible impact on performance as well as their management is regarded as useful in supporting relationships with external stakeholders (Beretta and Bozzolan, 2004; ICAEW, 2011; Solomon *et al.*, 2000;). Actually, there are many advantages related to external communication as shown by agency theory and signaling theory.

Moreover, because managers have more degrees of freedom in writing the text of corporate reports than the financial numbers while being aware of possible benefits deriving from communicating a good image of the firm (Oliveira *et al.*, 2011), they might use risk disclosure as a communication strategy to reduce the level of risk perceived by the market and consequently the financial costs for the company. This second interpretation suggests that the riskier a company is, the more detailed and large should be the amount of risk information provided (Malone *et al.*, 1993) as managers of riskier companies face greater pressures to explain the possible consequences of these risks. Nevertheless this link between a company's risk level and its disclosure practices is not always confirmed (Ahmed and Courtis, 1999; Hossain *et al.* 1995; Linsley and Shrives 2000; 2005).

To conclude we expect a significant amount of both mandatory and voluntary information on company risks that users may exploit, although being aware of two limits. First, despite the advantages of disclosing information, there can be also many justifications for withholding it (Dobler, 2008). Secondly, information can be subjective (it represents managers' point of view) or even distorted, although regulation requires neutrality, because managers can recur to linguistic choice and obfuscation tactics, that is the syntactic manipulations which management uses to enhance good news with easier to read writing, and mask bad news with more difficult writing (Rutheford, 2003; Samson *et al.*, 2011). With reference to risks this practice called impression management and used in corporate reporting (Neu, 1991; Neu *et al.*, 1998) can be even larger considering that narratives regarding risks are loosely regulated.

### **3. Methodology**

The topic under discussion has been investigated applying a qualitative methodology with emphasis on constructivist approaches where reality is seen as a result of the interpretation made by different subjects rather than as objective (Cassell and Symon, 1994; Corbetta, 2003).

Two research methods have been combined as it is claimed to provide more robust empirical evidence (Guthrie and Abeysekera, 2006). Content analysis has been carried out to analyze corporate risk disclosure in terms of quantitative and qualitative information as well as to understand whether it is possible to comprehend a company's approach to risk management. Then, questionnaires have been administered to risk managers in order to verify whether the adoption of a more mature risk management approach is related to a more transparent and detailed reporting.

### *3.1. The sample*

We focused on public utility companies listed on Milan Stock Exchange, as they should adopt risk management systems while being more transparent to investors due to the regulations they must comply with, the guidelines they should follow and the demand of a higher number of stakeholders (compared to non-listed companies) for risk management.

The sample was made of the 40 companies listed at FTSE-MIB in 2011. FTSE-MIB is the primary benchmark Index of the Italian equity market and comprises the leading Italian companies across sectors representing approximately 80% of the domestic market capitalization. Given their market capitalization, used as a proxy for firm size also in previous studies (Craven and Marston 1999), these companies are supposed to have enough resources to adopt more mature and structured risk management systems and meet diverse requirements from various groups of stakeholders. Considering that the company size has been found positively correlated with risk disclosure (Linsley and Shrivess, 2005; 2006), it is possible to assume that the higher the number of markets and activities is, the higher the risks those companies are exposed to are and the number of market operators interested in knowing the existence of a corporate risk management system.

The 40 listed companies have been later filtered on an output basis, following the segmentation proposed by Borsa Italiana in its website, which has been later checked by the researchers gathering information directly on companies' websites and double-checked comparing the collected information with the classification of activities proposed by Ateco-2007. Such selection resulted in

the identification of 18 companies that provide public services. Among these,, just the ones with LGs as direct or indirect shareholders have been selected. Thus, 9 companies composed the ultimate sample on whose reports the content analysis has been carried out.

### *3.2. Content analysis*

Content analysis is an alternative methodology for research that allows knowledge discovery from textual data (Krippendorff, 2004; Weber, 1985). As suggested by many researchers it can be very useful in the field of accounting and finance as text contains incremental and forward looking information that can better help understand companies' future performance compared to financial data (Li, 2007).

There are many studies regarding risk disclosure analysis through company documents and announcements. Most of them look upon the content of textual documents using content analysis (e.g. D'Onza *et al.*, 2011; Beretta and Bozzolan, 2004, Lajily and Zhegal, 2005; Linsley and Shrivvers, 2005 and 2006; Dobler, 2008; Bowman, 1984; Beattie, et al., 2004) and they mainly aim at classifying risks and identifying risk disclosure frameworks. However, as shown by D'Onza et al. (2011), the majority of the information disclosed in the notes of annual reports and in the management reports is about risk management rather than risk description or accounting assessment. Other studies focus on the language used (e.g. Samson *et al.*, 2011) and look up for the hidden message and the company communication strategy in terms of tone used (Henry, 2006; 2008). These researches start from the assumption that managers' communication is modeled to influence stakeholders' behaviors, thus, the main objective is to evaluate the relationship existing between company disclosure and investors' decisions (Henry and Leone, 2009), managers' degree of neutrality (Samson *et al.*, 2011) and possible strategies. For example, with reference to risk disclosure, linguistics can highlight if managers tend to use a more vague language for bad news and a more precise one for good news (Skinner, 1994).

Through content analysis, we have analyzed multiple selected sources (when available) since information about risk and risk management appears elsewhere (ICAEW, 2011): Individual and Consolidated Financial Annual Reports, Management Report, Corporate Governance Report, Sustainability Report, Citizenry Report, Ethic Code, Management and Organization Model Report (related to the Legislative Decree n. 231/2001) and the specific sections of companies' web site dedicated to risk aspects (Table 1). The analysis was on the entire reports and documents (all referring to year 2010).

Table 1 – Material analyzed

Reports	A2A	ACEA	HERA	EDISON	ASCOPIAVE	ACEGAS-APS	ACQUE POTABILI	ACSM-AGAM	IREN
Consolidated Annual Report 2010 + Individual Annual Report 2010	X	X	X	X	X	X	X	X	X
Management Report 2010 + Company profile	X	X	X	X	X	X	X	X	X
Sustainability or Citizenry Report 2010	X	X	X	X	n.a.	X	n.a.	n.a.	X
Corporate Governance Report 2010	X	X	X	X	X	X	X	X	X
Ethic Code	X	X	X	(**)	X	(*)	X	X	X
Management and Control Model Report (ex Legislative Decree n. 231/2001)	X	(**)	X	(**)	X	n.a.	X	X	X
Web site (specific section dedicated to RM)	X	X	X	X	n.a.	n.a.	n.a.	n.a.	n.a.

(\*) The Ethic Code is within the Management Report 2010

(\*\*) The document is stated to exist, but it is not available on the web site

n.a. = Not available

The analysis has been carried out using Atlas.ti. The process has been split in two phases. The first one includes activities such as creating and segmenting data files, coding text and writing comments and memos, while the second one deals with querying data. Both data-level and concept activities can be easily performed with Atlas.ti as the software provides the researcher with a highly effective means for quickly retrieving all data selections and notes relevant to one idea.

About the research process, the researchers have first defined a model for interpreting information and prepared a disclosure-scoring sheet containing several categories transformed into Atlas.ti's codes. Well-specified decision rules have been set (Milne and Adler, 1998), i.e. how to codify the provisions for risks and charges. Moreover, well-defined category decisions have been made, such as exclusive and hierarchical categories.

In this study the recording unit is the sentence, which is preferred in written communication if the task is to infer meaning (Gray *et al.*, 1995). Sentence is meant as any piece composed by subject and verb. When the sentence proved to be too large, it was split into multiple units that were single pieces of information meaningful in their own right (Beattie *et al.*, 2004).

Sentences with more than one attribute had been split into multiple units when each one of those kept its own meaning. Otherwise, the dominance principle has been applied. The sentences were considered pieces of risk information and coded when the reader was better informed about the risks the company faces, their management, regardless the word “risk” appears or not (Linskey and Shrives, 2005). With regard to tables, a single line containing specific information has been considered as a sentence.

Then the model has been tested on a random annual report. Thus, several refinements have been possible, such as the exclusion of spatial comparison of risk information from the attributes chosen to qualify risk information categories.

In order for the content analysis to be reliable, Scott’s Pi has been calculated on random reports coded by the two Authors as it is an inter coder reliability measure that takes also randomness into account (Scott, 1955). The sentences there was disagreement about have been discussed so to resolve the discrepancies (Milne and Adler, 1998) and refine the coding rules before coding another random report. This process went on until the level of agreement was highly satisfactory. This required the coding of three reports: Scott’s Pi was initially 55,7%, then 59,7% and finally 89,2%.

After the level of agreement was extensive, one of the two Authors was the only coder.

The categories identified were related to the two following main topics: information about risks and elements of the risk management system.

With regard to the first aspect, 11 categories describe the types of risk faced by utility companies. They have been labeled (e.g. Operative risk; Regulatory risk; Environmental risk) and coded (e.g. OP, REG, ENV) (Table 2). The basic premise is that risk is considered as the potential, due to uncertainty, for an event that may have negative or positive consequences on the achievement of

corporate objectives. Coherently, risks can be quantified as the result between the probability of occurrence and the outcome (e.g. the impact on the profit margins).

2 Table–Categories of risks and assigned codes

<b>Categories - Type of risk</b>	<b>Code</b>
<b>financial</b> <i>Risks related to difficulties of counterparts to meet their payment obligations; variations regarding rates of interest and/or rates of change; as well as risks of a lack of liquidity</i>	<b>FIN</b>
<b>environmental</b> <i>Risks related to unwanted discharge of polluting materials</i>	<b>ENV</b>
<b>social consensus</b> <i>Risks deriving from a negative perception of the company and its activities in the local population</i>	<b>SOC</b>
<b>market</b> <i>Risks related to a decrease in market demand, client dissatisfaction, etc.</i>	<b>BUS</b>
<b>energy/commodity</b> <i>Risks related to purchase and selling of gas and oil</i>	<b>ENERGY</b>
<b>legislative/regulation</b> <i>Risks related to unenforceable contracts, adverse judgments, unforeseen consequences deriving from new compliance and information requirements</i>	<b>LEG</b>
<b>operative/operational</b> <i>Risks arising from inadequate information systems, incorrect maintenance of safety and security standards; related to people and processes</i>	<b>OP</b>
<b>governance</b> <i>Risks deriving from the presence of local governments in company's equity which have multiple roles and can create conflict of interests and decisional trade-offs</i>	<b>GOV</b>
<b>strategic</b> <i>Strategic risk is defined as the risk associated with future business plans, adverse business decisions and strategies, as well as improper implementation of decisions, including plans for entering new business lines, expanding existing services through mergers and acquisitions, enhancing infrastructure, etc</i>	<b>STRAT</b>
<b>reputational</b> <i>Risks related to a negative publicity regarding an institution's business practices, whether true or not, which has the potential to cause a decline in the customer base, costly litigation, or revenue reductions.</i>	<b>REP</b>
<b>catastrophe/crisis</b> <i>Risks arising from unforeseen catastrophes.</i>	<b>CAT</b>

Each one of these categories has been coded also with reference the nature of information: qualitative; quantitative/financial; past/current oriented information; forward-looking information (see also D’Onza et al., 2011; Linsley and Shrivess, 2006; Beattie et al., 2004) (Table 3). Such attributes allowed to investigate the quality of information provided, whose importance has been increasingly stressed in improving stakeholders’ understanding of companies’ risks and risk management (Beretta and Bozzolan, 2004). The importance of having more quantitative risk information rather than descriptive risk lists has been underlined also by ICAEW (2011).

Table 3 – Categories of attributes and assigned codes

<b>Attributes</b>	<b>Code</b>
<b>qualitative information</b> <i>There is a general description of the risk, its nature and eventually its causes</i>	A1
<b>quantitative information</b> <i>When the document provides a quantitative measure of the event's probability and its consequences or merely there is an estimation of the positive/negative impact on company's performances</i>	A2
<b>current and/or past information</b> <i>Information refer to the actual state; it just communicate the existence of a risk</i>	B1
<b>forward-looking information</b> <i>Information is projected into the future; it describes and evaluates the future of the firm and its operating context</i>	B2

Moreover, specific categories have been defined with reference to risk management elements. These have been chosen as key aspects that should help understand the characteristics of risk management systems companies have in place as highlighted by the literature (see par. 2.1). For example, in order to understand whether there is an enterprise-wide risk management system in place or not, coded information regarded the board's involvement, the presence of a specialized risk management unit at the central level, the analysis of interdependences among risks and the calculation of the company's overall risk exposure.

Table 4 – Categories of risk management elements and assigned codes

<b>Risk Management elements</b>	<b>Code</b>
<i>Risk Identification</i>	<b>IDENTIFICATION</b>
<i>Information on qualitative techniques for measuring risks</i>	<b>QUAL MEASUREMENT</b>
<i>Information on quantitative techniques for measuring risks</i>	<b>QUANT MEASUREMENT</b>
<i>Specific actions for risk mitigation, transfer, elimination</i>	<b>RESPONSE</b>
<i>Holistic approach to risk management</i>	<b>INTEGRATION</b>
<i>Definition of overall risk appetite and risk exposure</i>	<b>OVERALL</b>
<i>Link between risk management and strategic planning</i>	<b>STRATEGY</b>
<i>Implementation of a formalized risk management framework</i>	<b>MODEL</b>
<i>Board and/or CEO Control and oversight over the risk management system</i>	<b>BOARD</b>
<i>Specialized experts and figures for the overall risk management effort (e.g. Risk Management Dpt., Risk Management Committee at the Board level)</i>	<b>SUPERVISION</b>
<i>Tools for managing and preventing disruptions (e.g. Business Continuity Management, Catastrophe Management, Contingency Planning, Disaster Recovery)</i>	<b>CONTINUITY-CATAS</b>

### *3.3. Questionnaires*

Despite the relevant amount of information provided in company reports, it is clear that the content of documents can not provide a complete picture of the risks a company face, nor it can say whether the risk management in practice is effective or not (ICAEW, 2011). The effectiveness of an entity's risk management depends on the quality of its managers, and this is something that statements about the company's attitude to risk and disclosures of internal structures and procedures are unlikely to reveal. Furthermore, there are some risks that firms will never report and others that they are always liable to understate. Finally, risk disclosure may imply some costs (competitive costs but also potential costs for managers) that exceed the benefits of reporting, leading to uninformative disclosures.

As a consequence, a questionnaire was administered to risk managers of the selected companies, since they represent the repository of company knowledge about risks and risk management. The aim was to gather more information about the functioning and the features of their risk management systems so to verify actual risk management practices. Unfortunately only 5 companies responded. The questionnaire is structured in four parts: i) general information about company and the respondent; ii) the risks; iii) the risk management and its link to the strategy; iv) the management of the unknowns.

## **4. Results of the content analysis**

### *4.1. Disclosure on risks and risk management*

The content analysis has been carried out on 50 documents, using 55 different codes. The number and size of quotations have been investigated. The former provides insights about how many times a topic appears or is repeated, while the size (length) of quotations expresses the quantity of information supplied in terms of words. Differences between the two measures can indicate that a

company provides more details than another one (thus sentences are more articulated). The analysis resulted into the identification of 2013 sentences that account for 78.144 words (Table 5).

Table 5 – Number of quotations and words

	<b>N. of quotations</b>	<b>N. of words</b>
<b>Risks</b>	1.117	42.198
<b>Risk Management</b>	896	35.946
<b>Tot.</b>	2.013	78.144

In detail, 1.117 sentences out of 2.013 are related to risk information (e.g. mere description of risks, quantification of the exposure), while 896 sentences are devoted to describe the functioning of the risk management system and specific risk responses put into operation. The prevailing attention to risk disclosure is also echoed by the number of words used: 54% are used for describing risks and the remaining for risk management.

Table 6 shows the 1.117 risk sentences divided on type of risk basis. Legislative and financial risks are definitively the ones disclosed more, while 12% of sentences are related to strategic risks, 9% to the operative risks and only 3% or less is devoted to energy, business, environmental and catastrophe risks. Social legitimacy, reputational and governance risks are completely absent. Similar results emerge when counting words instead of quotations

Table 6 – Number of quotations and words used about risks

		RISKS (quotations count)										
		LEG	FIN	STRAT	OP	ENERGY	BUS	ENV	CAT	SOC	REP	GOV
COMPANIES	A	52	34	12	13	1	9	5	0	0	0	0
	B	56	25	7	17	1	5	0	0	0	0	0
	C	32	34	11	15	6	0	3	3	2	2	0
	D	64	59	12	9	7	4	3	3	1	1	1
	E	116	38	18	27	1	2	2	0	2	2	0
	F	58	43	40	11	9	7	5	1	0	0	0
	G	19	27	13	1	5	2	0	0	0	0	0
	H	41	34	6	1	2	0	1	0	0	0	0
	I	30	30	10	1	3	0	0	0	0	0	0
	Tot.	468	324	129	95	35	29	19	7	5	5	1
%	42%	29%	12%	9%	3%	3%	2%	1%	0%	0%	0%	
		RISKS (words count)										
		LEG	FIN	STRAT	OP	ENERGY	BUS	ENV	CAT	SOC	REP	GOV
COMPANIES	A	1.452	427	238	175	28	193	99	-	-	-	-
	B	2.009	1.042	407	453	51	178	-	-	-	-	-
	C	1.304	1.135	660	598	204	-	59	81	62	49	-
	D	2.284	2.690	735	401	345	83	139	100	52	22	39
	E	4.603	1.315	789	819	127	116	63	-	66	96	-
	F	2.381	2.189	1.927	419	471	226	110	10	-	-	-
	G	855	1.095	634	30	222	143	-	-	-	-	-
	H	1.381	1.013	249	45	79	-	28	-	-	-	-
	I	1.003	1.367	430	36	67	-	-	-	-	-	-
	Tot.	<b>17.272</b>	<b>12.273</b>	<b>6.069</b>	<b>2.976</b>	<b>1.594</b>	<b>939</b>	<b>498</b>	<b>191</b>	<b>180</b>	<b>167</b>	<b>39</b>
%	41%	29%	14%	7%	4%	2%	1%	0%	0%	0%	0%	

Dividing the number of words by the number of quotations it emerges that sentences contain 36 words on average and some type of risks requires more words to be described (Table 7). Either these risks are more complex to be explained or the companies prefer to deeply analyse them.

Table 7 – Average number of words for quotations

DIFFERENCES	RISKS										
	LEG	FIN	STRA	OP	ENERGY	BUS	ENV	CAT	SOC	REP	GOV
quotations	468	324	129	95	35	29	19	7	5	5	1
words	17272	12273	6069	2976	1594	939	498	191	180	167	39
	37	38	47	31	46	32	26	27	36	33	39

The same analysis has been carried out on quotations and words related to how risks are managed (Table 8). According to the codes used, companies mainly report risk responses (71%), while irrelevant amounts of sentences are found with regard to other important aspects such as the establishment of a specific risk committee or department (5%), the adoption of risk management models (4%), the implementation of systems dedicated to handling disruptive events (1%) and the link between risk management and strategic system (1%). None of the companies disclose their overall risk exposure and appetite.

Table 8 – Number of quotations and words used about risk management aspects

		RISK MANAGEMENT (quotation count)										
		RESPONSE	QUANT MEASUREMENT	BOARD	SUPERVISION	IDENTIFICATION	MODEL	INTEGRATION	CATASTR OPHE	STRATEGY	QUAL MEASUREMENT	OVERALL
COMPANIES	A	73	3	1	1	6	3	2	0	0	0	0
	B	45	0	3	2	0	1	1	1	0	0	0
	C	118	9	9	8	7	12	9	5	0	0	0
	D	100	14	5	10	0	4	0	2	1	0	0
	E	100	4	5	12	6	3	1	0	1	1	0
	F	87	7	10	12	7	14	4	2	7	0	0
	G	27	4	3	0	2	0	0	0	0	1	0
	H	49	3	4	0	12	0	0	0	0	0	0
	I	34	7	8	0	2	2	0	0	0	0	0
	Tot.	<b>633</b>	<b>51</b>	<b>48</b>	<b>45</b>	<b>42</b>	<b>39</b>	<b>17</b>	<b>10</b>	<b>9</b>	<b>2</b>	<b>0</b>
%	71%	6%	5%	5%	5%	4%	2%	1%	1%	0%	0%	
		RISK MANAGEMENT (word count)										
		RESPONSE	QUANT MEASUREMENT	BOARD	SUPERVISION	IDENTIFICATION	MODEL	INTEGRATION	CATASTR OPHE	STRATEGY	QUAL MEASUREMENT	OVERALL
COMPANIES	A	2.188	56	199	25	96	38	42	-	-	-	-
	B	1.761	-	-	94	17	74	13	-	15	-	-
	C	5.013	609	455	273	346	187	134	-	146	-	-
	D	4.136	879	-	202	139	311	-	45	58	-	-
	E	4.380	184	156	207	181	426	30	34	-	54	-
	F	3.837	462	325	263	544	421	161	200	25	-	-
	G	1.198	141	130	52	-	-	-	-	-	37	-
	H	1.878	132	644	121	-	-	-	-	-	-	-
	I	1.172	300	108	412	180	-	-	-	-	-	-
	Tot.	<b>25.563</b>	<b>2.763</b>	<b>2.017</b>	<b>1.649</b>	<b>1.503</b>	<b>1.457</b>	<b>380</b>	<b>279</b>	<b>244</b>	<b>91</b>	<b>-</b>
%	71%	8%	6%	5%	4%	4%	1%	1%	1%	0%	0%	

The amount of codes and words used to describe the various aspects of risk management practices highlights the prevalence of explanations regarding how companies respond to risks they are exposed to. Among other aspects, information about quantitative measurement seems to be the most detailed, together with the description of the Board's involvement and committees specifically

dedicated to risk management. These represent difficult aspects to be explained and they actually are described by more prolific sentences (Table 9).

Table 9 – Number of words for a quotation

DIFFERENCES	RISK MANAGEMENT										
	RESPONSE	QUANT MEASURE	BOARD	SUPERVISION	IDENTIFICATION	MODEL	INTEGRATION	CATASTROPHE	STRATEGY	QUAL MEASURE	OVERALL
quotations	633	51	48	45	42	39	17	10	9	2	0
words	25563	2763	2017	1649	1503	1457	380	279	244	91	0
	40	54	42	37	36	37	22	28	27	46	0

Looking at the data, the central role played by legislative risks highlights companies' belonging to a regulated sector and how much public utilities are particularly exposed to legal issues, while the clear dominance of information about financial risks and the related responses seems to show that the content of company disclosure is deeply related to the mandatory requirements. IFRSs require information about financial risks, the responses implemented and, for some specific financial instruments (e.g. derivatives), the quantitative measurements.

With regard to the quality of information, four attributes have been investigated in relation to each type of risk. As shown by Table 10, the attribute A1 (general description of risk) is the most frequent one, followed by data that quantify risks (A2). Information in a time-perspective is much less disclosed. It has to be underlined that information related to financial risks is the most complete under all the four dimensions considered. In the 50% of the cases in which financial risks are described, they are also quantified.

Table 10 – Attributes of risk information

RISKS	A1	A2	B1	B2	totals
<b>Legislative</b>	11.630	2.636	361	2.645	17.272
<b>Financial</b>	6.155	3.151	1.733	1.234	12.273
<b>Strategic</b>	4.155	503	178	1.233	6.069
<b>Operational</b>	2.198	509	158	111	2.976
<b>Energy/Commodities</b>	1.291	145	103	55	1.594
<b>Market/business</b>	592	-	113	234	939
<b>Environmental</b>	319	114	37	28	498
<b>Catastrophic</b>	191	-	-	-	191
<b>Social consensus</b>	128	-	52	-	180
<b>Reputational</b>	167	-	-	-	167
<b>Governance</b>	39	-	-	-	39
<b>tot.</b>	26.865	7.058	2.735	5.540	42.198

As shown by Table 11, information about risks and risk management are mainly found in the consolidated and individual annual reports (44% of total word counts) as well as in management reports (30% of total word counts). Also sustainability is a valuable document (15%).

Table 11 – Distribution of words about risks

SOURCES	RISKS (word count)											tot.	tot.
	LEG	FIN	STRA	OP	ENERGY	BUS	ENV	CAT	SOC	REP	GOV		
Annual reports	8.684	9.419	2.966	1.201	644	126	156	23	-	-	-	23.219	55%
Ethic Code	-	-	-	-	-	-	-	-	-	-	-	-	0%
Model 231/2001	128	-	-	-	-	-	-	-	-	-	-	128	0%
Management Report	6.325	2.302	2.839	1.019	479	574	116	-	-	22	-	13.676	32%
Sustainability Report	1.969	375	178	614	147	202	226	168	180	145	39	4.243	10%
Corporate Governance R.	80	35	62	45	24	-	-	-	-	-	-	246	1%
Web Site	86	142	24	97	300	37	-	-	-	-	-	686	2%
<b>totals</b>	<b>17.272</b>	<b>12.273</b>	<b>6.069</b>	<b>2.976</b>	<b>1.594</b>	<b>939</b>	<b>498</b>	<b>191</b>	<b>180</b>	<b>167</b>	<b>39</b>	<b>42.198</b>	<b>100%</b>

  

SOURCES	RISK MANAGEMENT (word counts)											tot.	tot.
	RESPONSE	QUANT MEASURE MENT	BOARD	SUPERVI SION	IDENTIFICATIO N	MODEL	INTEGRA TION	CATASTROPHE	STRATEGY	QUAL MEASURE MENT	OVERALL		
Annual reports	7.263	2.516	189	448	93	227	50	12	27	91	-	10.916	30%
Ethic Code	1.715	-	44	-	24	-	-	-	-	-	-	1.783	5%
Model 231/2001	620	-	24	-	480	-	-	-	-	-	-	1.124	3%
Management Report	7.936	163	54	235	487	326	72	84	53	-	-	9.410	26%
Sustainability Report	6.058	45	214	278	190	301	169	148	25	-	-	7.428	21%
Corporate Governance R.	1.453	-	1.124	262	743	444	-	-	113	-	-	4.139	12%
Web Site	518	39	-	234	-	205	89	-	61	-	-	1.146	3%
<b>totals</b>	<b>25.563</b>	<b>2.763</b>	<b>1.649</b>	<b>1.457</b>	<b>2.017</b>	<b>1.503</b>	<b>380</b>	<b>244</b>	<b>279</b>	<b>91</b>	<b>-</b>	<b>35.946</b>	<b>100%</b>

Risks are mainly described in annual reports while specific actions undertaken to mitigate, avoid or face risks are similarly spread out through annual statements, management commentaries and sustainability reports. The sustainability report is also quite relevant, especially considering that only 6 out of 9 companies prepare it, as it provides several information about risks and risk responses.

In accordance with its user destination and content description enforced by the law, the corporate governance report is the main repository for information about the Board's role in risk management and possible links between strategy formulation and risk management policy decisions. All the other sources contain few words both about risk, but more about risks management.

#### *4.2. Information about the company's approach to risk management*

General results show that information suggesting companies' approach to risk management appear to be limited compared to the large amount of data on risks and specific risk responses. At the same time, key elements held to be revealing about how an entity identifies and handles risks and how much pervasive the risk management system is, can be appreciated only if written information is read extensively and carefully.

Thus, the research has moved from a quantitative evaluation of risk disclosure to a qualitative investigation on: the functioning of a potential specialized staff unit at the corporate level, the practice of evaluating interdependences among risks to calculate a company overall value of risk exposure, the possible connections between strategy formulation and risk management policies and the Board's involvement in risk management. This analysis is restricted to only 5 companies, the ones that have also filled the questionnaires.

First, coded sentences have been searched for an explicit indication of the risk management system adopted and particularly for possible references to models and frameworks proposed by the literature. Then queries have been performed through Atlas.ti to extract records for the specific elements mentioned above. These should indicate if a company adopts a truly enterprise-wide risk management approach or its concern and management efforts are limited to specific risks and/or functions.

With reference to models, it is interesting to note that companies do not provide many details. All of them cite the name of the model or standard adopted (or in progress) in the entire company - such as the COSO ERM framework in company D and F - or used in specific phases of risk management - such as the Control Risk Self Assessment technique for the process of risk identification (in company E) -. Probably they assume that international frameworks such as those mentioned above are well known and it is sufficient to disclose their names to inform investors.

In addition, important insights on a company's approach to risk management can be revealed by the presence of a Risk Management Committee or a CRO. Considering that risk management is a

technical activity requiring specialized knowledge, the presence of a specialized staff is fundamental. Though, this idea of specialization has lead companies to break up the management of risks into different units, delegating responsibilities to different people inside the organization. This emerges in three cases, where managers of operations are appointed as risk owners of product, process and IT risks and the Internal Auditor deals with financial reporting, compliance and governance risks, without any central coordination. The presence of a risk management function or risk control unit at the central level is rare. When it is established (in companies E and F), public documents indicate that it has an oversight role, it monitors both internal and external variables that can impact company objectives, it promotes a risk culture and the development of adequate management systems and supports management's decision making providing a "risk adjusted" view. A third element, which signals the presence or absence of an enterprise-wide approach, is the recognition of interdependences among risks. When companies are involved in building company maps and discovering interactions and synergies to better plan their responses (three cases: A, C, F), a widespread comprehension of all risks that can impact on company performance is supposed. Moreover investors tend to believe that company can easily identify an overall risk exposure. However, documents indicate that also when companies declare to adopt an integrated approach (without providing many details), they do not reveal to calculate the risk exposure for the entire organization.

Efforts that denote a holistic approach are also represented by the involvement of the CRO or Risk Committee in Board's meetings devoted to strategy formulation. This is rare but as in company F it is clearly indicated that the Board formulates and annually monitors the corporate strategy considering risks and possible financial consequences associated to different scenarios. More often (companies E and D) strategic objectives are linked to risk management in order to improve the effectiveness of the system in supporting the achievement of company's goals.

Lastly, we have to consider the Board's involvement. Its participation in risk management can be considered as almost mandatory for listed companies as prescribed by the Borsa Italiana's

Corporate Governance Code, however its degree of commitment can be very diverse. For example, while some documents indicate that company Boards largely delegate activities to the Internal Control Committee or the Internal Audit function which supervises many processes from risk identification to evaluation and control of the risk management system, others highlight how the Board defines strategic guidelines about risk treatment, directly coordinate the risk assessment process together with key managers, and periodically require meetings to discuss risk and the company risk exposure. In company F the CEO together with all Board members participate to and supervise the risk management system. They also establish a limit of overall exposure to energy risks (not for all risks) at the beginning of the annual budgeting process.

## **5. Results from questionnaires**

### **COMPANY A**

A total amount of 62% of equity is hold by 186 municipalities.

The company does not adopt risk management frameworks or standard, but it has its own one that is inspired to the principles of the Control & Risk Self Assessment approach, Financial Risk Management, and Project Risk Management. Business continuity management and contingency planning are also in practice in the company.

The most relevant risks the company is exposed to are regulative risks and strategic risks. Financial, operative and reporting risks are also valuable.

Risks are always identified recurring to brainstorming and scenario analysis. Interviews, surveys, past experience, historical data, and subjective judgment are often used, while the SWOT analysis and the analysis of the financial reporting are never employed. Qualitative techniques are used for assessing operative and catastrophe risks, while the quantitative ones are applied for estimating financial risks.

The risk management function is established within the Legal and Corporate Affairs department (and reports to the head of that department). It plays an insurance role for financial risks and also

offer consultancy, while the Internal Audit function has a transversal role in risk monitoring and carries the responsibility for risk oversight. An Energy Risk Committee at the Board level has been established.

The risk manager, together with the CFO and Internal Audit function, annually defines the risk management objectives. The Board and the CFO annually define the risk appetite. The CFO, the risk manager and the Internal Audit function annually identify and map risks, find the overall company risk exposure, assess the likelihood and the impact of events, set risk responses, report risks, and monitor them.

No answer has been given to the link between risk management and strategic process.

## COMPANY D

In this organization risk is conceived as uncertainty around the objectives, thus the future events may create an unexpected, undesired or unwanted state of reality. However risk management is seen as aimed at reducing losses and the harmful consequences of an event.

The most relevant risks the company is exposed to are: financial risks, energy risks, business risks and strategic risks, although also environmental, IT, operation and catastrophe risks are considered as relevant. More than the 58% of the equity is held by municipalities, which hold the same percentage of shares. Although this is said to not create decision making issues, the governance risks are defined as “relevant” for the company.

The company often recurs to past experience and data trend as well as to scenario analysis for identifying risks. SWOT analysis, interviews, and surveys are used as well. While they rarely recur to intuition, subjective judgments, and financial reports. Depending on the type of risk, they use quantitative techniques (e.g. for measuring financial risks) or qualitative ones (e.g. for evaluating strategic and regulative risks). Insurance coverage, task forces and environmental scanning are used for managing events whose likelihood and impact are unknown. Contingency planning is going to be implemented.

The company adopts the ERM model, but pure risks are still managed in an isolated way. A specific risk management function that reports to the CFO is established and coordinates the effort of the whole risk management system. There is a Risk Committee at the Board level that regularly receives reports from the senior management while there is not a periodic reporting from the Risk Committee to the Board.

With regard to the risk management process, the Board, the CEO and the CRO annually define the risk management objectives and the assessment criteria. The risk management strategy is set accordingly to the corporate strategy (e.g. in terms of maximum deviation from the corporate objectives). The Board and the CEO also define the overall risk appetite (set for “normal” conditions), which is revised during strategic meetings and communicated to external stakeholders.

The strategy is tested under different scenarios that can impact on its drivers. The CFO, the CRO and each head of business units periodically identify risks and map the company exposure. On a monthly basis they also do the risk assessment process (together with the controller) and define the risk responses after consultation with the CEO. With the same frequency, the CRO reports risks and monitor them. Moreover, together with the CEO, the controller, and the Internal Audit function, he monitors the risk management process.

## COMPANY E

The 51% of company's equity is hold by one Municipality, the only public shareholder.

Risk management follows the Control & Risk Self Assessment approach and it is intended to reduce threats and catch opportunities in order to achieve the company's strategic objectives. Coherently, risk is conceived as the possibility that events may impact both in a positive and negative way (even not quantifiable) on the objectives, creating a state of reality different from what it was expected.

The respondent did not answer to the relevance of risks for the company as well as to questions about the use of quantitative or qualitative techniques for specific risk assessment. However, he stated that interviews, surveys, past experience, historical data, and financial reports are always

implemented for identifying risks, and also intuition and personal judgment are quite applied. As a company risk manager he often recurs to scenario analysis, rarely to brainstorming, and never to the SWOT analysis. No answers have been given about the tools eventually implemented for handling the consequences of unexpected events, but the respondent has indicated that business continuity management is planned.

A risk management function that reports to the CEO has been established within the Internal Audit function. It coordinates most efforts in risk management and it is responsible for it. However, different risks are managed in an isolated way by distinctive corporate functions. There is a specific Risk Committee at the Board level (Energy Manager Committee). Every six months the senior management reports to the Risk Committee and the latter annually reports to the Board.

The Board defines a risk management strategy that is related to corporate objectives. Special attention is devoted to risk policies regarding the financial exposure. The risk management strategy is chosen among the alternatives that allow the best return but remaining within the risk appetite. Interestingly, the company's approach to risk it is not discussed at the strategy meeting. The Board dedicates 2% of its time to risk management.

The Board and the CEO annually define the risk management objectives, while the CEO defines the risk appetite for normal conditions. The risk appetite is not communicated to external stakeholders. Every year, the risk manager identifies risks and maps them, while the heads of the business functions assess the risks. The risk manager annually sets the risk responses and reports risks and the residual risk. With the same time frequency, the CRO, together with the Internal Audit function, monitors the evolution of risks and the former also prepares the risk indicators.

COMPANY G

93 municipalities indirectly hold 60% of the company's equity. No answer has been given to possible decision-making issues due to their presence and contrasting interests, although governance risks are stated to be relevant.

The respondent is responsible of the Internal Audit function. He conceives risk as the possibility that a future event may cause negative or positive consequences, even not quantifiable. However there is not a risk definition that is uniformly accepted throughout the company.

Risk management is intended to contrast threats and catch opportunities in order to achieve company strategic risks.

The most relevant risks faced by the company are: energy, regulative/reporting, and strategic risks. Quite important are also financial, environmental, IT, operational, catastrophe, business, governance risks and risk related to social legitimacy.

Risk identification is always done recurring to financial and technical reporting. Recurrent are also brainstorming, past experience, historical data, intuition and subjective judgment. The scenario analysis is often used as well. SWOT analysis, interviews, and surveys are never used.

The risks are managed in an isolated way where every person is in charge of managing specific risks, and no specific framework or standard has been implemented. There is neither a risk management function nor a CRO, but its establishment is desirable in order to improve the risk management system. No specific risk committees at the Board level have been established.

Although unknown risks are believed in need of being managed, no specific measure has been taken. There is the intention to implement the business continuity management in the future.

With regard to the process, the CEO defines the risk management objectives, but those are not connected with the corporate strategic objectives. The Board defines the company risk appetite (only for ordinary conditions) on a year-basis. Risk appetite is discussed at strategy meetings together with the strategy, but it is not communicated to external stakeholders. The Board dedicates 10% of its time in discussing about risk management. The strategy is tested under both positive and negative scenarios and chosen among those strategic alternatives whose associated risks rest within

the stakeholders' risk appetite. The Board delegates the Internal Audit function for the overall risk management oversight and monitoring. The controller periodically assesses the likelihood and impact of events.

The assessment is done recurring to qualitative or scoring techniques (for strategic, operative, regulative and catastrophe risks) or quantitative ones (for financial risks).

The CEO annually sets risk responses, while the CFO periodically monitors how risks change and reports the residual risk to the Board. No measures of risk management maturity are implemented.

## COMPANY F

Public shareholders hold more than 80% of the company's equity. They hold the same percentage of equity, creating decision-making issues.

The risk manager states that risk is conceived as the effect of uncertainty on company objectives, thus it regards the possibility that a future event may create a undesired, unwanted or just unexpected reality.

The most relevant risks the company is exposed to are: financial, energy, IT, operative, regulative, and, business risks. Environmental, strategic and governance risks as well as risks related to social consensus are relevant.

Risk identification is always based on past experience, historical data, and financial reports. The scenario analysis is used very often. Brainstorming, interviews, survey, intuition and subjective judgment are often used as well. While the SWOT analysis is never carried out.

Qualitative or scoring techniques are used for measuring strategic, regulative and catastrophe risks, while quantitative techniques are applied to operative and financial risks.

The company implemented a formalized ERM-inspired risk management system aimed at identifying, mapping and prioritizing main company risks, then setting the action plans for risk mitigation. This conceptual framework is evolving into a Governance, Risk and Compliance framework. Specific risk management approach and processes are in practice: Project Risk

Management, Control & Risk Self Assessment, Business Continuity Management, and Catastrophe Management. Several departments manage these instruments separately, although in coordination with the ERM.

The unknown events are managed using task forces, environmental scanning, strategic consultancies, business intelligence, and insurance contracts.

The risk management department is a staff department that is independent from others, and reports directly to the CFO. It is responsible for the risk management system together with the Board, which delegates the risk management oversight to the Audit Committee. Specific risk committees are established at the Board level: the Risk Committee for Commodity risks, Credit Committee, Investment Committee, Business Continuity and Disaster Recovery Committee and so on. They monthly get reports from senior management and periodically report to the Board.

The Board sets the risk management objectives and strategy, accordingly to the company strategic objectives. The strategy is the protection of margin volatility through risk tolerances around the financial objectives and monitoring of such limits of deviations. The Board annually approves the limit of economic equity with regard to commodity risks. The strategy is tested under positive and negative scenarios and is chosen among alternatives whose associated risks are kept within the risk appetite. The latter is defined annually by the Board for ordinary conditions and is revised together with the strategy at strategy meetings. The Board dedicates 10% of its time to risk management, while the Audit Committee dedicates 80% of its time to it. The risk appetite is not communicated to external stakeholders.

The risk manager periodically identifies, assesses and maps risks, and, together with the heads of business units, sets the risk responses. He also periodically reports the residual risk, and monitors the evolution of risks. Measures for assessing risk management maturity are in place.

## 6. Discussion and Conclusions

With reference to our first research objective, results indicate that public utilities disclose information mainly about the types of risk faced and the specific actions undertaken to manage them. Despite the amount of news reported, the knowledge that external stakeholders can acquire is limited. In fact, risk description is usually qualitative and details about events' probability and possible economic or financial impacts are scarce. Information in a time-perspective is limited as well, thus this is an issue that may be taken into consideration for further improvement in risk disclosure. Quantitative aspects are restricted to financial risks (e.g. credit, liquidity, interest risks) whose measurement techniques are quite diffused and to legislative risks whose amount of impact is calculable using for example new tariffs proposed the authorities or considering possible penalties and fines.

Details about sector specific risks are scarce. While some attention is paid to the energy risks, governance and catastrophe risks are almost absent. This suggests that either these risks do not exist or most likely that they are considered so remote that companies do not believe essential disclosing them. Similarly also information about environmental, reputational and legitimacy risks is lacking, although these companies activities can cause great consequences on people's lives.

Interestingly, strategic risks seem to be quite important considering the extent of statements regarding uncertainties associated to acquisitions, corporate re-organizations, problems in strategy implementation, etc. In all the companies, strategic risks are more declared than operational ones. Probably disclosure reflects the high uncertainties associated to this business while companies feel quite comfortable in dealing with IT, product and process risks which are considered as avoidable through the adoption of advanced quality systems (largely described in the sustainability reports).

On the contrary, mandatory and voluntary information does not allow to deeply understand the risk management systems implemented as disclosure is usually limited to the specific risk responses adopted. Companies refer to models and frameworks, but neither they provide many details on their functions, nor there are many indications on how risk identification is carried out, if measurement is performed through statistical tools or it involves subjective evaluation.

Consequently it is possible to comprehend a company's approach to risk management only to a limited extent. Indeed, it emerges that Italian public utilities adopt different approaches, ranging from a "silos" approach to COSO ERM framework, maybe due to the different stages of the risk management maturity curve they are experiencing. Risk management is actually a recent practice at least in formal terms. This is also confirmed by the questionnaires, where the companies that did not adopt ERM frameworks, tend to manage risks in an isolated way although at different levels. Moreover, the questionnaires underline the coexistence of many approaches to risk management, such as the project risk management.

Interestingly questionnaires provide (not always!) quite similar information to the results emerged from annual reports and other documents. The company F and D seem to have the most more mature risk management system in terms of link with the strategy, framework implemented, risk management internal organization, tools for handling crisis or catastrophe. While the company E also has many features of a quite advanced risk management systems (even if the respondent did not answer to all the questions), the company G and A look as the ones that have a silos approach, with isolated responsibilities, and a weak link with the strategy planning.

The different experiences and resources devoted to risk management which contribute to form a more mature approach to risk management could actually be determinant also in risk disclosure. Thus, with reference to our third objective we have compared content analysis results with information derived from questionnaires received by the 5 companies willing to collaborate. Questionnaire were considered as more reliable for estimating the actual risk management degree of maturity.

Outcomes indicate there is not always a perfect direct correspondence between the amount of corporate risk disclosure and the maturity of risk management practices adopted (where the highest level of maturity concurs with the adoption of an holistic enterprise risk management system linked to strategy formulation).

In fact, as indicated by the table below, while a large amount of information is provided by companies F and D which have implemented an ERM approach - as emerged from both public disclosure and questionnaires, the differences among A and E in disclosure practices do not correspond to their similar approach to risk management. Only in case of company G poor performances in publishing information are related to an older approach to risk management.

Table 12 – Comparison among companies based on words about risk and risk management

COMPANIES	Risk Management		Single risks		TOT.
	word counts	%	word counts	%	
A	2.644	12%	2.612	9%	10%
D	5.770	26%	6.890	24%	25%
E	5.652	26%	7.994	28%	27%
F	6.238	29%	7.733	27%	28%
G	1.558	7%	2.979	11%	9%
tot.	21.862	100%	28.208	100%	100%

These results indicate that it is possible to get a quite correct perception about existing risks and risk management practices used by companies through the reading of public corporate financial documents.

However, we have to consider two important limits. First, the fact that public documents can be a limited source of information as companies can restrict their voluntary risk disclosure in the fear of some drawbacks such as a potential lost of proprietary information or possible legal claims from stakeholders, that push managers to decide against comprehensive risk reporting (Linsley and Shrives, 2006). Second, the reliability of corporate reports can be doubted as their prose is written by public relations people or CEO that want to manipulate the information (Bowman, 1984). Content analysis requires documents to correspond to reality, while the typical CEO spends considerable time outlining the contents of the report, sketching out much of it, and proofreading and changing most of it to his taste.

An additional obstacle to be considered regards the dispersion of risk information in different documents. To get a complete picture of risk management it is convenient to integrate the reading of annual statements and management reports with also sustainability and corporate governance reports. Moreover risk information is only always concentrated in the same section of a document. For example in the Notes of the accounts data about risks are almost everywhere and they are not only limited to the specific “risk section” required by IFRS.

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