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***Corporate disclosure in the capital market:  
the role of the governance system***

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## **ABSTRACT**

Recently, important changes have taken place in the firm's institutional and information environment (e.g. Sarbanes Oxley Act, Regulation Fair Disclosure, IFRS) aiming at increasing the level of transparency and disclosure. Consistently, the empirical literature has provided new evidence on the relationship among internal corporate governance system, institutional features and several dimensions of disclosure policies. Review studies of disclosure and corporate governance literature have also been developed in order to have a systematic classification of the recent advances made in these fields (Beyer et al., 2010; Dechow et al., 2010; Brown et al., 2011; Armstrong et al., 2010).

The objective of this thesis is to contribute to the large mosaic of theory and evidence concerning the role of corporate governance for disclosure policies, focusing on the relationship among different sources of corporate information.

A large body of literature claims that the role of disclosure is pivotal for the capital market efficiency (Healy & Palepu, 2001). Research shows that financial reporting quality and voluntary disclosure improve stock market liquidity (Healy et al., 1999), reduce information asymmetries and cost of capital (Botosan & Plumlee, 2002; Easley & O'Hara, 2004). Although it is widely acknowledged that firms' governance structure affects disclosure choices (Dechow et al., 1996; Vafeas, 2000; Klein, 2002), there is still an open debate on whether disclosure acts as a complement or a substitute for other corporate governance mechanisms (LaPorta et al., 1998; Shleifer & Vishny, 1997; Beekes & Brown, 2006).

To date, existing empirical studies on the relation between governance and disclosure and their capital market effects selectively focus on a single aspect of a firm's information environment such as financial accounting information (e.g. accounting quality), or alternatively, different features of voluntary disclosure, mainly ignoring interdependencies and complementarities among various sources of corporate information (i.e. financial accounting, mandatory non-accounting information and voluntary disclosures). Nevertheless, financial reporting environment is complex and develops endogenously in order to solve information asymmetries between insiders



and outsiders as well as agency problems between principals and agents (Beyer et al., 2010). Therefore, the economic role of financial reporting cannot be evaluated separately from other sources of corporate information, since mandatory and voluntary disclosures can either complement or substitute each other (Ball et al., 2011).

Moving from this line of research this thesis investigates (i) the nature of the relationship between mandatory and voluntary disclosure (ii) the role of internal and external corporate governance characteristics for the managers' decision to disclose information not mandated by the law (iii) the influence of the governance system on the informativeness of discretionary strategies in corporate narratives across alternative disclosure media.

The thesis is structured in two sections. The first section reviews contributions to these topics from accounting, finance, and corporate governance literature in order to build a framework for the analysis of the relationship between corporate governance, accounting and other disclosure policies in the capital market.

The review starts with the main theories explaining the firms' supply and market's demand for voluntary disclosure and the reasons why we need a regulation for disclosure. Then, the capital market effect of financial reporting transparency and voluntary disclosure are discussed. Moving from the increasing importance of narrative and descriptive disclosures inside the reporting package of the firm, the second paragraph examines reporting challenges related to the measurement, the informativeness and the credibility of such disclosures. The third paragraph points out the heterogeneity among disclosure practices and discusses the country-level and firm-level factors behind such variability, then focusing on the role of corporate governance system. The paragraph continues with a review of the studies on the relationship between governance structure and firm transparency and concludes with the debate on the complementarity vs. substitution between corporate governance and disclosure. Finally, the fourth paragraph illustrates the proposed research framework, discussing the research gaps and research questions addressed in empirical analyses, then highlighting their contribution to the research field.



The second section presents two empirical analyses based on archival and hand-collected data that, using a deductive approach, investigate interrelated research questions.

The first empirical study aims at understanding to what extent the firm's internal and external governance characteristics affect voluntary disclosure strategies and their interaction with mandatory disclosure. To clearly distinguish between mandatory and voluntary information, the analysis is focused on the risk disclosure provided by Oil&Gas companies. In such a setting this study examines if firm's voluntary disclosure choices are affected by their own mandatory disclosure strategies (substitute vs. complement). As related question, it analyses the influence of the board-based monitoring (firm-level incentives) and the strength of the institutions (country-level incentives) on the decision to disclose voluntary information.

This study aims at providing empirical evidence on the direct relationship between mandatory and voluntary disclosure, thus complementing the theoretical studies exploring their interaction (Einhorn, 2005; Bagnoli & Watts, 2007). It also contributes to an emerging literature on the interplay between internal and external governance mechanisms and their influence on corporate transparency (Durnev & Kim, 2005; Cheng & Courtenay, 2006; Doidge et al., 2007; Berretta et al., 2010). Finally, this research's evidence could provide regulators and policy makers with useful knowledge in order to design new mandatory disclosure regulation in light of their impact on voluntary disclosure decisions.

The second empirical research examines whether the firm's governance characteristics and its accounting policies affect the informational value of discretionary strategies in corporate narratives. The focus is on environmental information provided by Oil&Gas companies, that are at the centre of a debate on their potential for increasing firms' accountability towards stakeholders, versus being just another tool for corporate public relations (Cho et al., 2012).

This study investigates if managers use environmental disclosure to opportunistically affect the users' perception of corporate achievement (i.e. impression management), or rather provide useful information for predicting future environmental performance. In addition, it explores whether and to what extent the informativeness



of discretionary disclosure strategies varies according to reporting incentives coming from the board of directors' characteristics.

This research is meant at answering the recent call in the impression management studies for incorporating both possibilities (impression management vs. incremental information) into research design aiming at investigating discretionary disclosure strategies in corporate narratives (Merkl-Davies & Brennan, 2007). Moreover, it adds to the literature on the influence of the board of directors' characteristics on environmental disclosure by examining two dimensions of the board activity (board monitoring and stakeholder orientation) both separately and simultaneously (Mallin et al., 2012). Finally, its findings could help investors and policy makers to interpret managers' discretionary disclosure choices in corporate narratives, shedding light on some conditions that could compensate the managers' legal accountability for qualitative disclosures.

The thesis concludes with a discussion of the main findings, their contribution to the proposed framework, limitations and directions for future research.

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## ABSTRACT

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## PREFAZIONE

Il tema dell'influenza delle caratteristiche del governo sulla qualità comunicazione economico-finanziaria delle imprese ha da sempre occupato un ruolo di rilievo nella letteratura economico-aziendale nazionale ed internazionale.

Negli anni più recenti si è assistito ad un susseguirsi di significativi cambiamenti nel contesto istituzionale (Sarbanes Oxley Act, Regulation Fair Disclosure, IFRS) finalizzati ad aumentare il livello di trasparenza nella comunicazione esterna. Studi empirici nella letteratura di *governance* e *accounting* hanno messo in luce nuove evidenze sulla relazione tra caratteristiche interne al sistema di *governance*, ambiente istituzionale e svariate dimensioni delle politiche di comunicazione aziendale. Al contempo, numerose rassegne della letteratura hanno proposto una sistematizzazione dei più recenti sviluppi di questo filone di studi (Beyer *et al.*, 2010; Dechow *et al.*, 2010; Brown *et al.*, 2011; Armstrong *et al.*, 2010).

L'obiettivo del presente lavoro è offrire un contributo al mosaico di teoria ed evidenze empiriche concernenti il ruolo del sistema di governo societario per la trasparenza aziendale, attraverso un esame della relazione tra struttura di *governance* e politiche di comunicazione adottate dalle imprese nei diversi veicoli d'informazione al mercato.

Un filone ben consolidato di studi mostra come le politiche di *disclosure* rivestano un ruolo centrale nel mercato dei capitali (Healy & Palepu, 2001). Analisi empiriche documentano che livelli più elevati di trasparenza aziendale contribuiscono alla riduzione delle asimmetrie informative tra impresa e interlocutori esterni, accrescendo la liquidità del mercato (Healy *et al.*, 1999), e riducendo il costo delle operazioni di finanziamento (Botosan & Plumlee, 2002; Easley & O'Hara, 2004). Sebbene sia ampiamente riconosciuta l'importanza della struttura di governo per le politiche di *disclosure* (Dechow *et al.*, 1996; Vafeas, 2000; Klein, 2002), esiste un dibattito ancora aperto in letteratura circa il ruolo di sostituzione o complementarità tra *disclosure* e altri meccanismi di governo interni ed esterni (LaPorta *et al.*, 1998; Shleifer & Vishny, 1997; Beekes & Brown, 2006).



Gli studi empirici sulla relazione tra *governance* e *disclosure* si sono finora focalizzati su un singolo aspetto del sistema informativo aziendale, quale ad esempio la comunicazione economico-finanziaria obbligatoria, o, alternativamente, le informazioni che le imprese volontariamente trasmettono al mercato, trascurando le interdipendenze e le complementarità tra diversi veicoli d'informazione. La letteratura più recente evidenzia, invece, come le imprese si avvalgano di diversi strumenti d'informazione, che comprendono oltre le informazioni di bilancio obbligatorie, anche informazioni volontarie divulgate sia tramite il bilancio sia tramite altri veicoli d'informazione. Ne consegue un sistema informativo complesso ed endogeno rispetto alle caratteristiche dell'impresa, che si sviluppa e costantemente si modifica al fine di risolvere le asimmetrie informative e i problemi di agenzia tra manager e interlocutori esterni (Beyer *et al.*, 2010). Pertanto, indagini finalizzate a valutare il ruolo economico dell'informativa di bilancio, non possono trascurare le altre forme di comunicazione sia obbligatorie sia volontarie, volte a sostituire o integrare le informazioni di bilancio (Ball *et al.*, 2011).

Prendendo spunto dalle precedenti considerazioni, la presente tesi vuole offrire un contributo originale alla pur copiosa letteratura che esamina la relazione esistente tra struttura di *governance*, informativa obbligatoria e *disclosure* volontaria, considerando la potenziale interazione esistente tra diversi elementi del sistema informativo (Beyer *et al.*, 2010).

A tal fine si indaga (i) la natura della relazione tra comunicazione obbligatoria e volontaria (ii) il ruolo che le caratteristiche del sistema di *governance* interne ed esterne all'impresa rivestono nella decisione di divulgare informazioni volontarie (iii) l'influenza del sistema di governo sul valore informativo delle strategie discrezionali adottate per comunicare informazioni non verificabili sia tramite il bilancio, che attraverso altri documenti di natura strettamente volontaria.

La tesi è articolata in due sezioni. La prima sezione presenta una rassegna dei contributi teorici ed empirici rivenienti in letteratura, al fine di sviluppare un quadro concettuale per l'analisi della relazione tra *corporate governance*, informativa obbligatoria e politiche di comunicazione volontarie.



Dopo aver discusso le principali teorie alla base della decisione di comunicare informazioni volontarie, si analizzano i fattori che giustificano la regolamentazione dell'informativa d'impresa, passando in rassegna gli effetti sul mercato dei capitali della comunicazione volontaria e obbligatoria. Prendendo spunto dalla crescente importanza della *disclosure* narrativa, nel secondo paragrafo si illustrano talune questioni relative all'apprezzamento della qualità e del contenuto informativo di informazioni volontarie non verificabili e si discute il problema della loro credibilità agli occhi degli investitori esterni. Riconoscendo l'eterogeneità delle politiche di *disclosure*, il terzo paragrafo prende in esame le caratteristiche dell'impresa e del contesto istituzionale che spiegano parte di tale variabilità, focalizzandosi sul ruolo del sistema di *governance*. Il paragrafo prosegue con una rassegna degli studi empirici che esaminano la relazione tra sistema di governo e trasparenza della comunicazione esterna d'impresa, e si conclude con il dibattito sul ruolo di complementarità o di sostituzione esistente tra *governance* e *disclosure*. Infine, il quarto paragrafo illustra il quadro teorico di riferimento, mettendo in evidenza le lacune della letteratura introduce le domande di ricerca alla base delle analisi empiriche e mostra il relativo contributo al filone di studi oggetto dell'analisi.

La seconda sezione presenta due analisi empiriche che affrontano domande di ricerca tra loro strettamente collegate.

Il primo contributo vuole indagare il ruolo delle caratteristiche del sistema di *governance* e delle peculiarità del contesto istituzionale per le politiche di *disclosure* volontaria e la relazione esistente con l'informativa di tipo obbligatorio. A tal fine, si prende in esame la *disclosure* sui rischi, come particolare tipologia d'informativa che, date le caratteristiche della regolamentazione a oggi esistente, consente di discernere tra informazioni obbligatorie e volontarie. In particolare si analizza se e in che misura l'informativa volontaria è influenzata dalla qualità delle informazioni di tipo obbligatorio (sostituti vs. complementi). In aggiunta, si indaga l'influenza degli incentivi provenienti dal monitoraggio del Consiglio di Amministrazione e dalle peculiarità del contesto istituzionale per le politiche di *disclosure* volontaria.

Tale studio vuole fornire un triplice contributo. In prima istanza, si propone di fornire evidenze empiriche sulla relazione diretta tra *disclosure* obbligatoria e



volontaria, a complemento degli studi teorici che analizzano tale tematica (Einhorn, 2005; Bagnoli & Watts, 2007). In secondo luogo, attraverso un esame del ruolo di monitoraggio esterno, proveniente dalle istituzioni e quello interno, che promana dal Consiglio di Amministrazione, esso contribuisce ad un emergente filone di studi che indaga l'interazione tra meccanismi di governo interni ed esterni e la loro influenza sulla trasparenza aziendale (Durnev & Kim, 2005; Cheng & Courtenay, 2006; Doidge *et al.*, 2007; Berretta *et al.*, 2010). Infine, le evidenze empiriche vogliono essere di supporto agli investitori, nell'interpretare le politiche di comunicazione delle informazioni su base volontaria, ed agli organismi regolamentari, per la disciplina dell'informativa obbligatoria tenuto conto del suo impatto sulle politiche di *disclosure* volontaria.

Il secondo contributo empirico affronta il tema dell'utilizzo del tono nell'informativa ambientale fornita da un campione di imprese del settore Oil&Gas. Questo tipo di *disclosure* risulta di particolare interesse alla luce del recente dibattito circa il potenziale incremento della responsabilità verso gli *stakeholder* rispetto al rischio di divenire un ulteriore strumento di pubbliche relazioni (Cho *et al.*, 2012). In questo contesto, si analizza se i manager utilizzano opportunisticamente il tono dell'informativa ambientale per modificare la percezione esterna dell'immagine aziendale (i.e. *impression management*), ovvero per fornire informazioni utili a predire il livello di performance ambientale futura. Inoltre esso indaga se ed in che misura il contenuto informativo delle strategie di comunicazione si modifica in funzione delle caratteristiche del Consiglio di Amministrazione.

Da un punto di vista teorico, lo studio si propone di contribuire a quella parte della letteratura sull'*impression management* che evidenzia la necessità di incorporare entrambe le prospettive (*incremental information vs. impression management*) nelle analisi sulla valenza informativa delle strategie discrezionali (Merkl-Davies & Brennan, 2007). Combinando diverse teorie per spiegare l'influenza del Consiglio di Amministrazione sull'utilizzo di strategie discrezionali nella *disclosure* ambientale, esso indaga due dimensioni dell'attività del CdA (monitoraggio e orientamento verso gli *stakeholder*) sia contemporaneamente che separatamente (Mallin *et al.*, 2012). Da un punto di vista pratico, esso vuole fornire agli investitori informazioni utili per valutare l'utilizzo di particolari tecniche comunicative e contribuire al dibattito circa



la necessità di istituire una responsabilità legale anche per le informazioni qualitative che i manager comunicano al mercato.

Il lavoro di tesi si conclude con un esame del contributo congiunto delle due analisi empiriche al *framework* di ricerca proposto, una discussione dei limiti dell'approccio adottato e dei possibili sviluppi futuri.

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*L'autore*



# **FIRST SECTION**

## **RESEARCH FRAMEWORK**



# CHAPTER ONE

## THEORETICAL BACKGROUD

1. The role of disclosure in the capital market: an overview. – 1.1 *Theories for voluntary disclosure.* – 1.2 *Rationales for disclosure regulation.* – 1.3 *Capital market outcomes of disclosure activity.* –
2. From hard to soft information: earnings quality, disclosure quality and credibility. – 2.1 *The quality of accounting numbers.* – 2.2 *Beyond the numbers: informativeness of narrative disclosures.* – 2.3 *The credibility of soft information and the role of financial reporting quality.* –
3. The heterogeneity of firms disclosure policies. – 3.1 *The role of corporate governance for disclosure.* – 3.2 *Governance mechanisms and corporate transparency.* – 3.3 *The nature of the interaction between governance and disclosure: complements or substitutes?* –
4. Framework of research and research questions.



## **1. The role of disclosure in the capital market: an overview<sup>1</sup>**

Corporate disclosure plays two important roles in the capital market: the valuation and the stewardship role (Beyer et al., 2010)<sup>2</sup>. According to the valuation role, it allows investors to evaluate the return potential of investment opportunities. Under the stewardship role, disclosure allows investors to monitor the use of capital, once provided. In the first case, disclosure plays an ex-ante informational role, by facilitating investors' inferences about element of firm value that are independent of managerial action, while in the second investors do use the information disclosed ex-post, in order to evaluate the level of managerial effort. Although there is a clear relationship between the two roles, the nature of such a relation is still not well understood<sup>3</sup>.

The valuation role originates from information asymmetries between investors and entrepreneurs (Akerlof, 1970). The information or “lemons problem” arises when, in a market of goods of different quality, there is uncertainty among market participants, since sellers have more information on the quality of those goods than buyers. As buyers cannot distinguish between high quality goods and low quality goods, sellers of low quality goods tend to claim that their goods are as valuable as high quality ones. Buyers, who are rational, will anticipate this possibility and value both goods at the average quality. In such a setting, Akerlof (1970) shows that high quality goods are progressively driven out of the market because of the impossibility of separating them out from low quality goods. As a result, there is a progressive

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<sup>1</sup> The purpose of a review of all studies on governance and accounting literature might be too broad to result in a careful examination of all the research in this area. Therefore, this chapter aims at providing a systematization of the relevant theoretical and empirical studies in order to build a general framework for the analysis of the relationship between corporate governance, accounting and other disclosure policies, in the capital market.

<sup>2</sup> Although corporate disclosure can be directed to stakeholder other than investors, the focus of this work is mainly on communication towards investors.

<sup>3</sup> From one hand, BUSHMAN et al. (2006) investigating the link between the weight placed on earnings in compensation contracts and the weight placed on earnings in stock price formation find a strong positive relation between contracting and valuation role of earnings. From the other hand, GASSEN (2008) claim that the valuation and the stewardship role of financial accounting information should be considered as alternative objectives of financial reporting. BANKER et al. (2009) find results similar to the BUSHMAN et al. (2006). Focusing on soft information, HEINLE & HOFMANN (2009) find that if disclosure of soft information is beneficial for valuation perspectives, it can be detrimental for the stewardship perspective when it increases the noise in the stock prices, thus diminishing managerial incentives. See ARMSTRONG, C. S., GUAY, W. R., & WEBER, J. P. (2010). The Role of Information and Financial Reporting in Corporate Governance and Debt Contracting, *Journal of Accounting and Economics*, 50(2–3), 179-234.



reduction in the size of the market that eventually collapses<sup>4</sup>. Therefore, the existence of a reliable communication channel between informed and uninformed parties reduces information asymmetries, thus preventing the market failure (Trombetta & Bozzolan, 2012).

On the contrary, the stewardship role of disclosure arises once savers have invested their capital in a business venture. As capital providers do not have the ability to play an active role in the management of firm's resources, they delegate it to experienced managers. This gives rise to a separation between ownership and control and to consequent agency problems between principal (owners) and agent (managers) (Jensen & Meckling, 1976). Managers, who are self-interested, have incentives to take action to expropriate investors' resources, such as consumption perquisites or paying excessive remuneration<sup>5</sup>. Here again, the role of financial reporting and corporate disclosure in general may be pivotal in providing external shareholders with useful information to evaluate whether entrepreneurs have managed the firm's resources in the interests of the owners.

Having this distinction clear in mind, the following of the paragraph introduces theories that explain voluntary disclosure, the rationales for regulation, and the main effects of disclosure activity for the capital market.

### ***1.1 Theories for voluntary disclosure***

Moving from the valuation role of disclosure, a first strand of literature tracing back to the Akerlof's (1970) paper, assumes that in equilibrium truthful disclosure is

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<sup>4</sup> HEALY & PALEPU (2001) identify several solutions to lemons problem. The first one is the optimal contracting that provides incentive for full disclosure of private information; the second is the regulation that requires managers to fully disclose their private information; the last one is financial analysts and rating agencies that engage in private information production to uncover manager's superior information. See HEALY, P. M., & PALEPU, K. J. (2001). Information Asymmetry, Corporate Disclosure, and the Capital Markets: A Review of the Empirical Disclosure Literature. *Journal of Accounting and Economics*, 31(1–3), 405–440.

<sup>5</sup> As in the case of the “lemons problems”, the literature proposes different solutions to the agency problem. A part from the existence of optimal contracting and information intermediaries, a central role is played by corporate governance mechanisms in general and the board of directors in particular that monitor and discipline the management behaviour on behalf of external shareholders. See JENSEN, M. C., & MECKLING, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3(4), 305–360. The third and fourth paragraphs will discuss the role of corporate governance mechanisms in reducing the agency conflicts between insiders and outsiders and the relationship with the corporate disclosure.



available, and shows how the “lemons problem” can be solved through a full disclosure policy. It is this literature that sets the basis for all the subsequent voluntary disclosure studies.

Grossman (1981) Grossman & Hart (1980) and Milgrom (1981) identify six conditions under which there is full disclosure equilibrium, with firms voluntarily disclosing all their private information. Their result goes under the notion of “unravelling result” or “revelation principle”. The six conditions are (i) firms incur no cost in making disclosure (ii) investors know that firms have private information; (iii) all investors interpret the firm’s disclosure (or non-disclosure) in the same way and firms know how investors will interpret it (iv) managers want to maximize firms’ share prices (v) firms can credibly disclose their private information (vi) firms cannot commit ex-ante to a specific disclosure policy. The rationale of the “unravelling result” is the following: if firms withhold their private information, investors would interpret this as information that is unfavourable about the asset’s quality and would revise downward their perceptions of the asset’s value (Dye, 2001). This process continues until the firms are better off revealing their information, however unfavourable it may be (Verrecchia, 2001). As a consequence, it is in the firms’ interest to disclose all their private information to distinguish themselves from the one having less favourable information to disclose, in order to prevent a price collapse.

In the light of the “unravelling result” argument, the following voluntary disclosure literature has long focused on reasons why the full disclosure equilibrium may not occur in the real context. They are (a) disclosure costs (b) uncertainty (c) managerial incentives (d) commitment to disclosure (e) disclosure credibility.

(a) *Disclosure costs*. A large number of researches examine what happens when disclosure is costly. Disclosure can be costly because it entails costs of preparing and divulging information, which are fixed costs that do not vary with the manager’s private information (Verrecchia, 1983). Furthermore, the information may be costly because it is informative about the product or the market to competitors, labour



unions or regulators (Wagenhofer, 1990)<sup>6</sup>. When information is not costless (e.g. the source of competitive advantage), its disclosure imposes a proprietary cost on the firm (i.e. a reduction in future cash flows attributable to the disclosure) (Dye, 1990). The proprietary nature of that information increases the range of investors' interpretations from the manager's decision not to disclose (Verrecchia, 1983), leading managers to withhold information to achieve a higher payoff. A large part of disclosure literature suggests that proprietary costs create incentives for managers not to fully disclose information. Among others, Verrecchia (1990) and Dye (1986) show that in presence of disclosure costs managers will disclose information only if it is sufficiently favourable (i.e. it reveals that the asset value is expected to be high/low risk). On the contrary, they will withhold the information when it is sufficiently unfavourable. As uninformed investors cannot infer from silence that managers are withholding bad news, firms can hide information without experiencing negative effects on share prices<sup>7</sup>.

(b) *Uncertainty*. Other studies analyse the role of uncertainty on both the existence of private information and investor response. Dye (1985) proposes that when investors are uncertain about the existence of manager's private information, they cannot infer "bad news" from non-disclosure. Therefore, managers will disclose only *relatively* good news. In addition, the presence of an audience with differential characteristics (informed vs. uninformed investors; sophisticated vs. unsophisticated investors) may create a condition of uncertainty on the investors reaction to the firms' disclosure,

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<sup>6</sup> Information might be costly because it reveals to competitors or other parties some weakness and opportunities of the business that can be exploited to their own advantage (*competitive costs*). For instance, DARROUGH & STOUGHTON (1990) argue that managers lower voluntary disclosure activity in presence of competitive costs related to the size and the number of rivals. WAGENHOFER (1990) show that firms move from full to partial disclosure when proprietary costs are higher and there is a low *ex-ante* risk of adverse action by competitors. Other example of proprietary information is segment reporting, which is highly proprietary since it provides relevant information to the market and financial analysts. See BAKER, M. & MCFARLAND, W. B. (1968). External Reporting for Segments of a Business (New York: NAA); MAUTZ, R. K. (1968). Financial Reporting by Diversified Companies (New York: FERF); BOERSEMA, J. M. & VAN WEELDEN, S. J. (1992). Financial Reporting for Segments (Toronto: Canadian Institute of Chartered Accountants).

<sup>7</sup> For a further discussion on disclosure costs see FELTHAM, G. & XIE, J. (1992). Voluntary Financial Disclosure in an Entry Game with Continua of Type. *Contemporary Accounting Research*, 9, 46–80; NEWMAN, P. & SANSING, R. (1993). Disclosure Policies with Multiple Users. *Journal of Accounting Research*, 31, 92–113; DARROUGH, M. (1993). Disclosure Policy and Competition: Cournot vs. Bertrand. *The Accounting Review*, 68, 534–562; GIGLER, F. (1994). Self-enforcing Voluntary Disclosures. *Journal of Accounting Research*, 32, 224–241; HAYES, R. & LUNDHOLM, R. (1996). Segment Reporting to the Capital Market in the Presence of a Competitor. *Journal of Accounting Research*, 34, 261–280.



that, in turn, leads managers to disclose only information that are sufficiently high or low (Dutta & Trueman, 2002)

(c) *Managerial incentives*. Another important assumption of the “unravelling result” is that managers have superior information to outside investors and strategically disclose them in order to maximize share price. However, this is not always the case. For instance, in presence of stock-based compensation contracts, managers may have incentives to maximise share price when they are going to sell shares. But when stock options are awarded and they intend to exercise it, they may attempt to minimize prices (Yermack, 1997). There is also a related literature on voluntary disclosure that empirically analyses how different managerial incentives affect their disclosure decision<sup>8</sup>. Among the most important there are corporate transactions<sup>9</sup>, the stock based compensation<sup>10</sup> and the corporate control contests hypotheses<sup>11</sup> (Healy &

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<sup>8</sup> This literature relies on a very traditional view that assumes that disclosure policy, corporate governance, and management incentives are exogenous at the time a manager makes a disclosure choice. See CORE, J. E. (2001). A Review of the Empirical Disclosure Literature: Discussion. *Journal of Accounting and Economics*, 31(1-3), 441–456.

<sup>9</sup> This factor is related to corporate transactions such as the decision to issue additional equity or debt capital or to acquire another company. In presence of severe information asymmetry between managers and outside investors, the latter will demand a higher premium for bearing information risk, thus increasing the costs of raising external capital for the firm. Consequently, managers may have incentive to reduce the level of information asymmetries by voluntarily disclosing their private information. See MYERS, S. & MAJLUF, N. (1984). Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have. *Journal of Financial Economics*, 13, 187–222; BARRY, C. B. & BROWN, S. J. (1986). Limited Information as a Source of Risk. *The Journal of Portfolio Management*, 12, 66–72; MERTON, R. C. (1987). A Simple Model of Capital Market Equilibrium Within Complete Information. *The Journal of Finance*, 42, 483–510; LANG, M. & LUNDHOLM, R. (1993). Cross-sectional Determinants of Analysts Ratings of Corporate Disclosures. *Journal of Accounting Research*, 31, 246–271; HEALY, P., HUTTON, A. & PALEPU, K. (1999). Stock Performance and Intermediation Changes Surrounding Sustained Increases in Disclosure. *Contemporary Accounting Research*, 16, 485–520; HEALY, P. & PALEPU, K. (1993). The Effect of Firms’ Financial Disclosure Strategies on Stock Prices. *Accounting Horizons*, 7, 1–11; HEALY & P., PALEPU, K. (1995). The Challenges of Investor Communications: the case of CUC International, Inc. *Journal of Financial Economics*, 38, 111–141.

<sup>10</sup> The presence of stock based compensation creates strong incentive for “strategic” voluntary disclosure. When managers contemplate buying or selling their companies’ securities or when they are being awarded stock options, they might want to provide additional voluntary disclosure to (i) meet the restrictions imposed by insider trading rules and to increase the stock liquidity (ii) to reduce the risk of misvaluation that limit the efficiency of stock compensation. See NOE, C. (1999). Voluntary Disclosures and Insider Transactions. *Journal of Accounting and Economics*, 27, 305–327; ABOODY, D. & KASZNIK, R. (2000). CEO Stock Options Awards and the Timing of Corporate Voluntary Disclosures. *Journal of Accounting and Economics*, 29, 73–100; MILLER, G. & PIOTROSKI, J., (2000). The Role of Disclosure for High Book-to-Market Firms. *Working Paper*, Harvard University.

<sup>11</sup> Managers may use voluntary disclosure to reduce the undervaluation of firms stock and to explain away poor earnings performance, thus limiting the risk of job loss. This reason is known as “corporate control contest” hypothesis and is related to the managers accountability toward the board of directors and investors for poor stock and earnings performance. See WARNER, J., WATTS, R. & WRUCK, K.



Palepu, 2001)<sup>12</sup>.

(d) *Commitment to disclosure*. Analytical model (Verrecchia, 2001; Dye, 2001) point out that for disclosure to have some welfare-enhancing effects (e.g risk-sharing) firms should not be able to credibly commit to a disclosure policy before receiving information (Beyer et al., 2010)<sup>13</sup>. Therefore, under some conditions disclosure could reduce the social welfare because it would destroy risk-sharing opportunities.

(e) *Disclosure credibility*. Finally, even though the unravelling result is based on that the messages sent by managers to investors can be fully truth, disclosure studies point out that voluntary disclosure is not always verifiable or credible. Despite the regulated disclosure, several information is disclosed through informal communication channels where firms do not necessarily have to tell the truth. The extent and the informativeness of this so-called “informal talk” may vary according to whether misrepresentation is costly (Beyer & Guttman, 2012) or costless (Crawford & Sobel, 1982)<sup>14</sup>.

In the light of the failure of the “revelation principle”, another strand of literature, departing from the Akerlof’s (1970) paper, analyses how voluntary disclosure may solve the “lemons problem” but, contrary to Grossmann (1981) and Milgrom (1981) assumes that the messages sent by informed to the un-informed party can be full lies. This literature is known as “cheap talk” models and represents the starting point for the recent disclosure literature on the credibility of voluntary disclosures.

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(1988). Stock Prices and Top Management Changes. *Journal of Financial Economics*, 20, 461–493; WEISBACH, M. (1988). Outside Directors and CEO Turnover. *Journal of Financial Economics*, 20, 431– 461; PALEPU, K. (1986). Predicting Takeover Targets: a Methodological and Empirical Analysis. *Journal of Accounting and Economics*, 8, 3–36; MORCK, R., SHLEIFER, A. & VISHNY, R., (1990). Do Managerial Objectives Drive Bad Acquisitions? *Journal of Finance*, 45, 31–50.

<sup>12</sup> Additional factors that influence managerial disclosure decisions are related to the institutional setting. High level of shareholder litigation increases the managerial incentives for voluntary disclosure to avoid the threat of legal actions. However, if managers believe that investors cannot distinguish management bias, litigation may also reduce incentives to provide some types disclosures (e.g. forward looking disclosure). Not surprisingly, here the empirical evidence is mixed. See SKINNER, D. (1994). Why Firms Voluntarily Disclose Bad News. *Journal of Accounting Research*, 32, 38–61; MILLER, G. & PIOTROSKI, J. (2000). The Role of Disclosure for High Book-to-Market Firms. *Working Paper*, Harvard University.

<sup>13</sup> BEYER et al. (2010) provides a clear example to illustrate the impact of violating that assumption. For a deeper discussion of the topic see BEYER, A., COHEN, D. A., LYS, T. Z., & WALTHER, B. R. (2010). The Financial Reporting Environment: Review of the Recent Literature. *Journal of Accounting and Economics*, 50(2–3), 296–343.

<sup>14</sup> While there is a large literature focusing on the case in which misrepresentation is costless (cheap-talk models), the case of costly misreporting is still largely unexplored (BEYER et al., 2010).



In a classic “cheap talk” model no control can be exercised over the truthfulness of communication, thus managers might want to disclose whatever information can lead investors to value the firm closest to the managers’ objectives, regardless of their private information. Therefore, this disclosure is not informative at all and the “lemons problem” still remains unresolved. However, Crawford & Sobel (1982) show that this extreme pay-off occurs only under the assumption that informed and uninformed parties have completely opposite incentives. Indeed, if the sender is perfectly informed and both parties have a common interest in avoiding the full collapse of the market, in equilibrium the senders (managers) may not necessarily want to lie. As a consequence, either non-verifiable disclosure may be informative. (Farrell & Rabin, 1996)<sup>15</sup>.

Moving from a single communication game to repeated communication, the informativeness of non-verifiable disclosure increases, as the role of the reputation comes into play. Sobel (1985) examines a game in which the sender is perfectly informed and the incentives between the sender and the receivers are misaligned. They find that when the communication of messages is repeated, the need to build a reputation makes non verifiable messages at least partially informative (credible). Benabou & Laroque (1992) generalize the Sobel’s (1985) model to a sender with noisy information. When private information is not perfect, there is the chance the sender’s message is not intentionally biased, but reports truthfully, even though it contains an honest mistake. Therefore, non-verifiable message is always partially informative, as over time receivers will use the sender’s track record to reassess the credibility of his/her messages, and will eventually uncover an opportunistic manipulator.

Other two major theories have been used to explain voluntary disclosure: agency and

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<sup>15</sup> There is also some theory suggesting that managers do not necessarily lie even when talk is cheap and their private information is not fully reliable. FISHER & STOCKEN (2001) examine the case of imperfect information showing that non verifiable messages can be more informative starting from a larger information set. They analyse a model of single communication game in which the sender privately observes some imperfect unverifiable disclosure and his/her incentives are misaligned with those of the receivers. In such a setting, as the sender’s information quality improves the quality of information that he/she may communicate increases, but the credibility of that communication decreases. They conclude that a finer information set is not always deliverable as the sender’s information that maximizes the receiver’s information may be coarse or imperfect. See FISCHER, P. E. & STOCKEN, P. C. (2001). Imperfect Information and Credible Communication. *Journal of Accounting Research*, 39, 119–134.



signalling theory. Signalling theory predicts that firms voluntarily disclose information to “signal their type” and, contrary to other field of studies (e.g. agency theory), it focuses on the behaviour of managers in well-performing firms. Although signalling theory has been developed to explain problems of information asymmetries in the labour market<sup>16</sup>, its arguments are, indeed, applicable in any market with information asymmetry. This theory assumes that sellers of a product in the market have an informational advantage, (i.e. positive or negative information on the quality of the product sold which is useful for outsiders). Outsiders (buyers) have conflicting interests with the signallers and, in absence of any information, will value all goods at the same price (the average). Therefore, sellers of goods with a value above that price will incur in an opportunity loss, while sellers of goods with a value below that price will incur in an opportunity gain. In this setting, sellers of high quality goods have incentive to disclose a message that acts as a signal predicting the superior quality. However, to be effective the signal should be costly and not replicable by low quality goods sellers. Moreover, it should be observable and confirmed after the purchase<sup>17</sup>. When applied to accounting, signalling theory argues that high quality firms use disclosure as costly mechanism to signal their superiority, in order to reduce information asymmetries and avoid the opportunity loss (Hughes & Schwartz, 1988).

From a different but overlapping perspective, agency theory has been regarded as theoretical foundation of voluntary disclosure. It is concerned with the principal-agent problem created by the separation of ownership and control of the firm (Berle & Means, 1932). Under the assumptions of opportunism, information asymmetry and bounded rationality, this separation creates agency problems (i.e. the possibility that

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<sup>16</sup> The first study about the signalling theory is the one of SPENCE (1973). In his seminal paper he analyses the case of a job applicant who wants to signal her high quality by disclosing his/her past experience. See SPENCE, M. (1973). Job Market Signaling. *The quarterly journal of Economics*, 87(3), 355–374.

<sup>17</sup> In the finance literature, it is well established that when direct revelation is not possible, firms may use corporate financial decisions such as dividend and capital structure policy to signal their type. See LELAND, H. E., & PYLE, D. H. (1977). Informational Asymmetries, Financial Structure, and Financial Intermediation. *Journal of Finance*, 32(2), 371–387. BHATTACHARYA, S. (1979). Imperfect Information, Dividend Policy, and “The Bird in the Hand” Fallacy. *The Bell Journal of Economics*, 10(1), 259–270; MYERS, S. C., & MAJLUF, N. S. (1984). Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have. *Journal of Financial Economics*, 13(2), 187–221.



the agent will take opportunistic actions that work against the welfare of the principal). As a consequence, three types of agency costs incur: (i) monitoring costs borne by the principal to create incentives against the agent misbehaviour (ii) bonding costs induced by the agent to ensure he/she behaves in the principal's interest, and she/he will be compensated in case of misbehaviour (iii) residual loss (i.e. a decline in firms value due to sub-optimal choices). Corporate disclosure is, therefore, a mechanism to protect principal's interests and to reduce agency costs (Jensen & Meckling, 1976; Fama, 1980)<sup>18</sup>.

Finally, disclosure can also be explained in the light of non-shareholders-centred theories, that require the firms to be accountable towards a broader community of stakeholders (i.e. stakeholder and legitimacy theory). According to stakeholder theory the success of organizations depends on their ability to meet the demand of a wide group of stakeholders (Clarkson, 1995; Ullman, 1985). Therefore, firms may want to voluntarily disclose information on multidimensional aspects of their performance, so that the stakeholders are informed about the effect of the company's operations, thus responding to their diverse and various expectations. Legitimacy theory (Dowling & Pfeffer, 1975; Patten, 1992) assumes that companies operations are regulated by a "social contract" where they agree to perform socially desired outcomes in order to survive. As a consequence, disclosure is a tool to ensure stakeholders that they behave within the bounds of that contract, to attain legitimacy for their actions and ultimately pursue long-term prosperity<sup>19</sup>.

## ***1.2 Rationales for disclosure regulation***

So far theories explaining voluntary disclosure have been discussed. Thus, if firms may communicate on a voluntary basis, why do we observe a regulation for

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<sup>18</sup> The role of corporate disclosure as a control mechanisms and its relationship with other monitoring devices will be deeply discussed in paragraph 3.

<sup>19</sup> These theories share many similarities and are recently mostly used to explain corporate disclosures with regard to environmental and societal issues. Nevertheless, the main difference between them is that under stakeholder theory firms disclose information as a response to the demand of various stakeholders groups, while legitimacy theory assumes that managers disclose information to give a more favourable view of the corporate achievements, rather than providing information useful for outsiders. See FREEDMAN, M., & JAGGI, B. (2010). Sustainability, Environmental Performance and Disclosures. Emerald: UK.



disclosure in the capital market? In the unravelling result setting managers disclose all their private information, but when one (or more than one) condition of the unravelling result does not hold, less than full disclosure is likely to occur. However, this does not necessarily imply that disclosure regulation is desirable (Beyer et al., 2010). Indeed voluntary disclosure is always associated with some firm-specific benefits in terms of liquidity, cost of capital, and firm valuation other than the costs. As a result, firms are expected to voluntarily provide information as long as the benefits of disclosure overcome its costs, because they ultimately bear the costs of withholding information. According to Leuz & Wysocki (2008) a complete justification of mandatory disclosure has to show that the “market equilibrium” is unlikely to produce a level of disclosure that is desirable for the society as a whole, while a “regulatory solution” would achieve a better outcome (Leuz & Wysocki, 2008:15). This literature has, therefore, identified four main rationales to explain disclosure regulations, other than the failure of the “unravelling result” argument. The most investigated are (a) externalities (b) economies of scale (c) agency costs<sup>20</sup>.

(a) *Externalities*. The first condition is related to the existence of several disclosure (positive or negative) externalities that lead to private under- (over-) production of information. There exist financial externalities when a firm’s disclosure is informative not only about its own financial position but also about other firms. Moreover, a firm’s disclosure may also create some real externalities by affecting other firms’ real decision (Kanodia et al., 2000). Disclosure regulation might mitigate such externalities and improve the social welfare (Dye, 1990; Adamati & Pfleiderer, 2000).

(b) *Market-wide costs savings*. The second motive relies on the market-wide costs savings from regulation. In absence of any regulation, the private acquisition of

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<sup>20</sup> Often debates about disclosure and financial reporting regulation incorrectly focus on firm-specific benefits and costs of voluntary disclosures, not considering their market wide effects. However, disclosure effects often goes beyond a single firm. For instance, it may benefit non-competing firms, providing information about investment risks (FOSTER, 1981). Moreover, it may help investors assess other firms’ relative managerial efficiency or potential agency conflicts. Knowledge of these market-wide effects and externalities provides a basis for identifying the costs and benefits of regulating and enforcing corporate financial reports and disclosures. In the following will be discussed these rationales for disclosure regulation, mainly referring to LEUZ, C. & WYSOCKI, P. (2008). *Economic Consequences of Financial Reporting and Disclosure Regulation: A Review and Suggestions for Future Research, Working Papers*. For a complete discussion of the topic please refer to this review.



information may be very expensive or even impossible for some investors. Moreover, it can lead to investors' duplication of information. Mandating certain level of disclosure might save costs of negotiating disclosures individually (Mahoney, 1995). This facilitates the information production, increases the comparability of information across firms, generates economies of scale and eventually efficiency gains (Rock, 2002). In addition, regulation for disclosure provides a costless commitment device to transparency (Rock, 2002) which is rewarded by the capital market (Verrecchia, 2001; Leuz & Verrecchia, 2000).

(c) *Agency costs*. The third justification for disclosure regulation is the existence of agency costs. In presence of agency problem, investors will anticipate that insiders will attempt to expropriate firms' resources withholding corporate information to the market. For instance, investors might price protect themselves and increase the rate of return at which they are willing to provide capital to the firm. In such a setting, the firm will ultimately bear the costs coming from the agency problems (Jensen & Meckling, 1976). Therefore, regulation forces firms towards an increased transparency that helps limiting diversion activities and reducing the related agency costs (Shleifer & Wolfenzon, 2002). Moreover, given the use of accounting numbers in firm's contracts, a regulation for disclosure will increase the efficiency of contracting between firms and outsiders (managers, shareholders, debt holders, suppliers, customers etc.) (Holmstrom, 1979). Lastly, mandatory regime can be beneficial if it offers access to criminal penalties or other remedies that are not available (or very expensive) to private contract.

Despite its benefits, mandated disclosure has also several costs. First, it implies costs for designing, implementing and enforcing standards. Moreover, regulated disclosure has detrimental effects by reducing risk-sharing (Diamond, 1985; Dye, 1990) or information production by other market participants (Fisher & Stocken, 2010). For instance, Fishman & Hagerty (1989) show that more disclosure by one firm can attract investors away from others. The same argument can be applied when examining the level of disclosure across markets and/or countries. Additional costs related to the regulatory process come from the increased level of dictatorship and corruption (Djankov et al., 2003; Wysocki, 2011), which in turn allows some incumbent firms to capture the regulatory process. Thus, the resulting regulatory



system may inhibit, rather than promote socially-optimal outcomes (Stigler, 1971). Furthermore, the diversity among firms and over time makes it difficult for regulators to design a “one-size fits-all” disclosure regulation. Finally, even in presence of a regulation theoretically able to increase the social welfare, its efficacy depends on the characteristics of the enforcement mechanisms and the institutional environment that affect the way the regulation is implemented in practice (Leuz & Wysocki, 2008).

There are several empirical studies that provide insights into the economic consequences of financial reporting and disclosure regulation. Empirical literature on Securities Act (1933) and Securities and Exchange Act (1934) is skeptical about the benefit of regulation (Benston, 1969). These studies have, however, been highly criticized (Romano, 1998) due to the lack of control group that helps controlling for changes in market conditions. More recently studies point out costs and benefits of changes in US disclosure regulation related to the introduction of “Eligibility Rule”<sup>21</sup>, “Regulation FD” and “Sarbanes Oxley Act”<sup>22</sup> (Bushee & Leuz, 2005; Iliev, 2009)<sup>23</sup>. Other than the US setting, few studies examine the effects of regulation (Christensen et al., 2010)<sup>24</sup>. These evidence suggests that capital market outcomes of

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<sup>21</sup> The “Eligibility Rule” (1999) forced firms with shares traded in the OTCBB market to comply with reporting rules under the Security Act (1934). Exploiting features of this new setting, BUSHEE & LEUZ (2005) find that the imposition of SEC disclosure had significant negative economic consequences, pushing a significant number of smaller firms into a less regulated market (so-called “crowding effects”). However, they also provide evidence of positive externalities for firms already compliant with SEC Rules (i.e. positive returns and improved liquidity). See BUSHEE, B., & LEUZ, C. (2005). Economic Consequences of SEC Disclosure Regulation: Evidence from the OTC Bulletin Board. *Journal of Accounting and Economics*, 39(2), 233–264.

<sup>22</sup> Regulation Fair Disclosure (2000) limits the managers selective release of material non-public information to professionals and institutional investors, in order to increase the confidence in the market and reduce the degree of information asymmetries between different types of shareholders. Sarbanes Oxley Act (SOX) was passed in 2002 as a response to some public scandals and introduces major changes to the regulation of financial practice and corporate governance.

<sup>23</sup> Literature on Sarbanes Oxley Act’s effects provides different cross-sectional results. Focusing on domestic firms some studies document positive abnormal returns to the passage of SOX (LI et al., 2004; CHHAOCHARIA & GRINSTEIN, 2007), while others negative effects (ZHANG, 2007). The same arguments applies for foreign firms (LITVAK, 2005; BERGER et al., 2005). Other studies examine the effects of specific behaviour (e.g. earnings management). For instance, ILIEV (2009) uses regression discontinuity design to exploits the effects of SOX implementation of Section 404 on audit fees and earnings management. He finds that even though SOX had reporting benefits, on net it imposed more costs than benefits to the small firms. See ILIEV, P. (2010). The Effect of SOX Section 404: Costs, Earnings Quality, and Stock Prices. *The Journal of Finance*, LXV(3), 1163–1197.

<sup>24</sup> In the EU there was a series of directives to harmonize and improve capital market regulations. Christensen et al. (2011) examine the market benefits of two EU directives (“Market Abuse Directive”, “Transparency Directive”), focusing on market liquidity. They find significant capital-market benefits from tighter regulation. Nevertheless, they also find a considerable heterogeneity in



regulation are not homogeneous and can be explained by several factors (e.g. effectiveness of prior regulation, heterogeneity in the way directives were implemented; different level of enforcement across countries)<sup>25</sup>.

In sum, the evidence on the economic consequences of disclosure and reporting regulation is still confounding. As a result, whether or not mandating additional disclosure is beneficial and really desirable for the market as a whole still remains an empirical question.

### *1.3 Capital market outcomes of disclosure activity*

In the light of its importance for firms, investors, regulators and standard setters, a large number of studies examine the economic consequences of firm's disclosure activity. These studies mainly focus on the valuation perspective and analyse the capital market outcomes that are relevant at the firm level (i.e. that can be fully internalized by each firm when making their individual disclosure decision)<sup>26</sup>. The most discussed are: (a) market liquidity (b) cost of equity (c) cost of debt (Healy & Palepu, 2001).

(a) *Market liquidity*. The first benefit of disclosure is the liquidity of the firm's securities in the secondary market, i.e. the ability of investors to quickly buy or sell shares at low cost and with little price impact. The existence of information asymmetry affects the willingness of market participants to "jump" into the market because of transaction costs and opaqueness. This generates a price protection

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those effects, with countries having stronger prior regimes (or higher regulatory quality) showing larger effects. See CHRISTENSEN H. B., HAIL L., & LEUZ C. (2011). Capital-Market Effects of Securities Regulation: The Role of Prior Regulation, Implementation and Enforcement. *Working Papers*.

<sup>25</sup> Other than the aforementioned studies, a substantial part of the literature on disclosure regulation examines the effects of the IFRS adoption of reporting quality and its capital market consequences. As a deeper examination this literature goes beyond the scope of this thesis, see LEUZ & WYSOCKI (2008), for a review of the studies on this topic.

<sup>26</sup> From a valuation perspective (market based approach) investors appreciate whether accounting information and disclosures are useful in predicting the level and the variance of the firms' cash flow. As discussed later, better information may improve the market liquidity, lower the required rate of return of individual securities and improve the risk sharing in the economy. A different perspective (contracting approach) assumes that outsiders evaluate the usefulness of accounting information to decide whether or not engage in contracts with the firm. Thus, high quality information can improve the contracting efficiency by leveling the playing field among potential contracting parties and reduce the costs of searching, processing and negotiating contracts.



mechanism meaning that uninformed investors tend to ask (offer) higher (lower) price for a given security compared to the ‘true price’ to protect against the losses from trading with a better informed party. This form of price protection not only introduces a bid-ask spread, but also reduces the number of shares that uninformed investors are willing to trade, thus making the market illiquid.

Corporate disclosure reduces information asymmetries and mitigates the adverse selection problem (Kim & Verrecchia, 1994; Easley & O’Hara, 2004)<sup>27</sup>. It has a first moment effect, making it more difficult (and costly) to be privately informed, thus reducing the probability of trading with a better informed counterpart. In addition, it affects the ex-ante precision of the information and its distribution. Thus, it also has a second moment effect by limiting the uncertainty and the informational advantage of informed investors relative to the one that are uninformed. Accordingly, Welker (1995) and Healy et al. (1999) show that firms with higher disclosure have lower bid-ask spread. Leuz & Verrecchia (2000) find that firms committing to a listing exchange that requires more transparent disclosure have lower bid-ask spread and higher trading volume. Ng (2007) documents that the firm’s information quality lowers its liquidity risk.

Adverse selection problem and trading costs in the secondary market manifest themselves also in the primary market. In primary capital markets, firms sell equity shares to raise cash proceeds for investment. When the trading occurs among agents with different degrees of information, investors may be required to pay or offer some “liquidity premium” when assets are exchanged, to protect against the adverse-selection problem. If investors held their shares until the firm liquidates, they would be unconcerned about transaction costs that arise from the exchange of asset shares prior to liquidation. However, as investors generally tend to sell some shares prior to liquidation, or to buy additional shares, they anticipate the price protection mechanisms and translate the transaction costs into what they are willing to pay to hold shares initially. This cost is known as “information asymmetry component of

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<sup>27</sup> KIM & VERRECCHIA (1994) model a setting where more expansive disclosures lead to greater incentives on the part of investors to acquire private information, resulting in greater information asymmetry and, by implication, a higher cost of capital. See FRANCIS, J., NANDA, D., & OLSSON, P. (2008). Voluntary Disclosure, Earnings Quality, and Cost of Capital. *Journal of Accounting Research*, 46(1), 53–99.



the cost of capital” and represents the discount that firms provide as a means of mitigating the adverse-selection problem arising from the information asymmetry (Verrecchia, 2001). Therefore, the higher the anticipated transaction cost, the higher the “information asymmetry component of the cost of capital”, the lower the capital firm receives for investment and production when its shares are sold in a primary capital market<sup>28</sup>.

It arises from the previous discussion that disclosure is a means to mitigate the information asymmetry which in turn translates into an improvement of the market liquidity, but also in a reduction of the rate of return that investors require for securities transaction. For instance, Amihud & Mendelson (1986) find that firms providing a higher level of public disclosure, reduce the adverse selection component of the bid-ask spread, thereby reducing their cost of equity capital. Diamond & Verrecchia (1991) claim that disclosure reduces the price impact<sup>29</sup> of trades, thus increasing the investor’s willingness to take larger position in a trade. This increases the demand for firm’s securities and reduces its cost of capital.

(b) *Cost of equity*. The aforementioned studies provide evidence of an indirect link between disclosure and cost of capital. However, there are also studies that examine the direct effect of firm’s disclosure on cost of capital. This second stream of literature suggests that greater disclosure reduces the estimation risk i.e. the risk that investors bear when they estimate the parameters of firm’s value such as the firm’s beta (Barry & Brown, 1984). Theoretically, whether or not disclosure activity affects the firm’s cost of capital through reduced information risk depends on whether information risk is diversifiable, which is a non-trivial issue (Clarkson et al., 1996). If it is non-diversifiable (priced-risk factor), investors will demand an incremental rate of return for investing in firms with low disclosure levels and high information risk. Easley & O’Hara (2004) and Lambert et al. (2007) have sought to assess this issue.

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<sup>28</sup> The information asymmetries and the adverse selection problem manifest themselves in the primary market also through the problem of the underpricing. See Ljungqvist, A. (2004). IPO Underpricing. Handbook in Corporate Finance: Empirical Corporate Finance edited by B. Espen Eckbo.

<sup>29</sup> The price impact is a measure of illiquidity suggested by AMIHUUD (2002). This measure captures the ability of investors to trade in a stock without moving its price, thus reflecting the price impact of trades. See AMIHUUD, Y. (2002). Illiquidity and Stock Returns: Cross-Section and Time-Series Effects, *Journal of Financial Markets*, 5(1), 31–56.



Assuming that information is a priced risk factor, Easley & O'Hara (2004) develop a model where disclosure can improve the risk sharing between informed and uninformed investors and lowers the cost of capital. Huges et al. (2007) re-examine the Easley & O'Hara's (2004) model and conclude that information risk is not priced as it is fully diversifiable or associated with other diversifiable risk factors. Lambert et al. (2007) show that the quality of firm-specific disclosures can influence the cost of capital either indirectly or directly, by decreasing the covariance between a firm's cash flow and the cash flow of other firms. However, contrary to Easley & O'Hara (2004) they claim that the information risk becomes diversifiable only when investors can form a portfolio of many stocks.

Empirical research documents mixed results concerning the relation between disclosure and cost of capital. One of the first studies that attempt to directly quantify the cost of capital benefit of disclosure is the Botosan's (1997) cross-sectional analysis. Even though she does not find a significative relationship between voluntary disclosure and cost of capital for the entire sample, she does find a negative and significant relationship for the subsample of firms with low analysts following. Botosan & Plumlee (2002) extend the Botosan's (1997) study to assess if the negative association between cost of equity and disclosure can be generalized and hold either for different disclosure vehicles. However, they find contrasting results, with the annual report disclosure significantly negatively related with cost of capital while the voluntary disclosure being positively related<sup>30</sup>. A different, but related, literature tries to disentangle the cost of capital effect of specific accounting attributes. The most investigated is the quality of accruals component of earnings but the results of empirical analyses are quite confounding. Some studies suggest that accruals quality is an additional priced risk factor (Francis et al., 2004; 2005), while other research questions this result calling for more robust evidence (Bhattacharya et al., 2011; Aboody et al., 2005; Cohen et al., 2008). In addition, the presence of smoothed earnings is associated with lower cost of capital (Francis et al., 2004). However, when controlling for other variables affecting the cost of capital estimates,

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<sup>30</sup> Other studies examine the impact of disclosure on cost of capital in specific corporate event such as IPO, cross-listing, SEO. For instance, HEALY et al. (1999), LANG & LUNDHOLM (2000), SHRAND & VERRECCHIA (2005), LEONE et al. (2007) document a positive relationship between external capital raising activities and corporate disclosure.



this association disappears (McInnis, 2007)<sup>31</sup>.

(c) *Cost of debt*. Despite the large analytical and empirical literature that examines the relationship between disclosure and cost of equity capital there is limited evidence on its impact on the cost of debt. For instance, Sengupta (1998) finds a negative relationship between voluntary disclosure and the cost of raising debt. Francis et al. (2005) document that firms with low financial reporting quality have higher ratio of interest expense to interest-bearing outstanding debt. Zhang (2008) reports that lenders offer low interest rates to firms that report conservative earnings. However, this recent stream of literature faces several issues, such as the difficulty in evaluating the impact of specific debt contract's characteristics that have a substantial impact on the cost of debt (Leuz & Wysocky, 2008).

Above all, we are not sure whether either the equity market or the debt market price the level of disclosure provided by each company. The empirical evidence on the relation between disclosure and cost of capital is still inconclusive and sensitive to alternative research design, firm-specific characteristics, empirical metrics used to measure either the cost of capital or the firm's disclosure and omitted variables problem (Beyer et al., 2010).

(d) *Other outcomes*. Disclosure literature has identified some indirect effects on the information intermediation, such as the analysts following and the institutional ownership (Healy & Palepu, 2001; Core, 2001)<sup>32</sup>. Concerning the former, public disclosure affects the cost of private information acquisition for analysts (Bushman,

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<sup>31</sup> For further evidence on the cost of capital effects of corporate disclosure see also ECKER, F., FRANCIS, J., KIM, I., OLSSON, P. M., & SCHIPPER, K. (2006). A Return-Based Representation of Earnings Quality. *The Accounting Review*, 81(4), 749–780; MCINNIS, J. (2007). Are Smoother Earnings Associated with a Lower Cost of Equity Capital? *University of Iowa Working Paper*; LIU, M., WYSOCKI, P. (2007). Cross-Sectional Determinants of Information Quality Proxies and Cost of Capital. *Working Paper*.

<sup>32</sup> Other than capital market outcomes, disclosure has also several real effects. For instance it may have impact on the firms investment efficiency (BIDDLE & HILARY, 2006; BIDDLE et al., 2009; MCNICHOLS & STUBBEN, 2008; JACKSON et al., 2009) and/or for the executive labour market (DESAI ET AL., 2006; KARPOFF et al., 2008; SRINIVASAN, 2005; MENON & WILLIAMS, 2008; ENGEL et al., 2003). Moreover disclosure has been found to influence the litigation propensity (PALMROSE & SCHOLZ, 2004; LEV et al., 2008; GONG et al., 2008; DUCHARME et al., 2004), the audit opinion (FRANCIS & KRISHNAN, 1999; BRADSHAW et al., 2001; BUTLER et al., 2004), the firm valuation (BARTH ET AL., 1999; KASZNIK & MCNICHOLS, 2002; MYERS et al., 2007; PETRONI et al., 2000; BEAVER & MCNICHOLS, 1998; BEAVER & ENGEL, 1996; SKINNER & SLOAN, 2002; MYERS et al., 2007) and the executive compensation (BALSAM, 1998; BABER et al., 1998; NWAEEZE et al., 2006; DECHOW et al., 2009; BUSHMAN et al., 2004; CHENG & FARBER, 2008). As they are out of the scope of this review, refer to the aforementioned studies for a further discussion.



1989), that, in turn, increases the level of analysts following and improves the precision and the accuracy of the analysts' forecast (Lang & Lundholm, 1993). From an opposite perspective, the availability of more public disclosure may decrease the demand for third party information leading to lower analyst coverage (Healy et al., 1999). Fisher & Stocken (2010) show that analysts stop following a firm when the precision of public information is sufficiently high, thus negatively affecting the total amount of information available. Li et al. (2009) document that analysts' coverage is positively associated with the frequency, the precision and the accuracy of management forecasts.

Furthermore, expanded disclosure and stock liquidity can be associated with increased institutional ownership (Diamond & Verrecchia, 1991; Kim & Verrecchia, 1994). However, this literature reports mixed results. For instance, Healy et al. (1999) and Bushee & Noe (2000) show that higher level of disclosure is associated with higher institutional ownership. Conversely, Tasker (1998) and Bushee et al. (2001) document that firms with higher institutional ownership and analysts following are less likely to voluntarily disclose additional information. Ajinkya et al. (2005) find that firms with more concentrated institutional ownership provide less voluntary disclosure. These findings are consistent with the hypothesis that analysts and other intermediaries produce additional information that reduces the information asymmetry and the need for additional corporate disclosure. However, what is the nature of the relationship between these information intermediaries and firms' mandatory and voluntary disclosure is still not well understood.

Overall, the empirical evidence suggests that firms benefit from disclosure activity through the increased liquidity, the reduction in its cost of capital, or an increase in analysts following. As a consequence, what would preclude a firm from choosing the corner solution of full disclosure? One potential explanation is that managers and/or firms do not choose the corner solution (full disclosure) because there are costs that constrain such behaviour (Verrecchia, 2001). Therefore, these costs should be considered when examining the capital market benefit of disclosure (Beyer et al., 2010). A second explanatory factor is that the optimal disclosure strategy depends not only on the trade-off between benefits and costs of disclosure, but also on the incentives managers facing in their disclosure decision (Core, 2001).



## 2. From hard to soft information: earnings quality, disclosure quality and credibility

Theory predicts that corporate disclosure reduces information asymmetries (Botosan & Plumlee, 2002; Easley & O'Hara, 2004), increases stock market liquidity (Healy et al., 1999) and improves capital market efficiency. A fundamental question of empirical accounting and capital market research is, however, how to assess the “quality” of information disclosed. Firms may communicate with outside investors by providing information through multiple venues. First of all, there are some disclosures that are mandatory such as financial statements, footnotes, management discussion and analysis and other regulatory filings (10-K, 10-Q). Firms may also provide information on a voluntary basis through management forecasts, analysts' presentations and conference calls, press releases, internet sites and other corporate reports (Healy & Palepu, 2001).

Given the availability of these multiple disclosure channels, it is not surprising that a clear definition of “disclosure quality” and a direct derivation of measures from that definition are still missing from the literature (Beyer et al., 2010). In the following it will be discussed the evolution of the concept of “reporting quality” according to the historical change observed in the role of financial reporting and voluntary disclosure and the key challenges it poses to both scholars and practitioners.

### 2.1 The quality of accounting earnings

Market-based accounting research has long focused on the information content of accounting numbers since the pioneering studies of Ball & Brown (1968) and Beaver (1968)<sup>33</sup>. Recognizing that accounting numbers convey useful information affecting

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<sup>33</sup> In their seminal study BALL & BROWN (1968) empirically document the association between stock returns and reported accounting earnings. Using 261 firms over the years 1957-1965, they estimate the expected earnings (proxied by last year's earnings) for each firm-year observation. Then they classify each observation as “Good News” (if actual earnings are greater than the expected earnings) and “Bad news” (if actual earnings are lower than the expected earnings). They estimate the *Abnormal Stock Return* for month of earnings announcement and find that stock market reacts to accounting information, but begins to anticipate the Good/Bad news 12-months prior the earnings announcement. Their approach is consistent with securities market efficiency and rational decision theory and still form the basis for studies using market-based approach to analyse disclosures. See BALL, R., & BROWN, P. (1968). An Empirical Evaluation of Accounting Income Numbers. *Journal of Accounting Research*, 6(2), 159–178.



security prices, although not on a timely basis, this strand of literature assumes those numbers are of better quality if they provide useful information about firms' financial performance. Therefore, this literature has referred to a narrow concept of "disclosure quality", which makes direct reference to the summary measure of firm performance as derived from the financial statement (i.e. "earnings quality"). Under that approach higher quality earnings should provide information relevant to a specific decision made by specific decision makers. As financial statement has multiple users, each one with different decision model<sup>34</sup>, the concept of "earnings quality" is necessarily multidimensional. It relies upon some qualitative attributes that proxy for characteristics of accounting earnings that market participants take into account in their allocation of resources (Dechow et al., 2010). As a consequence, the measurement of earnings quality is necessarily context-specific, since there is not a measure that is superior for all decision models.

Earnings attributes are generally divided into two broad categories according to the underlying assumption on the role of reported earnings (Francis et al., 2004): accounting-based and market-based attributes. Accounting-based attributes derive from the assumption that the function of earnings is the efficient allocation of cash flows to reporting periods via the accruals process<sup>35</sup>. They are: (a) accrual quality (b) persistence (c) predictability and (d) smoothness.

(a) *Accrual quality*. This approach assumes that accounting earnings are composed of two sub-components: realized cash flows and estimated accruals. The function of the accrual components of earnings is to mitigate the timing and matching problem of the cash flow components, leading to a measure of earnings which is more informative about future firm performance. However, this informational advantage is not without limitations. As accruals result from a subjective estimation, they may

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<sup>34</sup> For instance, long-term debt holders are more interested in the liquidation value, while compensation committee is more interested in the performance under managerial control.

<sup>35</sup> All proxies for earnings quality have at their core that reported earnings are a function of fundamental unobservable earnings, and the ability of accounting system to measure the firm's fundamental earnings process. However, the existing literature has not yet separated the unobservable dimension of quality (i.e. the dimension related to fundamental performance) from the contribution of accounting system to the quality of reported earnings. See DECHOW, P., GE, W., & SCHRAND, C. (2010). Understanding Earnings Quality: A Review of the Proxies, their Determinants and their Consequences. *Journal of Accounting and Economics*, 50(2–3), 344–401.



contain intentional and unintentional errors that, in turn, lower the quality of reported earnings. Therefore, the quality of accounting earnings mainly depends on the quality of accruals. The most common approach to estimate accrual quality distinguishes “normal” from “abnormal” accruals. If the “normal” component of accruals is modelled properly, it should capture adjustments that are related with the firms’ fundamental performance. Then, the “abnormal” component captures the distortions induced by the application of accounting standards or earnings management and is of a lower quality (Jones, 1991; Dechow et al., 1995; Kothari et al., 2005). Other models view the matching function of accruals to cash flows as being of primary importance and consider short-term accruals (as proxied by working capital accrual) as a function of last-period, current-period, and next-period operating cash flows (Dechow & Dichev, 2002; Francis et al., 2005). This approach takes the view that earnings that map more closely into cash are more desirable (Penman, 2001)<sup>36</sup>.

(b) *Persistence*. This attribute is meant at measuring earnings sustainability. Indeed, persistent earnings are desirable because they are useful to equity investors for valuation. The underlying assumption is that more persistent earnings will yield better inputs to equity valuation models, since current earnings are a better summary measure of future firm performance than non-persistent earnings. Studies on the persistence of earnings and its sub-components show that the cash flow component of earnings is more persistent than accrual components and “abnormal” accrual components are less persistent than “normal” accruals (Richardson et al., 2005)<sup>37</sup>.

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<sup>36</sup> DECHOW & DICHEV (2002) show that firms with lower accrual quality have less persistent earnings, longer operating cycles, larger accruals and more volatile cash flows, accruals and earnings. They are also smaller and are more likely to report a loss. One of the main limits of the DECHOW & DICHEV’s (2002) model is, however, the inability to distinguish between the “normal” and the “abnormal” component of accruals. To overcome this limitation FRANCIS et al. (2005) decompose the standard deviation of the residuals (their inverse measure of accrual quality) into firm-level measures of innate estimation errors (“innate factors”) and discretionary estimation errors (“discretionary factors”). The innate factors should, then, capture the firm’s fundamental performance, while the discretionary factors should represent the effect of managerial opportunistic choice. See FRANCIS, J., LAFOND, R., OLSSON, P., & SCHIPPER, K. (2005). The Market Pricing of Accruals Quality. *Journal of Accounting and Economics*, 39(2), 295–327.

<sup>37</sup> SLOAN (1996) finds that accrual component of earnings is less persistent than cash flow component due to the discretion allowed in the accounting system. Moreover, he points out that investors fail to fully price the differing implication of this difference in persistence for the future profitability of the firm (“accrual anomaly”). FAIRFIELD et al. (2003) argue that the lower persistence of accruals is an effect of growth. Nevertheless, the lower persistence of accruals does not mean that they are useless, since they make earnings a better predictor of future profitability than cash flows. See FAIRFIELD, P.



Other approach is based on disaggregation of accruals to examine the persistence of specific component and the related market reaction. For instance, Dechow & Ge (2006) document an investor overreaction to special items accruals, suggesting that they mis-understand their transitory nature.

(c) *Predictability*. Earnings are predictable when they are able to predict their future levels. Predictability is commonly a desired property by standard setters and analysts since it represents an essential component of corporate valuation. Research have found that earnings are better able than cash flow to make long term prediction for firms whose operating cycle is longer (Dechow et al., 1998). Moreover, aggregate earnings have lower predictive ability than cash flows. However, there are some accruals sub-components such as account receivables, account payables, inventory, depreciations, that are superior in predicting future cash flows (Barth et al., 2001). In addition, Lipe (1990) points out that higher earnings persistence and predictability translates into higher Earnings Response Coefficient<sup>38</sup>.

(d) *Smoothness*. An underlying assumption of the accrual-based system is that earnings smooth random fluctuations in the timing of payments and receipts, making earnings more informative about fundamental performance than cash flows. Therefore, earnings smoothness is a natural outcome of the accrual process. Several studies conclude that smoothed earnings have higher information content for investors (Demski, 1998; Trueman & Titman, 1988). Arguments supporting the idea that smoothness is a desirable property of earnings derive from the view that corporate managers signal their private information about future income to smooth out transitory fluctuations and in so doing achieve a more informative earnings number<sup>39</sup>. Nevertheless, accruals that lead smoothness can hide or delay changes in

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M., WHISENANT, J. S., & YOHAN, T. L. (2003). Accrued Earnings and Growth: Implications for Future Profitability and Market Mispricing. *The Accounting Review*, 78(1), 353–371.

<sup>38</sup> The Earnings Response Coefficient (ERC) is the estimated slope coefficient on the level or change in earnings. It expresses the ability of earnings changes to explain the variation in market return. The higher the ERC the higher the magnitude of the price response to an information release. Other than persistence other factors contributing to ERC are firm size and interest rates. See EASTON, P. D., & ZMIJEWSKI, M. E. (1989). Cross-Sectional Variation in the Stock Market Response to Accounting Earnings Announcements. *Journal of Accounting and Economics*, 11(2–3), 117–141; COLLINS, D. W., & KOTHARI, S.P. (1989). An Analysis of Intertemporal and Cross-Sectional Determinants of Earnings Response Coefficients. *Journal of Accounting and Economics*, 11(2–3), 143–181.

<sup>39</sup> TUCKER & ZAROWIN (2006) conclude that smoothness improves earnings informativeness based on an analysis that splits firms into high smoothing group (having high negative correlation between



fundamental performance that would be useful to investors, if revealed. Moreover, earnings smoothness may be the result of opportunistically motivated accounting choices aiming at dampening the fluctuations of their firms' earnings realizations (Beidleman, 1973; Ronen & Sadan, 1981; Healy & Whalen, 2000). Empirical studies examining the relation between smoothness and market outcomes provide contrasting results on the informativeness of earnings smoothness. Cross-country studies mainly argue that income smoothing is an opportunistic earnings management practice, since it is associated with less enforcement, lower shareholder rights and other determinants of low earnings quality (Leuz et al., 2003). Other US-based studies conclude that smoothness lead to higher earnings informativeness (Tucker & Zarowin, 2006). However, these two strands of studies rely on different proxies and are unable to separate smoothing related to the fundamental process of the firm from opportunistic (artificial) smoothness. As a consequence, whether or not this attribute improves the decision usefulness of earnings is still an open question in the empirical accounting literature.

Market-based earnings attributes derive from the different assumption that the objective of earnings is to reflect economic income as represented by stock returns. They are: (e) value relevance (f) timeliness and conditional conservatism.

(e) *Value relevance*. Value relevance is the degree to which accounting earnings summarize information impounded in market prices (Brown et al., 2006). Typically, in accounting research value relevance is based on the explanatory power of the following regression of returns on the level and change in earnings (Francis & Schipper, 1999; Collins et al., 1997; Bushman et al., 2004). Therefore, earnings with greater explanatory power are viewed as more desirable because they explain greater variation in returns. This attribute commonly looks at two different properties of accounting earnings: relevance and reliability. The first captures the extent to which accounting earnings are useful for investment and disinvestment decisions, helping investors confirm or revise their expectation on future firm performance. The second

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discretionary accruals and unmanaged earnings) and low smoothing group. They find that the former group has greater earnings informativeness (as proxied by the extent to which current stock return are reflected in future earnings). See TUCKER, J. W., & ZAROWIN, P. A. (2006). Does Income Smoothing Improve Earnings Informativeness? *The Accounting Review*, 81(1), 251–270.



refers to the ability of accounting numbers to reflect truthful and verifiable information on fundamental firm performance. These two dimensions imply a trade-off, and the prevalence of one on another depends upon the specific users' decision model<sup>40</sup>.

(f) *Timeliness and Conditional Conservatism*. These two features derive from the view that accounting earnings are intended to measure “economic income”, defined as changes in market value of equity<sup>41</sup>. Earnings timeliness captures the ability of accounting earnings to fully reflect relevant information for the market, both positive and negative. Therefore, this property satisfies the informational need of investors that are sensible to either the positive (gains) or the negative (losses) part of the earnings distribution. The accrual process plays a pivotal role for the timeliness of accounting earnings, by increasing the timely recognition of economic gains and losses even in the absence of their cash flow realizations (Ball & Shivakumar, 2005; Kothari et al., 2005). However, when earnings convey information that has been already incorporated in the prior period stock returns there can be a “lack of timeliness”. This can be due to the presence of some noise in managerial estimations on the actual value of future cash flows, or to accounting rules which require managers to recognize gains on a cash basis, while losses on a timely basis (Collins et al., 1994). This creates an asymmetric timeliness which is known in the literature as conservatism.

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<sup>40</sup> The debate on the relevance vs. reliability of earnings numbers has found renewal vigor after the introduction of the fair-value accounting, under the IFRS. The FASB/IASB has called for fair-value accounting to overcome the limitation of the historical-cost accounting, thus increasing the value-relevance of earnings and book value. However, fair-value provides preparers with greater discretionality to exercise accounting judgment and estimation. This discretionality can be used to convey private information to financial statement users (increasing its relevance and faithful representation), or to misrepresent and bias financial statements (decreasing its perceived reliability). As a consequence, a substantial part of the empirical accounting literature has started analysing whether fair-value increases the relevance at the expense of the reliability of information. See DIETRICH, J. R., M. S. HARRIS, & K. A. MULLER, III. (2000). The Reliability of Investment Property Fair Value Estimates. *Journal of Accounting and Economics*, 30(2), 125–158. GOH, B. W., NG J., & YONG, K. O. (2009). Market Pricing of Banks' Fair Value Assets Reported under SFAS 157 during the 2008 Economic Crisis, *Working Paper*. LAUX, C., & LEUZ, C. (2010). Did Fair-Value Accounting Contribute to the Financial Crisis? *Journal of Economic Perspectives*, 24(1), 93–118.

<sup>41</sup> An important assumption is the market efficiency that allows stock return to reflect new information in earnings (earnings surprise). However, the extent to which prices reflect information does not hold equally across firms or countries leading to confounding results (i.e. variation in earnings timeliness and asymmetric timeliness could empirically reflect variation in the quality of the return generating process).



The accounting literature distinguishes between unconditional and conditional conservatism. The former refers to the systematic under-valuation of assets and/or over-valuation of liabilities and is also known as balance sheet or news independent conservatism, being independent from the presence of new information to be incorporated in accounting earnings (Beaver & Ryan, 2005). The latter traces back to the seminal paper of Basu (1997) and is interpreted as “*accountants’ tendency to require a higher degree of verification for recognizing good news than bad news in financial statements*” (Basu, 1997:4)<sup>42</sup>. Although it is still subject to several measurement issues, the conditional conservatism has been largely examined by the literature in a wide variety of context, including countries’ market, political, taxation regime (Ball et al., 2000; Pope & Walker, 1999; Bushman & Piotroski, 2006); over time (Holthausen & Watts, 2001); different demands on financial reporting of public and private companies (Ball & Shivakumar, 2005; Wang, 2006); management compensation, independent directors and other corporate governance issues (Callen et al., 2009)<sup>43</sup>. In the context of earnings quality conservatism is a desirable property since it not only reduces the information asymmetries in the market, but also increases the efficiency of contracting (LaFond & Watts, 2008), by protecting debt holders against excessive dividend distribution, and/or managerial compensations. Finally, it provides board of directors with timely information on the negative consequences of managers’ non-optimal choices, and lower political and taxation costs, thus increasing the firm value (Watts, 2003).

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<sup>42</sup> Despite the difference, there is a clear relationship between conditional and unconditional conservatism. According to GASSEN et al. (2006) there can be a negative relationship between them, with conditional conservatism being higher when unconditional conservatism is low. The evidence shows that goods news are recognized earlier for low market-to-book firms. However, this relationship is difficult to effectively test empirically, as proxies such as the market-to-book ratio may capture both properties of earnings. See BEAVER, W. H., & RYAN, S. G. (2005). Conditional and Unconditional Conservatism: Concepts and Modeling. *Review of Accounting Studies*, 10(2-3), 269–309; POPE, P. & WALKER, M. (2003). Ex-ante and Ex-post Accounting Conservatism, Asset Recognition, and Asymmetric Earnings Timeliness. *Working paper*; ROYCHOWDHURY, S. & WATTS, R. L. (2007). Asymmetric Timeliness of Earnings, Market-to-book and Conservatism in Financial Reporting. *Journal of Accounting and Economics*, 44(1–2).

<sup>43</sup> There is a recent controversy over the validity of the BASU (1997) model to properly capture the asymmetric timeliness of earnings. For a discussion of these criticisms and the proposed potential solutions refer to DIETRICH, J. R., MULLER, K. A., & RIEDL, E. J. (2007). Asymmetric Timeliness Tests of Accounting Conservatism. *Review of Accounting Studies*, 12(1), 95–124; BALL, R., KOTHARI, S.P. & NIKOLAEV, V. V. (2011). On Estimating Conditional Conservatism, *Forthcoming, The Accounting Review*; PATATOUKAS, P. N., & THOMAS, J. K. (2011). More Evidence of Bias in the Differential Timeliness Measure of Conditional Conservatism. *The Accounting Review*, 86(5), 1765–1793.



## ***2.2 Beyond the numbers: informativeness of narrative disclosures***

Until the mid-nineties, the financial reporting model was the most widespread means for communicating company performance, due to the close relationship between market value and accounting value of the firm. Thus, measures of earnings quality were considered as good proxies for the overall corporate reporting quality.

Nevertheless, from that point on its adequacy in satisfying users' information needs has been questioned. Francis & Schipper (1999) and Lev & Zarowin (1999) have criticized the role of financial information documenting a decreasing relevance of accounting numbers for decision making. This phenomenon is (at least partially) attributable to the increased complexity of the business environment and the inability of traditional accounting system to recognize the value of assets of primary importance to the firms (e.g. intangibles). Thus, users such as institutional investors and financial analysts have been increasingly demanding additional information to identify drivers of long term value creation (Robb et al., 2001). Similarly, practitioners and standard setters bodies started to call for enrichment of the timeliness (when) and content (what) of corporate disclosure (CICA 2001; FASB 2001)<sup>44</sup>. Among the elements that have been identified as suitable to achieve the improvement in the quality of corporate reporting, there are voluntary narrative and descriptive disclosures. Therefore, in last fifteen years, there has been an increasing importance of these supplementary disclosures inside the reporting package of a firm.

According to regulators' belief, this supplementary disclosure should be useful to describe the company business "through the eyes of management" (AICPA, 1994; CICA, 2002; ICAEW, 2003). Such a reporting identifies the business' aspects that are especially important to the company success (critical success factors), the management strategies and plans for managing those factors, as well as metrics used to manage the implementation of strategies and plans (performance indicators). Furthermore, it supports external users in interpreting and assessing the related financial statements in the context of the environment in which the entity operates

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<sup>44</sup> Several initiatives have been taken by professional (e.g. AICPA 1994; CICA, 2001, 2004; SKE 2005) and standard setters bodies (e.g. FASB, 2001; IASB, 2006) to extend what is reported such as issuing guidelines for voluntary disclosure in MD&A, OFR, MC and issuing guidelines for voluntary disclosure in regards to value drivers not captured by financial statements (e.g. Intellectual Capital).



(e.g. explaining inventory increases), by providing supplementary narrative information on trends and factors underlying an entity development, performance and position (e.g. R&D processes)<sup>45</sup>.

The relevance of supplementary disclosure for users of corporate information is almost unquestioned. For instance, several studies in the capital market research have analysed the value-relevance of narrative disclosure (Amir & Lev, 1996), its predictive ability (Ittner & Larker, 1998; Banker, 2000) or the link with information intermediaries such as financial analysts (Simpson, 2010).

However, in contrast with quantitative financial disclosures, this supplementary disclosure often entails “non accounting” narrative information, that is context-specific and not regulated in detail. Moreover, it is not mandatory, nor audited (or it is only partially audited), thus being not immediately verifiable by external users. As a consequence, it gives rise to a number of reporting issues related to the measurement, the informativeness and the credibility of such disclosures.

Traditionally, a large number of studies in the disclosure literature have used the Association for Investment Management Research (AIMR) score as a measure for voluntary disclosure (Lang & Lundholm, 1993; Welker, 1995; Helay et al., 1999). It is an externally generated score based on a ranking of US firms that reflects the usefulness of firms’ disclosure as it is perceived by a specific user of this information (financial analysts). However, it is available for US firms only and covers a limited number of years. Moreover, this ranking captures a very broad range of disclosure activities other than voluntary disclosure itself and it can be potentially biased by the analysts that follow a particular firm (Healy & Palepu, 2001; Beyer et al., 2010). For this reason subsequent research has attempted to capture the quality of voluntary disclosure through self-constructed disclosure indices<sup>46</sup>. Initially, those indices were

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<sup>45</sup> This information can be either quantitative (numerical information, financial or not) or qualitative (including also graphs, tables and images).

<sup>46</sup> Disclosure indices are based on content analysis that is a well-established method in social sciences to investigate the characteristics of narratives (voluntary) disclosure and allows to make valid inferences from the analysis of a text. See WELKER, M. (1995). Disclosure Policy, Information Asymmetry, and Liquidity in Equity Markets. *Contemporary Accounting Research*, 11(2), 801–827; KRIPPENDORFF, K. (1980). *Content Analysis: An Introduction to Its Methodology*. Beverly Hills, Calif.: Sage Publications.



one-dimensional, aiming at capturing the quantity (i.e. the amount of) disclosure<sup>47</sup>. However, in the context of non mandatory and unregulated supplementary disclosure, disclosure quantity cannot be really assumed as proxying for disclosure quality. In line with the assumption of the “cheap-talk” models, there is not “assurance” about the truthfulness of information disclosed. Thus, something different from proxies of “transparency” is needed in order to capture the “quality” of that information<sup>48</sup>. As a consequence, scholars have moved to disclosure indices measuring not only *how much* is disclosed but also *what* is disclosed. These multidimensional indices would capture additional semantic properties of narrative disclosure that can proxy for dimensions such as time orientation (historical, forward looking) or economic sign (good news vs. bad news)<sup>49</sup>. Other than disclosure index studies, research has also adopted several techniques of textual analysis aiming at performing detailed content analysis of the entire narrative content of corporate annual report (e.g. thematic content analysis, readability studies and linguistic analysis) (Beatty et al., 2004)<sup>50</sup>. The following figure reports a synthesis of the most widespread approaches to the analysis of narratives in corporate annual report.

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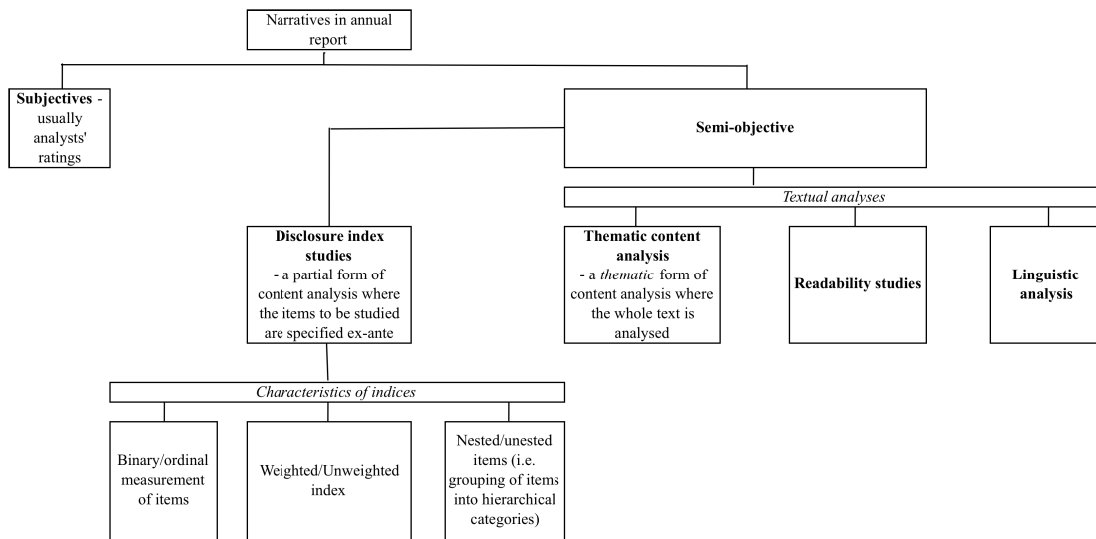
<sup>47</sup> One-dimensional index relies on a strong assumption: all the condition of the unravelling results hold. Indeed, when manager must tell the truth, it can be assumed that disclosure quality depends only on the amount of disclosure (level of disclosure). In such a setting, in order to measure the quality of disclosure what is needed is a proxy of “transparency” capturing how much information is disclosed (e.g. the coverage of information). Nevertheless, in the disclosure literature, the amount of voluntary disclosure has been long used to infer the determinants of voluntary disclosure, the characteristics of disclosure and related media, the consequences of such disclosure. See BOTOSAN, C. A. (1997). Disclosure Level and the Cost of Equity Capital. *The Accounting Review*, 72(3), 323–349; HOPE, O. K. (2003). Accounting Policy Disclosures and Analysts’ Forecasts. *Contemporary Accounting Research*, 20(2), 295–321; GARCÍA-MECA, E., PARRA, I., LARRÁN, M., & MARTÍNEZ, I. (2005). The Explanatory Factors of Intellectual Capital Disclosure to Financial Analysts. *European Accounting Review*, 14(1), 63–94.

<sup>48</sup> Standard setters (FASB, 2001; IASB, 2006) established some qualitative characteristics for the disclosure to be useful for decision making. They are the understandability (structure, language and writing style); the relevance in evaluating past, present or future events (material information, quantity); the reliability (information to assess uncertainty regarding measurement issues and assumption that underline forward looking information and faithfully represents factually-based strategies, plans and risk analysis); the comparability over time (SEC comparability between entities); the neutrality (balance between good and bad news). The concept of quality is, however, complex and still difficult to operationalize. In addition, some qualitative attributes are often un-measurable in objective and universally accepted way.

<sup>49</sup> Other potentially relevant attributes to define the quality of disclosure include: (i) qualitative vs. quantitative information (ii) financial vs. non-financial information (iii) actual vs. perceptual/judgement (iv) objectives vs. activities vs. results (v) location (vi) repetitions.

<sup>50</sup> Thematic content analysis is a type of content analysis using “themes” as recording units while readability studies are meant at capturing the cognitive difficulty of text. See JONES, M. J., & SHOEMAKER, P. A. (1994). Accounting Narratives: A Review of Empirical Studies of Content and Readability. *Journal of Accounting Literature*, 13, 142–184.



**Figure 1. Approaches to the analysis of narratives in annual report**

Source: Beattie et al. (2004)

Within this framework, linguistic analyses have recently gained increasing importance due to the longer and even more sophisticated supplementary disclosure. The idea is to look at *how* the information is disclosed, beyond the content itself, by analysing the language that managers use in the communication with investors (Healy & Palepu, 2001; Core, 2001). Language is considered an additional element of the information package of firms since it provides a unifying framework that affects how market participants process, perceive and understand the information (Davis et al., 2012). Therefore, taking advantage of natural language processing programs, accounting scholars are now measuring several features of managers' language to proxy for disclosure quality (Beyer et al., 2010). One important dimension of the language communication is the "tone" (i.e. the sentiment) of disclosure. It is a characteristic of the narrative disclosure that is captured through the use of nouns, adjectives, or verbs that generally express different sentiments such as optimism, certainty, activity that a sender would transmit to a receiver (Trombetta & Bozzolan, 2012). Recent studies document that the sentiment of disclosure plays a pivotal role in the communication between managers and outside investors. These studies document that language is incrementally informative beyond quantitative disclosures, thus allowing to achieve a further reduction in the information



asymmetries between firms and external users<sup>51</sup>. However, as it is costless, not regulated and unaudited, it can provide managers with the opportunity to engage in self-serving disclosure strategies at the expense of disclosure informativeness.

This sheds light on another strand of literature that investigates the informativeness of corporate narratives in order to assess whether managers use discretionary disclosure strategy (e.g. tone bias) to convey additional value-relevant information rather than manipulating the impression of accounting information's users. This literature goes under the notion of impression management literature (Clatworthy & Jones, 2001).

In general terms impression management is a field of study within social psychology studying how individuals present themselves to be perceived favourable by others (Hooghiemstra, 2000). In the context of corporate reporting it examines whether managerial discretionary disclosure choices are opportunistic or constitute value-relevant information aimed at improving investor decision making. In other words, this literature evaluates whether discretionary disclosure strategies are informative (incremental information school) or they just confuse market participants, being provided to mislead investor decisions (impression management school)<sup>52</sup>. For instance, according to Merkl-Davies & Brennan (2007) the bias in disclosure tone can be considered part of the impression management strategies that allows managers to obfuscate failures and emphasize success ("concealment" behaviour).

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<sup>51</sup> For instance, DEMERS & VEGA (2010) find that language in the management's quarterly earnings press releases is incrementally informative over the contemporaneously available "hard" information. DAVIS & TAMA-SWEET (2012) find that higher level of pessimistic language is associated with lower future firm performance. DAVIS et al. (2012) find a significant association between the bias towards the positive language (i.e. optimism) in earnings press releases and future firm performance, and conclude that language has information content beyond quantitative disclosures. They also document that investors respond to this incremental information. See DAVIS, A., PIGER, J., & SEDOR, L. (2012). Beyond the Numbers: Measuring the Information Content of Earnings Press Release Language. *Contemporary Accounting Research*, 20(10), 1–24.

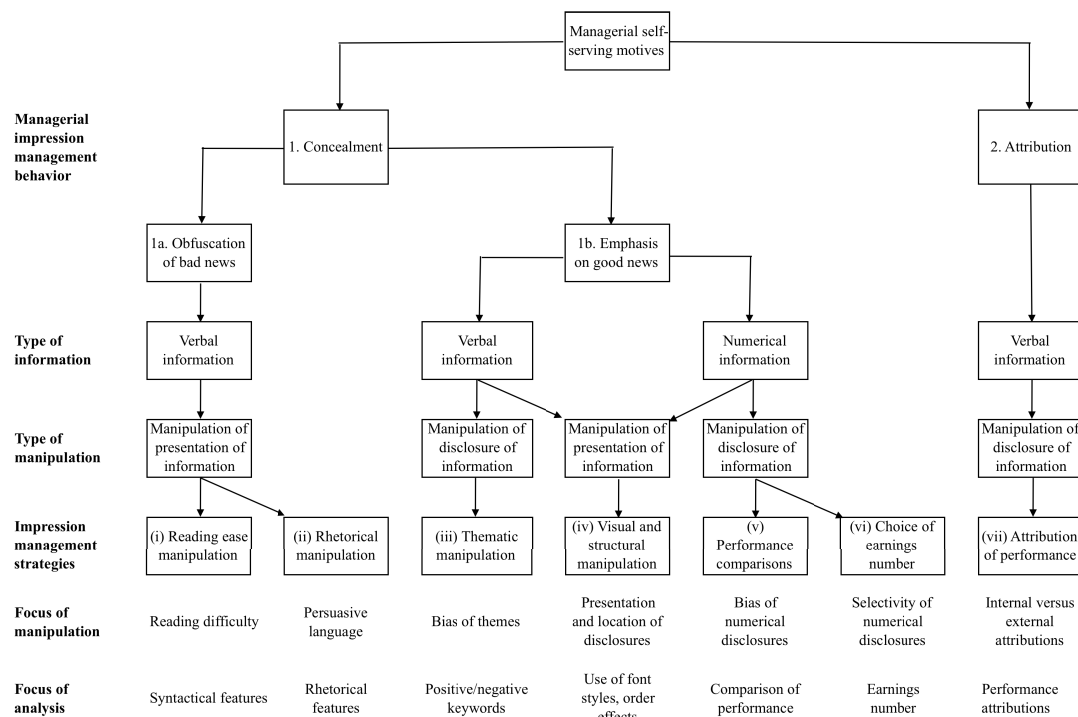
<sup>52</sup> Impression management studies focus on whether and under which conditions companies engage in impression management practices. The attention is on preparers and association between their characteristics and different impression management practices. In contrast, incremental information studies look primarily at whether and to what extent investors (users) perceive discretionary narrative disclosure as value relevant. The main difference between the two schools of thought regards the underlying assumption on the investors ability to assess reporting bias, that in turn depends on the level of efficiency of the market (weak vs. semi strong form of market efficiency). Thus, it is not surprising that US researchers tend to adopt the incremental information assumption, while non-US researchers are more likely to take an impression management perspective. See MERKL-DAVIES, D. M., & BRENNAN, N. M. (2007). Discretionary Disclosure Strategies in Corporate Narratives: Incremental Information or Impression Management? *Journal of Accounting Literature*, 26, 116–194.



Nevertheless, the use of more positive than negative words is only one of the tactics that managers can rely on to manipulate the outsiders' perception of firm performance (thematic manipulation).

In their review paper, Merkl-Davies & Brennan (2007) identify seven impression management practices, classified according to two types of impression management behaviour: concealment and attribution. The former refers to the activity of (i) obfuscating negative outcomes (positive representation of bad news) and/or (ii) empathising positive outcomes (more positive bias in representing good news).<sup>53</sup> The attribution behaviour refers to self serving bias in claiming more responsibility for success than for failure. It involves attribution of positive organisational outcomes to internal factors (entitlements), and negative organisational outcomes to external factors (excuses). Figure 2 illustrates the seven impression management tactics.

**Figure 2. Managerial impression management strategies in corporate narratives**



Source: Merkl-Davies & Brennan (2007)

<sup>53</sup> They also point out that concealment of bad/good news might be achieved through six different strategies. Obfuscation of bad news might occur by (i) making the text more difficult to read (reading ease manipulation) (ii) using persuasive language (rhetorical manipulation). Emphasis of good news involves (i) thematic manipulation (i.e. emphasis on positive words and themes), (ii) visual and structural manipulation (i.e. ordering of verbal/numerical information) (iii) biased performance comparisons (iv) choice of earnings numbers as benchmarks that portray current financial performance in the best possible light (MERKL-DAVIES & BRENNAN, 2007).



Studies that investigate whether managers manipulate outsiders' perception of firm performance by rendering corporate narratives more difficult to read find an association between reading difficulty and several firm characteristics, in particular firm performance, but with contrasting results (Alderberg, 1979). Research on rhetorical manipulation also finds mixed evidence. Some scholars find little evidence of impression management, while others conclude that firms with very positive and very negative performance use narratives not as impression management technique but to increase the communication with outsiders (Yuthas et al., 2002). Studies focusing on thematic manipulation are inconclusive, too. Abramson & Amir (1996) and Davis et al. (2007) consider the use of thematic manipulation as a means to overcome information asymmetries, while Matsumoto et al. (2006) and Lang & Lundholm (2000) suggest that managers engage in impression management strategies through more "optimistic disclosures". Findings from research on visual and structural manipulation as well as performance comparison and choice of earnings numbers are more homogeneous. They suggest that discretionary narrative disclosure strategies mainly constitute self-serving behaviour rather than providing investors with additional information (Bowen et al. 2005).

Detecting whether or not bias introduced into corporate narratives is an informative rather than an impression management strategy is not straightforward. Firstly, prior work tends to consider discretionary disclosure practices individually, while impression management may occur through the contemporaneous use of different tactics and methods<sup>54</sup>. Secondly, previous studies in that area mainly consider impression management and the incremental information school as mutually exclusive, and only few of them attempt to differentiate between those two hypotheses (Bowen et al., 2005; Barton & Mercer, 2005). Finally, how firms use discretion in corporate narratives largely depends on the reporting incentives. These incentives are shaped by many factors including capital market forces, countries institutional factors and firm-specific corporate governance characteristics (Ball et

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<sup>54</sup> Recently, BRENNAN et al. (2009) develop a holistic measure for analysing impression management, through the mean of a composite score based on both quantitative and qualitative data in corporate narratives. See BRENNAN, N. M., GUILLAMON-SAORIN, E., & PIERCE, A. (2009). Methodological Insights: Impression management: Developing and Illustrating a Scheme of Analysis for Narrative Disclosures – a Methodological Note. *Accounting, Auditing and Accountability Journal*, 22(5), 789 – 832.



al., 2003; Burgstahler et al., 2006). Given the lack of studies that incorporate all these factors whether or not managers use discretionality in corporate narratives in an opportunistic rather than in an efficient way is still an unanswered question in the extant literature.

### ***2.3 The credibility of soft information and the role of financial reporting quality***

Another issue arising from the growing importance of supplementary disclosure in the reporting package of the firm is the credibility of these disclosures. The debate on disclosure credibility traces back to the study of Crawford & Sobel (1982) which sets the basis for the literature on cheap-talk models. According to this literature, in presence of unverifiable disclosure, managers may have incentives to lie in order to create a perception of the firm that may be favourable for their self-serving objectives. Therefore, it takes importance the degree of verifiability (credibility) of the message disclosed (Trombetta & Bozzolan, 2012).

When looking at the credibility of information, the traditional disclosure literature distinguishes between verifiable and unverifiable information, where verifiable is typically financial and/or quantitative information, while unverifiable information is non financial and/or qualitative information. However, this dichotomy has been considered inappropriate and often incomplete. By introducing the dimension of the time, Trombetta & Bozzolan (2012) further distinguish between ex-ante and ex-post verifiability, thus creating a new taxonomy of information: *Hard*, *Vanishing*, *Directed* and *Soft*<sup>55</sup> (Figure 3). In this new taxonomy the credibility issue only relates to *Soft* information that external investors cannot verify neither ex-ante nor ex-post<sup>56</sup>. Some supplementary disclosures such as Corporate Social Responsibility,

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<sup>55</sup> They define a statement as ex-ante verifiable when “there exists a mechanism by which the uninformed party can check the truthfulness of the disclosure or a third party can certify it to be the “true” or “false” before or at the same time that it is made”. While there exists a verifiability ex-post when “sometime after the statement is made, this becomes directly observable by the un-informed party or by a third party that can certify it to be true or false”. See TROMBETTA M. & BOZZOLAN, S. (2012). From Hard to Soft Information: a New Look at the Literature on Voluntary Disclosure. *Working Paper*.

<sup>56</sup> Other categories are: (i) *Hard* information that refers not necessarily to quantitative financial information but also to narrative non financial information in the annual report that is audited by third party, thus it is verifiable ex-ante (ii) *Vanishing* information when it is verifiable ex-ante because it relates to a public event that external investors may gather by “common talks”, but it becomes



Intellectual Capital, Internal Operating Activities disclosures are all examples of unverifiable soft information. These disclosures refer to internal factors and contain price sensitive information. However, as it is neither verifiable or auditable, it allows managers to take advantage of information asymmetry through self-serving disclosures. Therefore, to disentangle misleading disclosures investors look for credibility signals (Athanasakou & Hussainey, 2009).

**Figure 3. Verifiability and information**

		Ex-post verifiability	
		Verifiable	Unverifiable
Ex-ante verifiability	Verifiable	Hard	Vanishing
	Unverifiable	Directed	Soft

Source: Trombetta & Bozzolan (2012)

Mercer (2004) defines disclosure credibility as “*investors’ perceptions of the believability of a particular disclosure*” (pg. 186) and proposes four different factors that might influence firm’s credibility: (a) situational incentives (b) external/internal assurance (c) disclosure’s characteristics and (d) management’s credibility (Figure 4).

In the following there is a brief discussion of these factors, and, then, a focus on managerial credibility and the role of financial reporting quality for the credibility of supplementary (soft) disclosure.

(a) *Situational incentives*. According to this distinction the credibility of disclosure depends, in part, on situational incentives that managers have at the time of disclosure. Several studies find that bad news disclosures result more credible than disclosures containing good news (Hutton et al., 2003). Other situational incentives relate to financially distressed firms, managerial stock options, the risk of hostile takeovers (Aboody & Kasnick, 2000) or insider trading activities (Gu & Li, 2007).

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unverifiable ex-post if the firm stops giving information about the event (iii) *Directed* information which is a kind of disclosure that is not verifiable at the moment in which it is disclosed but it will become verifiable by external investors with the passing of time, such as in the case of managerial earnings forecast (TROMBETTA & BOZZOLAN, 2012).



For instance, market participants rely less on disclosures of financially distressed firms, as they have greater incentives to provide misleading disclosures (Koch, 1999). In addition, the presence of stock option plans reduces the disclosure credibility giving managers incentives to increase their personal profit (Rogers & Stocken, 2005).

(b) *External/internal assurance*. Internal assurance may come from a high-quality board of directors that effectively monitors the firm's activities (Beasley, 1996; Klein, 2002), while the presence of audited disclosure provides an external assurance for the credibility of managers' disclosure (Bushman et al., 2004). However, in the light of the distinction between ex-ante and ex-post verifiability, the internal/external assurance is not a factor that affects the credibility as it makes the information verifiable ex-ante (Trombetta & Bozzolan, 2012).

(c) *Disclosure's characteristics*. There are also some characteristics that affect the credibility of disclosure. Several studies suggest that managers can boost disclosure credibility by increasing its precision (Hirst et al., 1999; Baginski et al., 1993), or disclosing short-horizon disclosures (Pownall et al., 1993). In addition, Hutton et al. (2003), Baginski et al. (2004) and Ng et al. (2008) show that the credibility of earnings forecasts increases with the amount of supporting information. There are also studies documenting that investors perceive the disclosure to be credible the closest it is with the previous management disclosures.

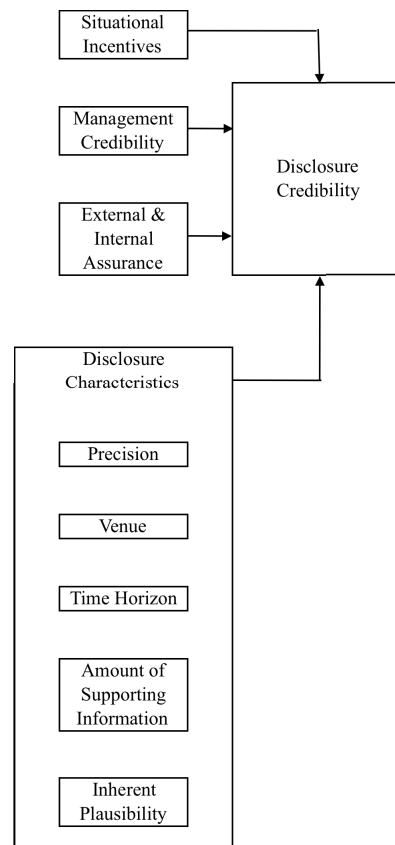
(d) *Managerial credibility*. Although previous studies tend to consider management credibility as a synonymous of disclosure credibility, the former is a characteristic of a firm's managers that comes from their competence and reputation of truthfulness and does not vary across different disclosures. Williams (1996) argues that the ability of managers to make good disclosure with the passing of time builds a reputation that increases the believability of future disclosures. Hirst et al. (1999) and Hodge et al. (2000) find similar results.

Assessing managerial credibility is straightforward for directed information when investors can check the accuracy of managers' forecasts through ex-post realizations in the firm's audited financial statements. Nevertheless, when coming to the soft information, investors cannot evaluate the precision of the signal emanating from the



firm's disclosures with similar accuracy, as this often contains internal qualitative information from which it is difficult or even impossible to look for ex-post realizations. Therefore, investors would reasonably seek for alternative signals of management's credibility such as the informativeness of contemporaneous available hard information or managerial incentives<sup>57</sup>. As the quality of reported earnings reflects the firm's information environment and managerial incentives, it offers an important signal of management's credibility. According to this view, Athanasakou & Hussainey (2009) find that the credibility of forward-looking performance disclosure increases with the firm's earnings quality.

**Figure 4. Factor that influence disclosure credibility**



Source: Mercer (2004)

The role of earnings quality for the credibility of unverifiable disclosure creates a

<sup>57</sup> By analysing managers' language in earnings announcements Demers & Vega (2010) suggest that investors' reliance on soft non-verifiable information depends on factors related to the firm's information environment (e.g. the informativeness of contemporaneous available hard information) as well as managerial incentives. See DEMERS E. & VEGA C. (2010). Soft Information in Earnings Announcements: News or Noise, *Working Paper*.



relationship between mandatory and voluntary disclosures that is known in literature as “confirmatory role” of disclosure<sup>58</sup>. The origins of this perspective can be found in the theoretical studies of Dye (1985), Jung & Kwon (1988) and Verrecchia (1990). They argue that high information quality boosts the credibility of voluntary disclosure. Therefore, as information quality increases, the likelihood of disclosure also increases (Francis et al., 2008), leading to a positive association between voluntary disclosure and information quality (Mouselli & Hussainey, 2012). If a measure of earnings quality proxies for information quality (i.e. the management credibility), voluntary disclosure decision will be endogenously determined by the higher (lower) quality of the reported earnings that in turn will affect the credibility of that information (Dechow et al. 2010).

Most empirical studies support a complementary relationship between financial accounting information and voluntary disclosure. These studies document a positive relationship between earnings (or accruals) quality and voluntary disclosure (Lobo & Zhou, 2001; Francis et al., 2008). For instance, high quality accounting information is complementary to managers’ voluntary disclosure as it disciplines managers’ voluntary forecasts (Ball, 2001). The issuance of management forecast is positively associated with earnings informativeness (Lennox & Park, 2006)<sup>59</sup>. Recently Ball et al. (2011) document that audited accounting reports increase the credibility of voluntary information<sup>60</sup>. Finally, Mouselli & Hussainey (2012) find a positive association between accrual and disclosure quality<sup>61</sup>.

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<sup>58</sup> Several studies suggest that one important role of mandatory disclosure is to create an environment in which managers can credibly communicate private information. See LUNDHOLM, R. J. (2003). Historical Accounting and the Endogenous Credibility of Current Disclosures. *Journal of Accounting, Auditing and Finance*, 18, 207–229; STOCKEN, P.C. (2000). Credibility of Voluntary Disclosure. *RAND Journal of Economics* 31, 359–374.

<sup>59</sup> WAYMIRE (1985), COX (1985), IMHOFF (1978) find that forecast frequency is inversely related to earnings volatility (information asymmetries) which they interpret as a complementary relationship between the quality of reported numbers and the level of voluntary disclosure.

<sup>60</sup> An important assumption of the studies that claim the complementarity between financial reporting and disclosure is that the primary economic role of reported earnings is not to provide timely new information to the share market, but settling debt and compensation contracts, disciplining prior information, including more timely managerial disclosures of information originating in the firm’s accounting system. Therefore, it has a primary contracting rather than an informational role. See BALL, R., & SHIVAKUMAR, L. (2008). Earnings Quality at Initial Public Offerings. *Journal of Accounting and Economics*, 45(2–3), 324–349.

<sup>61</sup> Although they are complementary sources of information for investors, in their asset pricing test they find that accruals quality factor and disclosure quality factor contain similar information and confirm the substitutive nature of accruals quality and disclosure quality factor in explaining the time-



Nevertheless, another strand of literature, assuming that the quality of mandatory accounting information is exogenous, argues that information asymmetries create a demand for disclosure and provides incentive to disclose more because the value of new information will be higher in such a setting (Grossman & Hart, 1980; Milgrom, 1981; Verrecchia, 1983). If the quality of reported earnings mirrors for the managers private information<sup>62</sup>, thus firms with low earnings quality (and high information asymmetries) would increase voluntary disclosure in order to mitigate the information asymmetries between managers and shareholders (Francis et al., 2008). It follows that the relationship between voluntary disclosure and earnings quality is a substitutive one, since the former compensate for the latter.

Measuring the quality of voluntary disclosure with the Association for Investment Management Research (AIMR) ratings, Lang & Lundholm (1993) find an inverse relationship between the level of voluntary disclosure and the quality of financial reporting, proxied by the returns-earnings correlations. Tasker (1998) also finds a negative relationship between the likelihood that a firm uses conference calls (proxy for disclosure quality) and earnings informativeness. Chen et al. (2002) find that managers voluntarily include balance sheet information along with quarterly earnings announcement when current earnings are less informative as response to investor demand for value-relevant information to supplement earnings. Lougee & Marquardt (2004) find that firms with less informative GAAP earnings are more likely to disclose pro forma earnings than other firms and pro-forma earnings are more useful to investors when GAAP informativeness is low. Athanasakou & Hussainey (2009) go one step further. Using accrual quality as a proxy for earnings quality and distinguishing between innate and discretionary component of earnings quality, they find that disclosure quality substitutes for poor innate earnings quality and complements high discretionary earnings quality<sup>63</sup>.

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series variation in portfolio returns. See MOUSELLI, S., JAAFAR, A., & HUSSAINEY, K. (2012). Accruals Quality Vis-à-Vis Disclosure Quality: Substitutes or Complements? *The British Accounting Review*, 44(1), 36–46.

<sup>62</sup> The literature acknowledges that the level of earnings quality is positively correlated with the quality of manager's private information (FRANCIS et al., 2008).

<sup>63</sup> Focusing on a less verifiable type of voluntary disclosure, DEMERS & VEGA (2010) find that net optimism detected in soft information is priced more for firms when the quality of accounting data is lower, consistent with net optimism substituting for poor earnings quality. In a different setting (i.e. signalling theory), GIETZMAN & TROMBETTA (2003) show that the interaction between accounting and



The conflicting results of previous analytical and empirical research about the nature of the interaction between mandatory and voluntary disclosure mainly depend on different samples as well as different proxies used for both voluntary and mandatory disclosures. A substantial role is, however, played by assumptions underlying the analytical and empirical model.<sup>64</sup>

To summarize, the growing importance of soft information in the reporting package of the firm has shift the focus from the content of such disclosure on its believability (i.e. credibility). Mandatory disclosure may play an important role in increasing the credibility of soft unverifiable disclosure. However, its credibility also relies on the incentives managers face when issue such disclosure (Demers & Vega, 2010). In the following, the role of the political and institutional incentives will be deeply discussed, then the focus will be on the incentives coming from the firm's corporate governance system and its interaction with the corporate disclosure practices.

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voluntary disclosure choices can lead to a situation where firms with high accounting quality (i.e. conservative accounting policy) make no voluntary disclosure, leading to a substitution between them. See GIETZMANN, M. B., & TROMBETTA, M. (2003). Disclosure Interactions: Accounting Policy Choice and Voluntary Disclosure Effects on the Cost of Raising Outside Capital. *Accounting and Business Research*, 33(3), 187–205.

<sup>64</sup> Most of the analytical and empirical studies assume that mandatory and voluntary signals have a common underlying value. For instance, in her model EINHORN (2005) refers to two signals, both correlated with firm value, one that *must* be disclosed, and the other that *can* be disclosed according to the manager's decision. In such a setting she shows that the manager's voluntary disclosure decision depends on the correlation between those two signals and the firm value as well as on the change in the information environment associated with mandatory disclosure. She finds that there is a non-monotonic relationship between the likelihood of voluntary disclosure and the quality of mandatory disclosure. But, most importantly, she show that the voluntary disclosure decision does not depend on the content of the mandatory disclosure itself (e.g., whether it contains good or bad news). On the contrary, BAGNOLI & WATTS (2007) assume that managers have some private information and may explicitly determine whether to voluntarily provide information that complements, rather than substitutes for, the information in financial reports. Changing the assumption underlying its analytical model they find that the content of the financial reports affects what the manager voluntarily discloses, and this effect varies according to the nature of the managers private information (whether it complements or substitutes for mandatory financial report information). This calls into play the role of the content of voluntary disclosure. ATHANASAKOU & HUSSAINEY (2009) argue that when disclosures are related to voluntary information, voluntary and mandatory disclosures are likely to substitute each other. However, to the extent voluntary disclosures are unrelated to the information in contemporaneously reported earnings, then they are more likely to complement reported earnings quality. By examining the case of forward-looking performance information, where the content of supplementary disclosure is not necessarily related to the information in mandatory disclosure they find that these disclosures complement the quality of the financial reporting outcome and that investors use earnings quality to infer the credibility of these disclosures. See ATHANASAKOU, V. & HUSSAINEY, K. (2009). Forward-Looking Performance Disclosure and Earnings Quality. *Working paper*.



### 3. The heterogeneity of firms disclosure policies<sup>65</sup>

Firms do not operate in a vacuum, but rather in socio-economic and political environments that differ across countries as well as organizational structures. Therefore, a central issue of the disclosure literature has been to identify the extent to which firm's disclosure practices vary according to the cross-sectional variation of country-level and firm-level characteristics.

Traditionally, researchers have focused on differences in accounting standards to explain cross-sectional variability in reporting practices. Nevertheless, Ball et al. (2000a), point out that the heterogeneity among disclosure practices is not determined by differences in accounting standards alone. Analysing a sample of firms from seven countries that differ in the way they solve information asymmetries (via "public" disclosure or "private channels") they show that international differences in reporting practices are a function of reporting demand under different institutional arrangements. Ball (2001) and Bushman et al. (2004) suggest that accounting and disclosure characteristics in a country evolve according to the economic, legal and political infrastructures. In a related study, Ball et al. (2003) analyzing the firms' accounting properties in four Asian countries having similar accounting standards, but different institutional structures, show that reporting quality is ultimately determined by the preparers' incentives and not by accounting standards *per se*. This perspective is known as "*reporting incentive view*" and sustains the prevalence of reporting incentives over accounting standards in determining the quality of corporate reporting. There can be two different (and interrelated) set of incentives (a) country-level (b) firm-level incentives.

(a) *Country-level incentives*. The characteristics of the institutional environment are multidimensional, including the strength of countries' securities regulation, enforcement, capital market development, investor protection, disclosure and transparency of reporting practices (Guenther & Young, 2000; Jaggi & Low, 2000; Francis et al., 2003)<sup>66</sup>. A variety of studies document that reporting quality varies

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<sup>65</sup> The focus of this paragraph is to examine studies on the determinants of corporate disclosure, with a particular focus on the role of corporate governance for firm transparency. For a review of the literature on corporate governance in general refer to ARMSTRONG et al. (2010).

<sup>66</sup> However, it has been noticed that these aspects are highly correlated because they all reflect to some degree the underlying quality of investor protection in a country (ROSSI & VOLPIN, 2004). LEUZ



according to the origins of legal system. An almost unquestioned result is that common law countries are more transparent than civil law countries due to the prevalence of “market forces” (i.e. the amount of publicly traded equity, the size of the market, the extent of the private versus public contracting) relative to the “political forces” (i.e. the government involvement in codifying and enforcing accounting standards). The underlying assumption is that in market-oriented common law countries the information asymmetries between insiders and outsiders are solved more by public disclosure than private communication channel, thus increasing the demand for a high transparent financial reporting system (Ball, et al., 2003).

There is also a cross-country variation in different earnings quality proxies such as earnings responsiveness, smoothness or earnings management according to characteristics of the institutional environment (Francis & Wong, 2008)<sup>67</sup>. For instance, Ali & Hwang (2000) examine the investors’ responsiveness to earnings according to six country-level institutional factors and find that it is lower in markets that are more bank- rather than investor- oriented, and where the accounting rules are the results of a standard setting process. Hung (2000) finds that the use of accrual accounting is associated with low investor responsiveness only in countries with weak legal protection. Leuz et al. (2003) find that the level of earnings management is positively associated with the degree of development of stock market, the level of ownership concentration, the strength of investor rights and legal enforcement.

The aforementioned evidence suggests that country’s legal and judicial regime as well as the extent of market forces are important determinants of corporate financial transparency. Beyond institutional features, there are, however, other factors that explain the cross-sectional variation of corporate policies *within* individual countries, related to both the characteristics of the business model and the governance system

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(2010) has recently performed a cluster analysis of 31 countries suggesting that there exist three institutional clusters with similar institutional features related to the level of securities regulation, investor protection and legal enforcement systems. See LEUZ, C. (2010). Different Approaches to Corporate Reporting Regulation: How Jurisdictions Differ and Why. *Accounting and Business Research*, 40(3), 229–256.

<sup>67</sup> Studies on cross country variation in accounting policies mainly focus on the following earnings attributes: (i) value relevance (ALFORD et al., 1993; ALI & HWANG, 2000; FRANCIS et al., 2003; GEUNTER & YOUNG, 2000; LAND & LANG, 2002) (ii) earnings management (LEUZ et al., 2003, BHATTACHARYA et al., 2003) (iii) earnings timeliness (BALL et al., 2000, BALL et al., 2002).



of the firm.

(b) *Firm-level incentives.* A substantial part of that reporting incentives are related to the characteristics of the firm's business model such as size, leverage and firm profitability (Marston & Shrivies, 1991; Ahmed & Courtis, 1999). The positive association between measures of firm size (such as market value of the firm, total revenue, book value of asset) and disclosure level (McNally et al., 1982), suggests that larger corporation are more likely to disclose more information to users of annual report. The evidence of the impact of firm size on the quality of reported earnings is more inconclusive (Dechow et al., 2010). Some studies find a negative association between firms' size and disclosure, because of their higher political and regulatory costs (Jensen & Meckling, 1976; Watts & Zimmerman, 1986). However other studies find that larger firms tend to be more transparent<sup>68</sup>.

A high leveraged capital structure should lead to an increase in the disclosure level of the firm due to the higher monitoring costs (Jensen & Meckling, 1976; Schipper, 1981; Hossain et al., 1994). From a different stand-point, highly leveraged firms should exhibit a lower quality of financial reporting, as managers may take action to avoid violating covenants (i.e. income increasing accounting choice) (Watts & Zimmerman, 1986). Several empirical studies find support to this hypothesis that is known in the literature as debt-covenant hypothesis (Bowen et al., 1981; Sweeney, 1994; DeFond & Jiambalvo, 1994; Dichev & Skinner, 2002)<sup>69</sup>.

The firm's profitability is also associated to its disclosure level, since highly profitable firms have more incentive to signal their superior performance to the market (Cooke, 1989). However there are also studies that find a negative relationship (Belkaoui & Kahl, 1978). In the context of earnings quality studies have found that firms with weaker performance engage more in accounting practices to

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<sup>68</sup> According to this latter view, larger firms bear more fixed costs to maintain an adequate internal control system, thus are better able to monitor the quality of financial report. See BALL, R., & FOSTER, G. (1982). Corporate Financial Reporting: A Methodological Review of Empirical Research. *Journal of Accounting Research*, 20, 161–234; GE, W., & MCVAY, S. (2005). The Disclosure of Material Weaknesses in Internal Control After the Sarbanes-Oxley Act. *Accounting Horizons*, 19(3), 137–158; ASHBAUGH-SKAIFE, H., COLLINS, D. W. & KINNEY JR., W. R. (2007). The Discovery and Reporting of Internal Control Deficiencies Prior to SOX-Mandated Audits. *Journal of Accounting and Economics*, 44(1–2), 166–192.

<sup>69</sup> There can also be other incentives that lead higher leveraged firms to have a lower quality of reported earnings such as bankruptcy concerns, need for financing, financial distress (DECHOW et al., 2010).



hide their negative performance (i.e. earnings management) that eventually reduce the quality of reported earnings (Petroni, 1992; DeFond & Park, 1997; Balsam et al., 1995). However, DeAngelo et al. (1994) argue that firms with a persistent negative performance have lower possibilities to engage in earnings management.

Other than the previous, listing status (Singhvi & Desai, 1971), liquidity (Belkaoui & Kahl, 1978), industry type (McNally et al., 1982), and the level of growth (Nissim & Penman, 2001), are other factors shaping the corporate disclosure policies and transparency but the nature of their association with corporate disclosure is far from being univocal.

The inadequacy of these studies to fully explain the cross-sectional variation among firms' disclosure policies has been largely attributed to differences across samples and measures of firm transparency (Ahmed & Courtis, 1999). However, Gul & Leung (2004) point out that one of the main reasons that account for such inconclusiveness is the failure to include the incentives related to the corporate governance systems (pp. 355).

### ***3.1 The role of corporate governance for disclosure***

In the last 15 years the growing of corporate governance literature in accounting suggests that dimensions related to the firm's corporate governance structure, such as board of directors characteristics, managerial incentives, capital structure or external auditor influence preparers' reporting incentives, thus (at least partially) explaining the observed heterogeneity across firms disclosure practices. Understanding the role of corporate governance characteristics for firm transparency needs going to the roots of the corporate governance literature and analyzing the role of disclosure in the governance process.

The definition of corporate governance differs depending on the perspective of researchers<sup>70</sup>. The view commonly held in the accounting and finance literature relies

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<sup>70</sup> SHLEIFER & VISHNY (1997) define corporate governance as the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment. ZINGALES (1998) views governance systems as the complex set of constraints that shape the ex post bargaining over the quasi-rents generated by the firm. GILLAN & STARKS (1998) define corporate governance as the system of laws, rules, and factors that control operation at a company. For a discussion on the definition of



upon the agency theory. Here the firm is viewed as a “nexus of contracts” among the various factors of production and corporate governance is considered the subset of contracts that help align the actions and choices of managers with the interest of shareholders, thus reducing the level of agency costs (Armstrong et al., 2010). Agency problems in organizations result from the separation of ownership and control and the subsequent conflict of interests between shareholder and corporate managers. Thus, in presence of information asymmetries, self-interested managers will choose a set of decisions to maximize their own utility at the expense of corporate shareholder (Berle & Means, 1932). Theory also suggests that contracts alone are not always enough to solve these conflicts (Hart, 1995). Therefore, owners (and sometimes managers) have interest in setting corporate governance mechanisms that help alleviate agency problems created by the separation of ownership and management of the business entities, by limiting undesirable managerial behaviour (Jensen & Meckling, 1976). Corporate disclosure is one of these governance mechanisms whose role is to mitigate the information asymmetries between insiders and outsiders, and reduce the potential for opportunistic behaviours.

Disclosure might play both an explicit and implicit role in the governance of corporations<sup>71</sup>. Firstly, outputs of the reporting system can be used as parameters in the explicit contracting activity, thus constraining managers from engaging in actions that generate agency costs. Secondly, a commitment toward transparency acts as an implicit contract between managers and external parties, thus reducing their ability to expropriate wealth (Armstrong et al., 2010). Thirdly, financial reporting helps facilitate the operation of specific corporate governance mechanisms, such as the enforcement of investors legal rights against management or the monitoring of the

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corporate governance see also BRICKLEY, J. A. & ZIMMERMAN, J. L. (2010). Corporate Governance Myths: Comments on Armstrong, Guay, and Weber. *Journal of Accounting and Economics*, 50(2–3), 235–245.

<sup>71</sup> The link between corporate governance and disclosure becomes much more clear if we recall that in the light of its stewardship role, disclosure should provide investors with information useful to Evaluate the Performance of manager. See JENSEN, M. C. (1993). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Finance*, 48(3), 831; MEHRAN, H. (1995). Executive Compensation Structure, Ownership, and Firm Performance. *Journal of Financial Economics*, 38(2), 163–184; SHLEIFER, A., & VISHNY, R. W. (1997). A Survey of Corporate Governance. *The Journal of Finance*, 52(2), 737–783; CORE, J., & GUAY, W. (1999). The Use of Equity Grants to Manage Optimal Equity Incentive Levels. *Journal of Accounting and Economics*, 28(2), 151–184; HOLDERNESS, C. G. (2003). A Survey of Blockholders and Corporate Control. *Economic Policy Review*, Federal Reserve Bank of New York, Apr, 51–64.



board of directors over the top management team (Sloan, 2001).

Bushman & Smith (2001) define the use of information in control mechanisms as the “governance role” of financial accounting and recognize it as one of the channels through which financial accounting information may affect economic performance<sup>72</sup>. However, financial accounting information constitutes not only the input for the governance process, but is itself a product of that process. In particular, it is the outcome of corporate accounting and external reporting process that is under the direct control of the management. As management knows the kind of information that will be used, it may have incentives to manage that information according to their own interests (Bushman & Smith, 2001). Thus, a series of corporate governance mechanisms have evolved to ensure the quality of financial reporting process. Accordingly, a large strand of literature has investigated the effectiveness of these mechanisms in ensuring that information provided by management is timely and relevant, in other words not biased. The following of the paragraph reviews the major contributions from the governance and accounting literature with a particular focus on the role of board of directors, given its prominent position for corporate transparency.

### ***3.2 Governance mechanisms and corporate transparency***

According to the agency theory there are several mechanisms through which firms can mitigate agency conflicts between managers and investors. The classic dichotomy distinguishes between internal and external corporate governance mechanisms. Internal mechanisms, such as managerial incentive plans, board of directors and internal labour market, result from the decision and action of the

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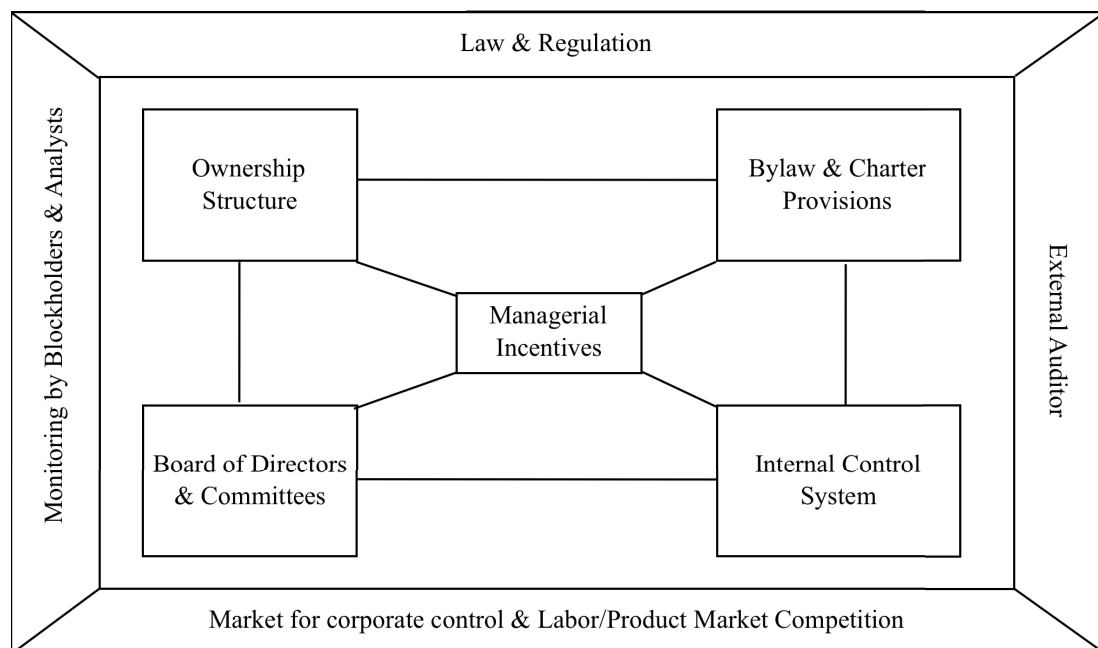
<sup>72</sup> The first channel involves the use of financial accounting information to identify good versus bad projects by managers and investors (*project identification*). The second is the use of financial accounting information to reduce information asymmetries among investors (*adverse selection*). The third is the use of financial accounting information in corporate control mechanisms that discipline managers to direct resources toward project identified as good and away from project identified as bad, thus preventing managers from expropriation of wealth of investors (*governance channel*). They suggest that financial accounting information, through its governance role, influences economic performance both directly by allowing managers a better selection of investments, and indirectly by lowering the risk premium demanded by investors to compensate for the risk of loss from expropriation by opportunistic managers. See BUSHMAN, R. M., & SMITH, A. J. (2001). Financial Accounting Information and Corporate Governance. *Journal of Accounting and Economics*, 32, 237–333.



shareholders and the board, while external mechanisms include monitoring by outside shareholder or debt holder, the market for corporate control, the product market competition, the external managerial labour market, and securities laws that protect outside investors against expropriation by corporate insiders (Bushman & Smith, 2001).

When examining the role of corporate governance for transparency, researchers have traditionally focused on internal control mechanisms such as board of directors, internal audit and ownership structure. However, this narrow view of the corporate governance may potentially undervalue the role that it can play in the overall corporate communication between insiders and outsiders (Cohen et al., 2004). Recognizing that a firm is more than just board, management, and shareholders recently scholars have called for an enlargement of the corporate governance framework in order to consider factors inside and outside the firm (Figure 5).

**Figure 5. Corporate governance and transparency: a broad framework**



Source: Adapted from Cohen et al. (2004)

All these aspects may influence the governance process ultimately affecting the quality of financial reporting and disclosure (Gillan, 2006). In the following, the focus will be on the (a) board of directors and its committees (b) managerial incentives (c) ownership structure. Then the role of (d) external auditors (e)



institutional investors and financial analysts will be discussed.

(a) *The board of directors and its committees.* The most investigated dimension of the internal corporate governance is the board of directors. Board of directors holds the responsibility for setting objectives and controlling the firm's activities (Fama & Jensen, 1983). Various attributes of the board of directors and its committees influence their effectiveness as corporate governance mechanisms. Board size and independence are among the most investigated.

The trade-off between having a large rather than a small board has been subject of considerable research effort (Armstrong et al., 2010). From one hand, smaller boards are supposed to monitor more effectively because they are more cohesive and productive, while a board comprised of too many directors may experiment coordination costs and free-riding problems that prevent the effective monitoring on the financial reporting practices (Lipton & Lorsh, 1992; Jensen, 1993). From the other hand, larger boards may offer a better advice to the CEO due to the broader expertise of its member (Dalton et al., 1999)<sup>73</sup>.

A related and debated dimension is board independence. Recent reforms act to strengthen the board monitoring and advising function calling for the increase in the proportion of non-executive directors, with no business and family relationship with the company<sup>74</sup>. Independent outside directors may bring a greater breadth of experience and are in a better position to monitor and control managers activities, including the financial reporting process (Eng & Mak, 2003; Chen & Jaggi, 2000). To this vein several studies document a positive association between board

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<sup>73</sup> COLES et al. (2008) exploit this duality of views by examining whether one board size fits all. They conclude that the relationship between board size and firm value is U-shaped, because different firms have distinct optimal board size. In particular, complex firms (i.e. large, diversified and highly-leveraged firms) have larger boards than simple ones. See COLES, J. L., DANIEL, N. D., NAVEEN, L. (2008). Boards: Does One Size Fit All? *Journal of Financial Economics*, 87(2), 329–356.

<sup>74</sup> The definition of the independent director varies throughout theoretical literature. The most common approach to measuring board independence are non-executive and independent directors on the basis of a legal definition (GUL & LEUNG, 2004). A non-executive director is one who is not in the direct employ of the corporation. However, this definition does not allow to properly identify independence of directors, as it includes also directors who maintain personal or professional relationships with the firm or firm management (*grey* or *affiliated directors*). According to SEC guidelines are affiliated and then not independent directors with "(...) family relationship by blood or marriage with a top manager or other director; affiliation with the firm as a supplier, banker or creditor within the past two years; association with a law firm engaged by corporation; stock ownership resulting in the SEC designation of control person".



independence and voluntary disclosure (Adams & Hossain, 1998; Patelli & Principe, 2007; Cheng & Courtenay, 2006; Cerbioni & Parbonetti, 2007). For instance, companies with more outside directors make more accurate and less optimistically biased earnings forecasts (Ajinkya et al., 2005). There is also a considerable literature on the impact of the board independence on the quality of accounting numbers. These studies suggest that the proportion of outside directors is negatively related with the incidence of SEC accounting enforcement actions (Beasley, 1996), and the extent of earnings management practices (Peasnell et al., 2005; Klein, 2002). It is also positively related with the conservatism of accounting earnings (Beeks et al., 2004; Ahmed & Duellman, 2007) and level of earnings informativeness (Chang & Sun, 2009)<sup>75</sup>.

While board size and independence play a pivotal role, board of directors' features that lead to increased transparency extend over those two, including CEO leadership/power, directors' knowledge and expertise and the degree of directors "busyness". The idea that concentrating decision making power in the same person of the board Chair/CEO may constrain its independence and limit its oversight is well accepted in the agency theory (Fama & Jensen, 1983; Brickley et al., 1994). Furthermore, the issue is considered important by the code of best practices that recommends a separation of the role of CEO and Chairman in the large corporation. This is because CEO/Chair duality concentrates power in the CEO's position, potentially allowing for more management discretion. However, the empirical evidence on the association between CEO duality and corporate disclosure is quite

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<sup>75</sup> All of the previous studies emphasize the direction of causality from the monitoring activities of the board of directors to the outcome of the reporting process. However there can also be alternative interpretations. ARMSTRONG et al. (2010) discuss the case of the positive association between board of directors and corporate transparency. Management and shareholders invite more outside directors to sit on the board and its sub-committee only when their corporate financial reporting process is transparent, i.e. there are less information asymmetries between managers and outside directors. For firms with a noisy information environment (high growth, intangible asset, substantial R&D) it is more difficult and costly for outside directors to acquire the information to effectively monitors managers (DEMSETZ & LEHN, 1985; GILLAN, 2006; COLES et al., 2008). Thus we will observe an higher proportion of outside directors only in firms with lower information asymmetries. Even though these are information asymmetries between managers and outside directors and not between managers/directors and external investors, from a practical point of view it is difficult to disentangle them because proxies that capture manager-director info asymmetries (i.e. R&D, stock price volatility) also captures managers-investors info asymmetries. See ARMSTRONG, C. S., GUAY, W. R., & WEBER, J. P. (2009). The Role of Information and Financial Reporting In Corporate Governance and Contracting. *Journal of Accounting and Economics*, (2-3), 179–234.



inconclusive (Ho & Wong, 2001; Cheng & Courtenay, 2006; Gul & Leung, 2004)<sup>76</sup>.

Recently, researchers have examined the role of expertise of the board and its sub-committees members (Gillan, 2006). Directors with a background in public accounting, auditing, or financial operation have higher expertise with respect to monitoring and advising financial reporting and disclosure issues. Research finds a positive relationship between financial expertise and disclosure quality. Financial expertise is associated with lower earnings management (Xie et al., 2003) and lower earnings restatement (Agrawal & Chadha, 2005)<sup>77</sup>. Moreover, firms with a higher proportion of outside directors on the audit committee with financial expertise have more frequent and accurate managements' earnings forecasts (Karamanou & Vafeas, 2005)<sup>78</sup>.

Another important (but under investigated) dimension is the appointment of the same directors on the board of other organizations. This feature is known as “busyness” of directors or “interlocking behaviour”. A consistent portion of studies grounded in the agency literature argue that the incidence of external appointment weakens the level of monitoring by the board over financial reporting process leading to a lower degree of financial reporting quality<sup>79</sup>. However, from a different perspective directors who

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<sup>76</sup> HO & WONG (2001) and CHENG & COURTENAY (2006) found no association between CEO duality and voluntary disclosure, while SHARMA (2004) finds that accounting fraud is more likely to occur when there is CEO duality and less board independence. By focusing on the voluntary disclosure, GUL & LEUNG (2004) find that the negative relationship between CEO duality and corporate disclosure is moderated by the presence of non executive directors. See GUL, F. A., & LEUNG, S. (2004). Board Leadership, Outside Directors' Expertise and Voluntary Corporate Disclosures. *Journal of Accounting and Public Policy*, 23(5), 351–379.

<sup>77</sup> However, the definition of the board or audit committee expertise is not homogeneous across studies. While in the US context the SEC and SOX Section 407 illustrates criteria for identifying the financial expertise of the audit committee, in the continental Europe no similar rule can be found. This gives rise to significant differences across countries that may affect the result of the studies. Moreover, some studies find that the audit committee accounting expertise more than the financial expertise appear to be valued by investors. See CARCELLO, J. V., HERMANSON, D. R., & YE, Z. (SHELLY). (2011). Corporate Governance Research in Accounting and Auditing: Insights, Practice Implications, and Future Research Directions. *AUDITING: A Journal of Practice & Theory*, 30(3), 1–31.

<sup>78</sup> KRISHNAN & VISVANATHAN (2008) show that the presence of financial expert in the audit committee is positively associated with the conservatism, but only when the overall quality of corporate governance is strong. ABBOTT et al. (2004) and DONOHER et al. (2007) suggest that the financial expertise of the audit committee members increases its effectiveness in preventing earnings restatements, and other misleading disclosures.

<sup>79</sup> For instance, literature point out that the number of external appointments is positively related with the likelihood of financial accounting fraud and earnings management and negatively related with the degree of conservatism. See BEASLEY, M. S. (1996). An Empirical Analysis of the Relation Between the Board of Director Composition and *The Accounting Review*, 71(4), 443–465; AHMED, A. S., &



serve on multiple boards may develop reputational capital as experts and are therefore more experienced in their monitoring function (Fama & Jensen, 1983; Kosnik, 1987; Kaplan & Reishus, 1990; Shivdasani, 1993). It is not surprising that empirical analyses on the association between director interlock and corporate transparency also report conflicting results (Brickley et al., 1999; Erickson et al. 2006; Bowen et al., 2008; Devos et al., 2009).

Finally, the role of audit committee on disclosure quality is pivotal as well, since the board of directors delegates the oversight over financial reporting process to the audit committee. Literature suggests that firms with CEO duality, less independent board and audit committee are more likely to engage in accounting earnings manipulation (Dechow et al., 1996; Abbott et al., 2000; Klein, 2002; Davidson et al., 2005). In addition, García Osma (2008) reports that more independent boards limit real earnings management (manipulation of R&D). Yang & Krishnan (2005) show that the audit committee size is negatively related with abnormal accruals whereas the provision of stock ownership is positively related.

(b) *Managerial incentives*. A further dimension of internal corporate governance is the level of management incentives. Compensation policies play an important role in aligning the interests of managers and shareholders (Jensen, 1993). Higher stock option or ownership by directors and executive officers create incentives for value maximizing behaviour. As a consequence, the presence of managerial ownership increases the quality of accounting information (Warfield et al., 1995). Firms with equity incentives (ties between executive compensation and performance measures) issue more frequent earnings forecasts and have higher analysts' rankings of firm's disclosure practices (Nagar et al., 2003). However, stock option and/or directors share ownership also give rise to several concerns regarding their efficacy. They may create perverse incentive to engage in fraudulent activities to compromise financial information aiming at improving the performance of the firm in periods around stock sales or option exercises. In addition, they can foster the insiders' entrenchment thus

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DUELLMAN, S. (2007). Accounting Conservatism and Board of Director Characteristics: An Empirical Analysis. *Journal of Accounting and Economics*, 43(2–3), 411–437; SARKAR, J., & SARKAR, S. (2009). Multiple Board Appointments and Firm Performance in Emerging Economies: Evidence from India. *Pacific-Basin Finance Journal*, 17(2), 271–293.



increasing the potential for opportunistic behaviour. Under that perspective firms with low managerial ownership release more voluntary disclosure (Eng & Mak, 2003). Conversely, CEO' pay-for-performance is associated with greater earnings management (Cornett et al., 2008)<sup>80</sup>. The major concern of this literature is that its incentive vs. entrenchment effect depends upon the degree of managerial ownership concentration. Thus, recent studies suggest that the relationship between managerial ownership and disclosure quality is not linear: at low level of managerial ownership, the relation is positive while beyond a certain threshold increasing ownership concentration worsens the quality of reporting (Yeo et al., 2002; Sanchez-Ballesta & García-Meca, 2007).

(c) *Ownership structure*. The degree of ownership concentration, as well as the nature of the firm's blockholders and management are other dimensions of the corporate governance structure that may affect financial reporting and disclosure transparency<sup>81</sup>.

However, the influence of ownership concentration over the level of corporate transparency is far from being univocal. The literature provides two competing views: the "alignment" and the "entrenchment" hypotheses. The "alignment" hypothesis predicts that in presence of concentrated ownership a firm faces less pressure from capital markets in order to meet or beat analyst forecasts or avoid reporting earnings decreases or losses. The owner is likely to be more involved in the management of the business entities, being able to better monitor the financial reporting process, and leading to a higher level of firms' transparency<sup>82</sup>.

On the contrary, the "entrenchment" hypothesis suggests that in presence of high

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<sup>80</sup> In addition, BERGSTRESSER & PHILIPPON (2006) document that when CEO exercises stock option the level of accruals is higher. See BERGSTRESSER, D., & PHILIPPON, T. (2006). CEO Incentives and Earnings Management. *Journal of Financial Economics*, 80(3), 511–529.

<sup>81</sup> Here, the interesting agency conflict is not the one between managers and shareholders, because managers and directors can be selected and directly monitored by the controlling shareholder. The relevant conflict of interest arises between majority shareholders and minority shareholders where the former can extract private benefit of control at the expense of the latter. See SHLEIFER, A., & VISHNY, R. W. (1997). A Survey of Corporate Governance. *The Journal of Finance*, 52(2), 737–783.

<sup>82</sup> Firms with controlling shareholders may want to mitigate the perceived higher agency costs by using disclosure as a bonding mechanism to commit toward high transparency and reducing its ability to extract private rents. See CHAU, G. K., & GRAY, S. J. (2002). Ownership Structure and Corporate Voluntary Disclosure in Hong Kong and Singapore. *The International Journal of Accounting*, 37(2), 247–265; HANIFFA, R. M., & COOKE, T. E. (2002). Culture, Corporate Governance and Disclosure in Malaysian Corporations. *Abacus*, 38(3), 317–349.



degree of ownership concentration the controlling owner may want to collude with managers in order to take action that reflects personal motives rather than value-maximizing decisions. In such a setting, insiders have incentives to conceal their private control benefits from minorities through earnings management (Morck et al., 1988; Hossain et al., 1994; Cormier et al., 2005; Bremmer & Pavelin, 2006; Patelli & Principe, 2007)<sup>83</sup>.

The issue of the entrenchment is particularly relevant in presence of mechanisms able to produce a “Disproportionate Ownership” by separating control rights from cash flow rights (Bigelli & Megoli, 2004; Enriques & Volpin, 2007)<sup>84</sup>. The employment of CEMs mechanisms from one hand reduces the agency conflicts between managers and dispersed shareholders, but from the other hand it fosters the conflict between controlling owners and minority shareholders ownership (Morck et al., 1988; Schulze et al., 2003). Empirical literature on this dimension mainly focuses on the quality of reported earnings and agrees on that firms with dual class-shares and/or other mechanisms that allow separating cash flow rights from voting rights tend to show lower earnings informativeness (Fan & Wong, 2002; Francis et al., 2005).

Finally, firms in which members of the founding family are blockholders and/or take position in the firms’ management either as top executives or as directors (i.e. family firms) also face incentives to be forthcoming with the information similarly to the case of concentrated ownership. The presence of the shares in the hands of the founder or its family, their active involvement in the management of the business, together with their long-term orientation and risk aversion (Anderson & Reeb, 2003; Villalonga & Amit, 2006; Gomez-Mejia et al., 2001) may increase their commitment toward value-maximizing action leading to better disclosure. A firm controlled by

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<sup>83</sup> Similar to the case of concentrated ownership is the issuance of public debt traded on the market. GIVOLY et al. (2010) suggest that firms that issue public debt face higher demand for transparency from the market (*Demand hypothesis*) but at the same time have also higher market pressures that create incentives to manipulate financial reporting for opportunistic behaviour (*Opportunistic hypothesis*). See GIVOLY, D., HAYN, C. K., & KATZ, S. P. (2010). Does Public Ownership of Equity Improve Earnings Quality? *The Accounting Review*, 85(1), 195–225.

<sup>84</sup> Previous literature suggests at least four different mechanisms that controlling shareholders employ to produce a wedge between ownership rights and control rights: (i) non voting shares (ii) pyramidal structures (iii) voting trusts (iv) cross shareholdings. See BURKART, M., & LEE, S. (2008). One Share - One Vote: the Theory. *Review of Finance*, 12 (1), 1–49.



founding family ownership has larger analysts following, more informative analysts' forecasts and smaller bid-ask spreads (Wang, 2006). They also have more informative reported earnings compared to their nonfamily peers (Ali et al., 2007), in terms of either accounting-based or market-based attributes (Cascino et al., 2010).

Nevertheless, the involvement of family members in the ownership and the management of the corporation may also have some drawbacks. For instance, when CEO is a founding family member there is a higher probability of restatement due to the lack of independence (Agrawal & Chadha, 2005).

(d) *External auditor.* Jensen & Meckling (1976) argue that the audit of financial report by an independent party is one mechanism by which shareholders can mitigate agency conflicts and increase the reliability of information about the firms' current and future cash flows. External auditor is, indeed, responsible for verifying that the financial statement is in conformity with GAAP and reflects the "true" economic condition and operating results of the entity. Even though the general accepted auditing standards set several guidelines for measuring the external auditor's performance, the "quality" of the auditor is multidimensional and unobservable (Balsam et al., 2003). Therefore, researchers make reference to several various proxies such as the auditor brand name, independence and tenure, the provision of external services, the audit compensation (Lin & Hwang, 2010).

High quality auditor is associated with higher earnings response coefficient (Teoh & Wong, 1993), lower incidence of accounting errors and irregularities (DeFond & Jimbalvo, 1991). Several studies document that the use of brand name auditors constraints the level of earnings management (Francis et al., 1999). Firms whose audit committee member is affiliated with the audit partner have large discretionary accruals (Naiker & Sharma, 2009). The same occurs when firms hire former audit partners as officers or directors (Menon & Williams, 2004), pay greater non-audit fees (Frankel, et al., 2002) or have lower auditor tenure (Chen et al. 2008). Moreover, clients of larger audit firms exhibit increased conservatism (Kim et al., 2003). Finally, accounting restatements are positively related to the proportion of audit committee member compensation that is composed of short-term or long-term stock option (Archambeault et al., 2008).



(e) *Institutional investors and analysts*. Blockholders such as institutional investors also require timely and reliable information about the firm in order to make efficient investing decisions. Institutional investors put pressures to firms in order to disclose more information (Healy et al., 1999). The importance of these blockholders increases when managers have incentives to boost the firm's reported earnings. The presence of institutional investors decreases the level of accrual earnings management (Chung et al., 2002) and results in more conservative accounting choice. In addition, in presence of institutional investors managers are less likely to "take a bath". Researchers also document that the level of firm transparency depends on how long institutional investors intend to hold shares. Forker (1992) and Abraham & Cox (2007) find a lower level of risk disclosure in presence of long-term institutional investors. While other studies find that long-term institutional investors are associated with constraining accounting discretion (Koh, 2003; Hsu & Koh, 2005).

Finally, literature suggests that financial analysts play an important role for corporate transparency. They may reduce agency costs by monitoring management and providing information about the firms to the market (Jensen & Meckling, 1976; Chung & Jo, 1996). Analysts and other information intermediaries (e.g. rating agencies) help to detect managers' misbehaviour (Healy & Palepu, 2001). Consistently, when firms are followed by more analysts, they engage less in earnings management (Yu, 2008), or tend to use income smoothing as an informative rather than an opportunistic tool (Sun, 2011). However, their corporate governance role is not clear *ex-ante* as they may also put excessive pressures to managers to meet or beat forecasts <sup>85</sup>.

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<sup>85</sup> In a broader view of the corporate governance system there are other external actors potentially affecting disclosure quality (e.g. regulators, legislators and other aspects of the legal system). However, most of them have been already mentioned in the analysis of the cross-country differences in corporate reporting practices. For instance, CLARKSON et al. (2008) show that when firms are provided with more discretionality they tend to issue poor quality disclosure. BURGSTÄHLER et al. (2006) find that a strong legal environment is associated with lower earnings management. Another important mechanism is the market for corporate control, which may constitute the ultimate corporate governance mechanisms, but it may also allow inefficient managers to indulge in empire building. ARMSTRONG et al. (2012) examine the changes in US state antitakeover laws as source of exogenous variation in the functioning of the market for corporate control and find that financial statement informativeness increased following the passage of antitakeover laws. Other external corporate governance mechanisms are labour and product markets competition, media and business press. See



### ***3.3 The nature of the interaction between governance and disclosure: complements or substitutes?***

At this point of the discussion, the evidence suggests that “good” internal and/or external governance increases corporate transparency<sup>86</sup>.

However, a still debated question in the literature is whether the existence of costs related to disclosure activities or other limits to the information environment lead some firms to a substitution towards costly monitoring mechanisms (Bushman & Smith, 2001). In other words most studies empirically examine whether corporate disclosures and corporate governance are complementary or substitutive.

If they are complementary, agency theory will predict a positive association between corporate governance effectiveness and firms’ transparency. The adoption of “good” governance mechanisms will lead to improvement in disclosure comprehensiveness and quality of annual reports, because the stricter monitoring environment acts as a constraint for managers to withhold and/or compromise information for their own interests. The empirical evidence reviewed in the previous paragraph is all consistent with the hypothesis of complementarity.

Nevertheless, other studies suggest that the effectiveness of corporate governance practices and the quality of firms’ disclosure may substitute each other. The starting point of this literature is that firms trade off benefits and costs of financial reporting versus other corporate governance mechanisms in solving information asymmetries and agency problems. Even though disclosure has several direct and indirect positive effects for the capital market efficiency it also has costs. They are fixed costs (costs that do not vary with the manager’s private information) of disclosure such as the costs of preparation, certification and dissemination of accounting reports. In addition, firms can also have indirect costs resulting from the proprietary nature of

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GILLAN, S. L. (2006). Recent Developments in Corporate Governance: An Overview. *Journal of Corporate Finance*, 12(3), 381–402.

<sup>86</sup> The term “good” governance, here, refers to certain governance structures that exert pressure over corporate board and management towards increased level of transparency, thus mitigating the information asymmetries and the agency costs. However, this term should be used with caution since it is conditional to the characteristics of the firm, including its stage of development. Therefore, certain governance structure that are “good” for one firm, may be “bad” for others. Moreover, within the same firm, the governance structure that is desirable at one point in time, may become inappropriate with the passing of the time. Finally, governance structure that are ex-ante optimal may cause unanticipated consequences, and turn out to be sub-optimal ex-post (ARMSTRONG et al., 2010).



information that is informative about the product, the market or the competitive position (Wagenhofer, 1990). The fact that this proprietary information can be used by other parties such as competitors, labour unions, regulators at the expense of the firm, may dampen disclosure incentives, leading managers to withhold information (Verrecchia, 1983).

Furthermore, in certain settings there are some limits to the information environment itself. It is the case of firms operating in noisy business environments such as high growth firms with substantial R&D and high volatility. Here it is more difficult or costly for internal corporate mechanisms (i.e. board of directors) to acquire the information necessary to effectively monitor managers (Demsetz & Lehn, 1985; Coles et al., 2008) in order to mitigate the information asymmetries and the related agency costs. Because disclosure is selective and the cost associated with information asymmetries can be reduced by using other governance mechanisms as “warranty” for investors, firms characterized by high proprietary and/or monitoring costs will choose (or be forced) to switch toward other control mechanisms

Several studies report results consistent with the hypothesis of substitution between corporate governance mechanisms and disclosure transparency.

For instance, LaPorta et al. (1998) suggest that in countries where the accounting and legal system provides poor investor protection, there is a substitution towards costly monitoring by large shareholders. This substitution effect may also occur between corporate disclosure and internal control mechanisms.

Bushman et al. (2000) find that the level of accounting transparency is negatively related with the board of directors. Eng & Mak (2003) show that firms release more voluntary disclosure in presence of lower proportion of outside directors. Researchers also find a negative association between board independence and voluntary disclosure (Hannifa & Cooke, 2005; Gul & Leung, 2004, Barako et al., 2006). García Osma & Gill-de-Noguer (2007) find that the level of earnings management increases with the presence of independent directors.

Other studies suggest that financial reporting transparency and equity incentives



substitute each other as monitoring mechanisms<sup>87</sup>. LaFond & Roychowdhury (2008) suggest that firms with less conservative earnings opt for an indirect monitoring provided by CEO equity incentives. In a related study, Bushman et al. (2004) find a negative relationship between equity incentives and earnings timeliness. In addition, they also document an inverse relationship between earnings timeliness and concentrated ownership, measured as institutional ownership and blockholders. This evidence is consistent with a substitution effect also between ownership concentration and corporate disclosure. Accordingly, Li et al. (2008) and Lim et al. (2007) find that the higher the ownership concentration the lower the extent of voluntary disclosure<sup>88</sup>.

The same argument applies for monitoring by financial analysts. Bushman & Smith (2001) point out that financial analysts may either complement or substitute corporate disclosure. From one hand they facilitate interpreting and disseminating high quality information, but from the other hand they may help overcome information asymmetries for firms with poor financial accounting information. Consistent with this hypothesis, Bushee & Noe (2000) and Tasker (1998) show that firms with greater analysts following and greater institutional ownership are less likely to hold open calls.

Reconciling the previous conflicting evidence is not a trivial task. As a consequence the debate on the substitution vs. complementarity between corporate governance mechanisms and disclosure practices still remains open in the recent literature.

Furthermore, governance literature also points out the existence of a potential

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<sup>87</sup> Also the family business literature points out that family owned firms may provide fewer disclosure since they have increasing ability to monitor being more actively involved with management. See CHEN, S., CHEN, X., & CHENG, Q. (2008). Do Family Firms Provide More or Less Voluntary Disclosure? *Journal of Accounting Research*, 46(3), 499–536.

<sup>88</sup> An alternative explanation for these results may be that ownership concentration allows a higher monitoring of the managerial action, thus reducing the demand for public disclosure to solve information asymmetries. Therefore, in presence of high proprietary costs managers may chose not to disclose. Several studies find results consistent with this hypothesis. See FAN, J. P. H., & WONG, T. J. (2002). Corporate Ownership Structure and the Informativeness of Accounting Earnings in East Asia. *Journal of Accounting and Economics*, 33(3), 401–425; AJINKYA, B., BHOJRAJ, S., & SENGUPTA, P. (2005). The Association Between Outside Directors, Institutional Investors and the Properties of Management Earnings Forecasts. *Journal of Accounting Research*, 43(3), 343–376; BALL, R., & SHIVAKUMAR, L. (2005). Earnings Quality in UK Private Firms: Comparative Loss Recognition timeliness. *Journal of Accounting and Economics*, 39(1), Pages 83–128.



interaction across either internal or external governance mechanisms. For instance, when the internal audit is closely related to the audit committee and reports directly to it, the effectiveness of both parties as corporate governance mechanisms is enhanced (Cohen et al., 2004). Also the external forces play a role. Related research suggests that firms have incentives to establish more efficient internal governance practices (more ownership concentration) in countries with weaker legal frameworks to compensate the inefficiency of the legal regime, as an external governance mechanism (Durnev & Kim, 2005).

Despite its relevance for the effective governance of the corporations, very little of the extant governance research in accounting examines these interrelationships and the implication for corporate disclosure (Cheng & Courtenay, 2006; Doidge et al., 2007; Berretta et al. 2010). Therefore, research in that area could benefit from analysis of the interaction among internal and external corporate governance mechanisms, whether they serve as complement or substitutes, and whether corporate disclosure enhances or substitutes for those mechanisms (Armstrong et al., 2010; Carcello et al., 2011).

#### **4. Framework of research and research questions**

The starting point of the literature review has been to recognize that disclosure plays a meaningful role for the capital market efficiency (Healy & Palepu, 2001). It serves two important and interrelated functions: allowing investors to evaluate the return of their investments (valuation role) and providing investors with useful information to monitor managerial use of their capital, once provided (stewardship role).

The managers' communication with outside investors occurs by providing information through multiple venues. First of all, there are some disclosures that are mandatory such as financial statements, footnotes, management discussion and analysis and other regulatory filings. In addition, firms provide information on a voluntary basis through management forecasts, analysts' presentations and conference calls, press releases, internet sites and other corporate reports.

Early works in the accounting literature, mostly relying on the condition of the unravelling result setting, examine the valuation role of disclosure and point out the



capital market benefits of voluntary (fully truthful) disclosure. High voluntary disclosure increases stock market liquidity (Healy et al., 1999; Welker, 1995) and decreases cost of equity (Botosan & Plumlee, 2002; Easley & O'Hara, 2004) and debt capital (Sengupta, 1998) (Figure 6: link 1)<sup>89</sup>.

Despite its benefits for the capital market, empirical literature fails to identify full optimal disclosure strategies. This is because in the real world assumptions of the unravelling results are never satisfied. For instance, firms may decide to not fully disclose their private information due to the existence of some disclosure costs (i.e. competitive costs, litigation costs, proprietary costs) (Verrecchia, 1983). The failure of the unravelling arguments, together with factors such as the presence of disclosure externalities and agency costs, justifies the existence of mandated disclosure.

A large number of studies in the mandatory disclosure literature point out that financial reporting transparency has beneficial capital market effect, too. For instance, research on accounting attributes suggests that earnings persistence is negatively related to the cost of capital (Francis et al., 2004) while earnings predictability lower the firm's bid-ask spreads (Affleck-Graves et al., 2002). Most studies also agree on that quality of accrual being a separate priced risk factor (Francis et al., 2004) (Figure 6: link 2).

The informational role of mandatory and voluntary disclosure and their benefits for the capital market have been largely discussed in paragraph 1.

The second paragraph focuses on the growing importance of voluntary unverifiable disclosure in the reporting package of the firms. This is the natural consequence of the business environment's complexity, and the shortcomings of the financial reporting model in reflecting drivers of the long term value creation. However, this disclosure is often non-accounting, unregulated and not audited. As a consequence, this gives rise to several reporting issues related to the informativeness and the credibility of soft disclosure.

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<sup>89</sup> A large body of literature supports the concept that the characteristics of corporate governance system have several effects on the market, by influencing, among others, the firm's performance, its cost of equity and debt financing. However, this thesis focus on the indirect capital market effect of the corporate governance characteristics, as mediated by their influence disclosure policies. For a review of the direct effect of corporate governance on capital market refer to see BROWN, P., BEEKES, W., & VERHOEVEN, P. (2011). Corporate Governance, Accounting and Finance: A Review. *Accounting & Finance*, 51(1), 96–172.



In the case of supplementary narrative disclosure what is important is not only the content of disclosure but also *how* the information is disclosed. Therefore, disclosure strategies assume a prominent role in the communication between managers and outside investors.

However, discretionary disclosure strategies in corporate narratives may be double-edged swords. They may constitute opportunistic disclosure choices, aimed at improving the perception of the audience on the firm's state of health (impression management). On the contrary, they may allow managers to convey additional information (incremental information). These two competing schools of thought still coexist, and the existing literature fails to disentangle whether discretionary strategies in corporate narratives stem from managerial opportunism rather than the desire to provide value-relevant information.

In addition, soft disclosure may not be directly verifiable. As within the “cheap talk” framework, managers may have incentives to present information according to a favourable perspective for their self-serving objectives. As a consequence, these supplementary disclosures may be full lies. If managers can report according to their incentives and the information disclosed is not verified, disclosure must be credible in order to be useful for the market. Credibility is an “unobservable” characteristic of disclosure and can be assessed by referring to several factors, with management credibility being one of them (Mercer, 2004). The quality of mandatory disclosure (accounting quality) may be an indirect signal of the management credibility (Demers & Vega, 2010; Athanasokou & Hussaini, 2009).

The role of accounting quality for the credibility of voluntary disclosure highlights the existence of a linkage between mandatory and voluntary disclosure that has been largely explored by the accounting literature (Figure 6: link 3).

Paragraph 2.2 discusses analytical and empirical studies that examine the relationship between accounting quality and other (voluntary) disclosures, reporting conflicting results.

Regardless of whether voluntary disclosure complements or substitutes for financial reporting information, these studies point out that voluntary disclosure may be endogenously determined by the quality of mandatory disclosure.



Therefore, we cannot examine any capital market effect of a given voluntary disclosure choice without taking into account the role of financial reporting transparency. For instance, Francis et al. (2008) show that greater voluntary disclosure is associated with a lower cost of capital, unconditional on other factors. However, this relation disappears when they control for the quality of mandatory disclosure, as proxied by earnings quality. Thus, they conclude that voluntary disclosure has little or no distinct pricing effect.

The third paragraph introduces the issue of the heterogeneity among firms' disclosure practices. The underlying question is "Which factors explain such heterogeneity?"

Literature has long discussed on the role of differences among accounting standards, but reporting incentives rather than accounting standards *per se* are the key drivers of the observed financial reporting heterogeneity (Ball et al., 2000, 2003). Reporting incentives are shaped by many factors that vary across countries and political regions such as country's laws, enforcement, capital market forces, product market interaction (Wysocki, 2011). In addition, there are also incentives related to features of the firm's governance systems that vary across firms such as managerial incentive plans, board of directors composition and structure or independence of external auditor. Therefore, firm's disclosure choices depend on both the optimal disclosure policy and the ability of governance structure to enforce the optimal disclosure policy (Core, 2001).

Given the role of the corporate governance mechanisms for corporate transparency, a large number of studies in the governance and accounting literature investigate the effectiveness of these mechanisms in monitoring the quality of financial reporting process (see Brown et al., 2011 for a review). Several dimensions of the corporate governance system have been analyzed, spanning from internal corporate governance characteristics (e.g. board of directors, management incentives, ownership structure) to external ones (independent auditor, blockholders and analysts). This literature suggests that "good" governance structure leads to a greater accounting quality (Dechow et al., 1996; Vafeas, 2000; Xie et al., 2003; García Osma, 2008). In addition, it ensures additional voluntary disclosures (Eng & Mak, 2003; Ajinkya et



al., 2005; Beekes & Brown, 2006; Cerbioni & Parbonetti, 2007) (Figure 6: link 4).

Although it is widely acknowledged that the firm's governance structure affects its disclosure choices (Dechow, 1996; Vafeas, 2000; Klein, 2002), there is still an open debate on whether disclosure acts as a complement or a substitute for other corporate governance mechanisms (LaPorta et al., 1998; Shleifer & Vishny, 1997; Beekes & Brown, 2006).

On the one hand, effective corporate governance complements firm disclosure strategies, thus helping reduce agency conflicts between managers and shareholders (Healy & Palepu, 2001; Karamanou & Vafeas, 2005). On the other hand, high information asymmetries increase the market demand for other governance mechanisms in order to compensate the inefficiency of financial reporting (Bushman et al., 2000).

Reconciling the previous conflicting evidence is not a trivial task. Moreover, the results of this literature should be interpreted with caution as most research in this area does not take into account the potentially endogenous nature of firms corporate governance and disclosure policies.

Studies in the traditional accounting literature assume that corporate governance characteristics are exogenous at the time managers make a disclosure choice. However, the same firm and/or management characteristics that may affect the disclosure variables may also affect the corporate governance variables<sup>90</sup>. According to Beyer et al. (2010) *“When shareholders design management incentives and governance structure in order to maximize the value of their investment, they take into account how management incentives and governance structure affect*

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<sup>90</sup> A clear example of endogeneity issue is provided by some recent contributions concerning the relationship between the board of directors and the information environment. Armstrong et al. (2010) point out the existence of two streams of literature. The first one supports the idea that firms consider the information environment they are endowed with and then choose an effective level of board independence (e.g. BOONE et al., 2007; COLES et al., 2008; LINCK et al., 2008; LEHN et al., 2009). Consistent with this prediction, several recent papers in the finance literature document evidence of a negative relation between board independence and information acquisition and processing costs. Another strand of literature, claim that managers can commit to certain accounting and disclosure policies to alter their firms' transparency and achieve various economic objectives (FIELDS et al., 2001; HEALY & PALEPU, 2001). There are also studies suggesting that independent directors themselves might influence transparency (KLEIN, 2002; AHMED & DUELLMAN, 2007). See ARMSTRONG, C. S., CORE, J. E. AND GUAY, W. R. (2012). Do Independent Directors Cause Improvements in Firm Transparency? *Working Paper*.

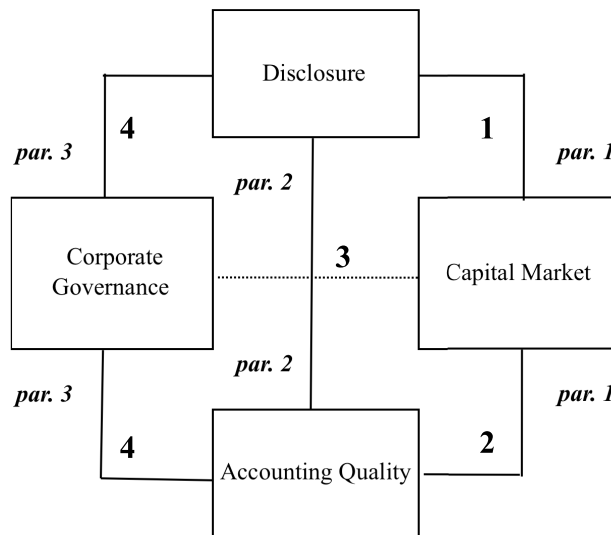


*management disclosure decision*” (Beyer et al., 2010: 305).

Despite the attempt of more recent studies in identifying and addressing the endogeneity, this issue still remains unsolved, as the major challenge for the accounting and governance scholars is to develop good instruments (if any) that explain the corporate governance characteristics that are not correlated with the underlying dimensions of the corporate transparency being studied (Larker & Rusticus, 2010).

To summarize, Figure 6 depicts the theoretical framework and indicates the paragraphs dealing with each of the aforementioned issues.

**Figure 6. Research framework<sup>91</sup>**



The objective of this thesis is to contribute to the larger mosaic of theory and evidence concerning the role of corporate governance for the firm’s disclosure policies and the capital market, by examining the interaction among corporate governance, mandatory and voluntary disclosure.

To date, existing empirical studies explore the relation between governance and disclosure by analyzing the extent to which actors in the corporate governance

<sup>91</sup> The line connecting Corporate Governance to Capital Market indicates the literature supporting the concept that the characteristics of corporate governance system have direct effects on the market. See BROWN, P., BEEKES, W., & VERHOEVEN, P. (2011). Corporate Governance, Accounting and Finance: A Review. *Accounting & Finance*, 51(1), 96–172. As this thesis focuses on the effect of the corporate governance characteristics on disclosure policies, this literature is out of the scope of this review.



framework individually affect the quality of financial accounting information (e.g. accounting quality), or alternatively, different features of voluntary disclosure.

Recognizing the interrelationship across corporate governance mechanisms as well as among various sources of corporate information (i.e. financial accounting information, mandatory and voluntary disclosure) (Beyer et al., 2010), this thesis investigates (i) the nature of the relationship between mandatory and voluntary disclosure (ii) controlling for mandatory disclosure, the role of internal and external corporate governance characteristics for the firm's decision to disclose information not mandated by the law (iii) the influence of the governance system on the informativeness of discretionary disclosure strategies across alternative disclosure media.

This way, it answers the recent call in the accounting literature for considering the interdependencies between various factors that shape the corporate information environment (Beyer et al., 2010). It also allows to gain a deeper understanding of the trade-offs between monitoring mechanisms and corporate transparency and among various monitoring mechanisms as well as sources of corporate information.

Within this framework, the second section of this thesis presents two empirical analyses based on archival and hand-collected data which share a similar setting and investigate two interrelated research questions.

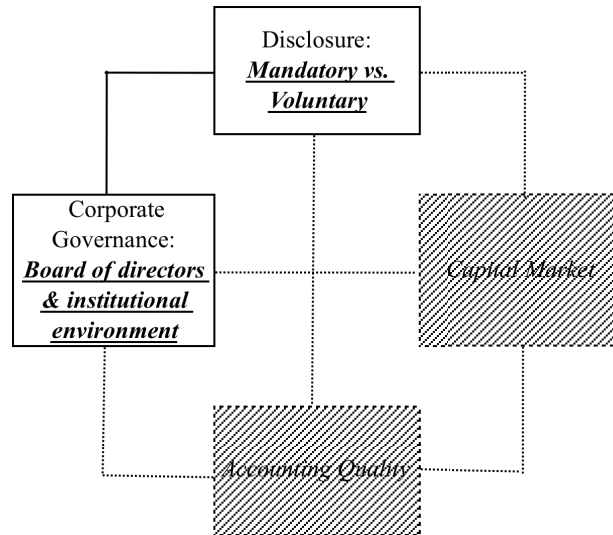
The first study (chapter two) is entitled "The interplay between mandatory and voluntary disclosure. The case of risk reporting by Oil&Gas companies". It aims at understanding the interplay between mandatory disclosure and the release of additional information not mandated by the law. As related question it also examines the influence of firm- and country-level incentives on voluntary disclosure strategies.

To clearly distinguish between mandatory and voluntary information, the analysis is focused on the risk disclosure provided by Oil&Gas companies. In such a setting, the study examines (i) whether firm's voluntary disclosure choices are affected by their own mandatory disclosure strategies (substitute vs. complement) (ii) the influence of firm-level incentives (board-based monitoring) and country-level incentives (strength of the institutions) on the decision to disclose voluntary information (iii) whether the institutional environment plays a moderating role for the relationship between either



board monitoring or mandatory disclosure and voluntary disclosure policies. Figure 7 shows the focus of this study within the research framework.

**Figure 7. Research framework: The interplay between mandatory and voluntary disclosure. The case of risk reporting by Oil&Gas companies**



This study makes several contributions both to theory and practice. Firstly, to the best of the author's knowledge, it is the first empirical analysis that provides direct evidence on the interplay between mandatory and voluntary disclosure, thus complementing theoretical studies on this topic (Einhorn, 2005; Bagnoli & Watts, 2007). Secondly, by analysing the influence of both firm- and country-level incentives on voluntary disclosure, it contributes to the emerging literature on the interplay between internal and external governance mechanisms and their influence on corporate transparency (Durnev & Kim, 2005; Cheng & Courtenay, 2006; Doidge et al., 2007; Berretta et al., 2010). Finally, its evidence provides regulators and policy makers with useful knowledge in order to design new mandatory disclosure regulation in light of their impact on voluntary disclosure decisions.

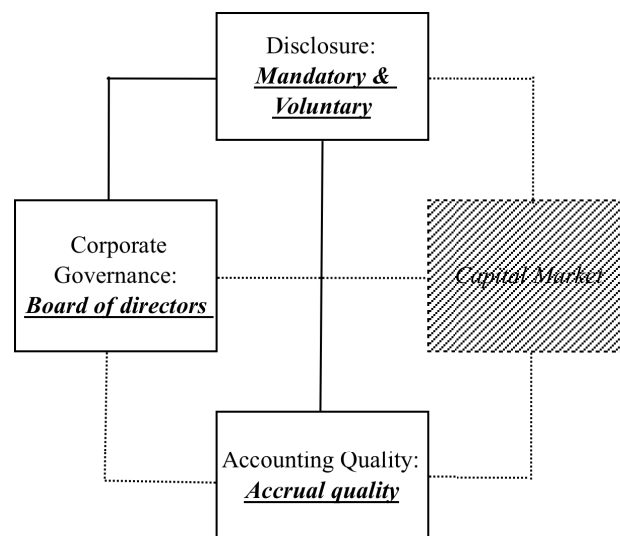
The second study (chapter three) is entitled "Why are managers optimistic? An investigation of corporate environmental disclosure tone". It examines whether and to what extent firm's governance characteristics affect the informational value of discretionary disclosure strategies in corporate narratives.

The analysis focuses on the environmental information provided by Oil&Gas



companies through both mandatory (10-K) and voluntary (press-releases) disclosure channels. More specifically it investigates (i) whether discretionary strategies in environmental disclosure represent managerial opportunistic behaviour aiming at managing users perception of corporate achievement rather than providing information useful for predicting future environmental performance (i.e. impression management vs. incremental information) (ii) whether and to what extent the informativeness of discretionary strategies varies according to reporting incentives coming from the board of directors' characteristics. Figure 8 shows the focus of this study within the research framework.

**Figure 8. Research framework: Why are managers optimistic? An investigation of corporate environmental disclosure tone**



This research provides several contributions. First of all, it answers the recent call in the impression management literature for incorporating both possibilities (impression management vs. incremental information) into research design aiming at investigating the discretionary disclosure strategies in corporate narratives (Merkl-Davies & Brennan, 2007). Secondly, using two different theories to explain the board of directors' influence on the informativeness of the disclosure strategies and combining them in a matrix, it investigates the influence of two dimensions of the board activity (monitoring and stakeholder orientation) both simultaneously and in isolation. Finally, its results could provide investors and policy makers with valuable



insight to interpret managers' use of discretionary strategies in corporate narratives, thus contributing to the regulators' debate on whether (and under what conditions) they should be held legally accountable for qualitative disclosures.



## **SECOND SECTION**

### **RESEARCH CONTRIBUTIONS**



## CHAPTER TWO

### THE INTERPLAY BETWEEN MANDATORY AND VOLUNTARY DISCLOSURE. THE CASE OF RISK REPORTING BY OIL&GAS COMPANIES

1. Introduction. – 2. Theoretical background and hypotheses. – 2.1 *The role of mandatory disclosure for voluntary disclosure.* – 2.2 *The influence of firm- and country-level incentives on voluntary disclosure.* – 2.3 *The interaction between firm- and country-level incentives.* – 3. Research method. – 3.1 *Sample selection and data source.* – 3.2 *Measuring voluntary and mandatory disclosure.* – 3.3 *Measures of firm- and country-level incentives.* – 3.4 *Control variables.* – 4. Results. – 4.1 *Descriptive statistics and correlation analysis.* – 4.2 *Regression analysis.* – 4.2.1 *Analysis of the interplay between mandatory and voluntary disclosure.* – 4.2.2 *Analysis of the influence of firm- and country-level incentives.* – 4.2.3 *Analysis of the interaction between firm-level and country-level incentives.* – 5. Conclusion.



## **1. Introduction**

The aim of this study is to investigate the interplay between mandatory disclosure and the release of additional information not mandated by the law and the stock exchange.

Theory predicts that both voluntary and mandatory disclosure reduce information asymmetries (Botosan & Plumlee, 2002; Easley & O'Hara, 2004), increase stock market liquidity (Healy et al., 1999) and improve capital market efficiency (Healy & Palepu, 2001). However, despite mandatory disclosure, voluntary disclosure is selective and managers may have greater ability and stronger incentives to withhold information. For instance, managers may decide not to disclose additional value-relevant information due to the existence of some disclosure costs (i.e. competitive costs, litigation costs, proprietary costs). Therefore, the extent of voluntary disclosure depends on the trade-off between benefits coming from a reduction in the information asymmetries and costs related to its proprietary nature (Verrecchia, 1983, 2001).

Recent studies (Bagnoli & Watts, 2007) show that mandatory disclosure may affect this trade-off, by altering the information asymmetries in the market. It increases the part of the firm value that is already explained by information mandated by the law, thus reducing the benefits of additional voluntary (proprietary) disclosures. As a consequence, firms lower their voluntary disclosure, as mandatory disclosure might substitute for it (Grossman & Hart, 1980; Milgrom, 1981; Verrecchia, 1983). Conversely, firms may use mandatory disclosure to reinforce the credibility of voluntary information. In this latter case, firms may complement mandatory disclosure with supplementary voluntary information in order to avoid the negative market response to the non-disclosure decision (Imhoff, 1978; Waymire, 1985; Francis et al., 2008). Even though the debate on the relationship between mandatory and voluntary disclosure dates back to early theoretical studies in the literature, the related empirical evidence is limited and provide contrasting results. Therefore, the nature of the interaction between mandatory and voluntary disclosure still remains an empirical issue in the existing literature.



This study tries to fill the gap, by empirically examining whether firm's voluntary disclosure choices are affected by their own mandatory disclosure strategies (substitute vs. complement). As related questions, it investigates the influence of firm-level incentives coming from the board-based monitoring and the country-level incentives related to the strength of the institutions on the decision to disclose voluntary information. Finally, it examines whether the institutional environment plays a moderating role for the relationship between either board monitoring or mandatory disclosure and voluntary disclosure policies.

To exploit this research question, a content analysis of the annual report risk disclosure is conducted provided by a sample of 111 EU companies belonging to the Oil&Gas industry in 2010. The focus is explicitly on risk disclosure since it provides an ideal setting for studying the interplay between mandatory and voluntary disclosure strategies on the same type of information. Self-constructed indices of disclosure are built, capturing the extent of mandatory and voluntary information related to the overall risk exposure (financial and non-financial risk exposure). To mitigate the concern for disclosure indices' subjectivity, several tests are also performed assessing their internal as well as external validity.

The empirical analysis starts examining the nature of the relationship between mandatory and voluntary risk disclosure strategies. By relying on Einhorn's (2005) theoretical study, it is argued that the relationship between the two is a non-monotonic one, and varies according to the level of mandatory risk disclosures. Specifically, it is anticipated that at low level of mandatory disclosure, voluntary disclosure complement mandatory information. Conversely, when the level of mandatory disclosure becomes particularly high, managers stop providing additional proprietary information, as a great portion of the information asymmetries is already mitigated by disclosures mandated by the law. Therefore, in such a setting a further increase in mandatory disclosure translates into a reduction of voluntary information, leading to a substitutive relationship between them. Consistent with these hypotheses, it is found that firms with a low mandatory risk disclosure, tend not to disclose supplementary information on non-financial risk factors. As mandatory risk disclosure increases, the likelihood of voluntary risk disclosure also increases,



leading to a positive relationship between mandatory and voluntary information. However, this relationship holds up to a threshold, above which it becomes negative.

Next, it is exploited the cross-sectional variation of voluntary disclosure strategies according to two set of incentives: (i) internal monitoring provided by the board of directors (firm-level incentives) (ii) external monitoring provided by the institutional and regulatory regime (country-level incentives). To proxy for the board-based monitoring, this study relies on characteristics of the board of directors' composition, leadership, competence and structure. In line with the agency theory, it is predicted (and found) that firms with a greater monitoring intensity, voluntarily provides more information on non-financial risk factors. To capture the influence of regulatory and enforcement regime, Leuz's country-cluster classification (2010) is followed, and the sample firms are partitioned in two groups according to the characteristics of the capital market, the degree of investor protection and the strength of the enforcement regime. Contrary to the prediction, no evidence is found that the external monitoring plays a role for voluntary disclosure strategies above and beyond the one provided by internal board-based monitoring. The results remain unchanged, even after controlling for the role of mandatory disclosure.

Then, the analysis turns on the interaction between firm-level and country-level incentives. Specifically, it is investigated if and to what extent regulatory environment, as an external governance mechanism, shapes the relationship between board monitoring and voluntary risk disclosure. This is done following the recent call in the corporate governance literature for studying whether internal and external governance mechanisms serve as a complement or substitutes for achieving high level of corporate transparency (Carcello et al., 2011). Still using Leuz's country-cluster classification (2010), the proxies for board monitoring are combined into one summary factor capturing the monitoring intensity of the board of directors. A weak evidence is found that in countries classified as outside economies, with a strong regulatory and enforcement regime, the external monitoring provided by the institution substitutes for the internal board-based monitoring on voluntary disclosure choices.



Finally, as empirical question it is analyzed whether institutional environment has a moderating effect for the relationship between mandatory and voluntary disclosure. The evidence suggests that there is no difference in the sign and the significance of the association between mandatory and voluntary disclosure across strong and weak institutional environment. However, given the magnitude of coefficients on mandatory disclosure indices, the conclusion is that in countries with a strong regulatory and enforcement regime, the firm-specific level of mandatory disclosure plays a weakened role for voluntary disclosure choices.

This study makes several contributions both to theory and practice. Firstly, empirical evidence is provided that complements the theoretical studies exploring the interplay between mandatory and voluntary disclosure (Einhorn, 2005; Bagnoli & Watts, 2007). Empirical studies on this relationship have focused on the quality of financial reporting vs. other supplementary information (Francis et al., 2008; Mouselli et al., 2012; Hui et al., 2009). However these disclosures are different in scope, subject, timing and other characteristics. The novelty of this study is to examine the interplay between mandatory and voluntary disclosure choices, by looking at the same type of information (i.e. the overall company exposure at risk). It is documented that, on average, firms use voluntary risk disclosure to complement information mandated by the law. However, when a great portion of the firm's value variance is already explained by information mandated by the law, firms stop providing voluntary risk information since proprietary costs overcome benefits coming from a further reduction in the information asymmetries.

Furthermore, this study contributes to the literature on risk disclosure, by analyzing the influence of both firm-level and country-level incentives for the manager decision to provide additional risk information, and whether they play a role above and beyond the influence of mandatory risk disclosure. Despite the recent increase in risk reporting research, existing studies focus on firm-specific determinants of risk disclosure such as the sector type, size, leverage (Abraham & Cox, 2007; Beretta & Bozzolan, 2004; Linsley & Shrivess, 2006) or governance characteristics related to the board size, board independence and audit committee size (Elzahar & Hussainey, 2012). It is added to this literature the analysis of the role of external monitoring by the institution, along with the internal monitoring provided by the board of directors,



and the potential for a substitution between them. Doing so is also a contribution to an emerging literature on the interplay between internal and external governance mechanisms and their influence on corporate transparency (Durnev & Kim, 2005; Cheng & Courtenay, 2006; Doidge et al., 2007; Berretta et al., 2010).

Additionally, previous studies on risk reporting generally focus on a single country such as UK (Linsley & Lawrence, 2007; Elzahar & Hussainey, 2012), Italy (Berretta & Bozzolan, 2004) or Malaysia (Amran et al., 2009). Conversely, this study is one of the first that provides international evidence for a sample of EU firms. Furthermore, it focuses on a particularly sector (the Oil&Gas industry) for which risk disclosure arises as a focal issue due to the uncertainty and the turbulence of their information environment and the high demand for information on factors affecting the current and future firm profitability.

The results also have non-negligible practical contributions. The evidence of a close relationship between mandatory and voluntary disclosure, that changes according to the level of mandatory disclosure may support investors when evaluating firms' voluntary disclosure or non-disclosure decisions. Furthermore, the documented incentive effect of board-based monitoring on voluntary disclosure that varies across institutional regime, informs investors on the corporate governance features that affect firm transparency, and their relative importance according to the firm's country of origin. Finally, this study's evidence provides regulators and policy makers with useful knowledge in order to design new mandatory disclosure regulation in light of their impact on voluntary disclosure decisions.

The study proceeds as follows. The next paragraph provides the theoretical background and develop hypotheses. The third paragraph illustrates the data and methodology used to verify this prediction. The forth paragraph discusses the results, while the fifth concludes the study presenting its limitation and the direction for future research.

## **2. Theoretical background and hypotheses**

### ***2.1 The role of mandatory disclosure for voluntary disclosure***



Firms have incentives to voluntarily disclose more information due to the benefits coming from high level of transparency. Voluntary disclosure theories typically agree on that one of the main benefits from making voluntary disclosure is mitigating information asymmetry among traders, thus leveling the playing field in the capital market. In line with this prediction most prior empirical research explores the relation between disclosure levels and capital market outcomes. For instance, high disclosure is associated with less information asymmetry (Coller & Yohn, 1997), greater stock liquidity (Healy et al., 1999), lower cost of equity capital (Botosan 1997; Diamond & Verrecchia, 1991) as well as the interest cost of issuing debt (Segupta, 1998). Furthermore, disclosure by lesser known firms enlarges investor base by attracting more U.S. institutional investors (Bradshaw et al., 2004) and mutual funds (Aggarwal et al., 2005), which in turn improves the level of risk sharing in the economy (Leuz & Wysocki, 2008).

Although voluntary disclosure plays a pivotal role for the capital market efficiency, it is also costly for the firm. In addition to the costs of developing and presenting financial information (that occurs either for mandatory or for voluntary disclosure) firms that voluntarily disclose information may also incur in proprietary costs due to the lost of competitive advantage or the higher exposure to regulatory oversights. Early literature on segment reporting provides evidence consisting with the idea that disclosures of profitable segments entail significant proprietary costs (Darrough & Stoughton, 1990; Wagenhofer, 1990; Gigler, 1994; Hayes & Lundholm, 1996; Berger & Hann, 2003). For instance, competitors may use the information disclosed by the firm to change their product plans (Lev, 1992; Darrough, 1995) imposing on the firm a reduction in future cash flows (proprietary cost) (Dye, 1990). Other than proprietary costs, firms also consider litigation costs in making their disclosure decisions. Some studies point out that managers pre-disclose bad news to reduce the threat of shareholder litigation (Skinner, 1994). However, litigation risk may also dampen managers incentive to voluntarily provide some type of information such as forward-looking disclosure (Healy & Palepu, 2001).

Due to both positive and negative sides of voluntary disclosure decision, firms trade-off between benefits coming from a reduction in the information asymmetries and costs of revealing proprietary information (Leuz & Wysocki, 2008). However, as



voluntary disclosure is part of the overall disclosure strategy, firms may communicate with external shareholders also through mandated disclosures (Healy & Palepu, 1995). As a consequence, mandatory disclosure strategies may alter the trade-off between benefits and costs of producing voluntary information, thus affecting the voluntary disclosure decisions.<sup>92</sup> More specifically, mandatory information might reduce the part of the firm value variance being unexplained by the market, thus lowering the net benefits of providing additional proprietary disclosures (Bagnoli & Watts, 2007). Several empirical studies indicate that mandatory and voluntary disclosure may substitute each other. For instance, Healy & Palepu (2001) claim that when mandatory disclosure is imperfect managers use voluntary disclosure to communicate their private information to investors. Chen et al. (2002) find that managers voluntarily disclose balance sheets information along with quarterly earnings announcements only when current earnings are relatively less informative, in response to the investor demand for information to supplement poor earnings. Hui et al. (2009) show that high levels of earnings conservatism reduce the information asymmetries between firms and their shareholders, thus leading to a lower management forecast activity.

Nevertheless, the nature of the relationship between mandatory and voluntary disclosure is far from being clear, and gives rise to a debate that dates back to theoretical studies on voluntary disclosure. One strand of this literature argues that high information asymmetries between managers and shareholders generate a demand for increased voluntary disclosure, as the value of new information is higher in such a setting (Grossman & Hart, 1980, Milgrom, 1981; Verrecchia, 1983). Therefore, firms with a low level of mandatory disclosure would increase voluntary disclosure in order to mitigate the information asymmetries between managers and shareholders (Francis et al., 2008). It follows that the relationship between voluntary and mandatory disclosure is a substitutive one, since the former compensate for the latter (Imhoff, 1978; Cox, 1985; Waymire, 1985). However, another strand of

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<sup>92</sup> Beyer et al. (2010) point out that the information environment is complex and can be shaped by both mandatory and voluntary disclosure as well as information provided by third parties. Even though it is recognized that third party information plays a pivotal role in shaping the information environment, in the following the focus will explicitly be on mandatory and voluntary information disclosed by the firm to the market.



literature underlines that in context of poor mandatory disclosure, additional voluntary information will not be evaluated as credible by investors (Lung & Lundholm, 1993). Thus, the likelihood of disclosure increases only when the information quality increases. In such a setting, the market will interpret non disclosure as bad news discounting the firm's value (Francis et al., 2008). This leads to a complementary relationship between mandatory and voluntary disclosure (Mouselli et al., 2012).

Nevertheless, these two views are not necessarily at the odds. In her theoretical study about the interplay between mandatory and voluntary disclosure, Einhorn (2005) suggests that there is a non-monotonic relationship between mandatory and voluntary information, whereas mandatory disclosure affects and may reverse voluntary disclosure policies. Drawing upon Einhorn's findings (2005), it is anticipated the existence of a non-monotonic relationship between them. Specifically, it is argued that the nature of the interaction between mandatory and voluntary disclosure strategies varies according to the level of mandatory information. At a low level of mandatory disclosure, a complementary relationship is expected. Firms with poor mandatory disclosure will also provide low voluntary information due to the lack of credibility. When the level of mandatory disclosure increases, this creates an environment in which firms may credibly convey their additional private information, increasing the likelihood of voluntary disclosure. However, it is predicted that this positive relationship occurs up to a threshold in which it starts reversing. When the level of mandatory disclosure goes above a threshold, the credibility issue tends to disappear, while firms' concern on proprietary cost becomes much more relevant. In such a setting, as a big portion of the firm's value is already explained by mandatory disclosure, the benefits of providing additional information start decreasing, while the cost does not. It follows that managers may decide not to disclose additional voluntary information to the market, leading to a negative relationship between mandatory and voluntary disclosure.

Formally, these two hypotheses are predicted:

*HP<sub>1a</sub> Ceteris paribus, at a low level of mandatory disclosure firms use voluntary disclosure to complement mandatory information*



*HP<sub>1b</sub> Ceteris paribus, at a high level of mandatory disclosure firms use voluntary disclosure to substitute mandatory information*

## ***2.2 The influence of firm- and country-level incentives on voluntary disclosure***

Voluntary disclosure strategies depends not only on the extent to which mandatory disclosure affects the trade-off between benefits and costs of voluntary disclosure, but also on the incentives facing managers when disclosing additional information (Core, 2001). The focus is on two dimensions of reporting incentives: (i) firm-level features (ii) country-level institution, as results from prior studies establish a role for both factors in shaping firms disclosure strategies. The first set of incentives relates to the internal corporate governance system, in particular to the characteristics of the board of directors, while the second concerns the role of external control mechanism (e.g. institutional regime).

Although firms may rely on several corporate governance mechanisms, the existing literature agrees on that one of the most influential internal control mechanism is the monitoring provided by the board of directors and the audit committee. The role of board of directors for corporate disclosure has been extensively examined in relation to mandatory disclosure (Dechow et al., 1995; Peasnell et al., 2000; Beekes et al., 2004; Healy & Palepu, 2001), while its impact on voluntary disclosure has received increased attention only in the last years (García-Meca & Sanchez-Ballesta, 2010).

According to the agency theory, the board of directors performs a monitoring function over the quality of disclosure, helping reduce the information asymmetries between managers and shareholders and limiting the potential for opportunistic behaviour (Jensen & Meckling, 1976). As voluntary disclosure is selective, unregulated and unaudited, opportunistic managers may have incentives to manipulate or distort such information for their personal interest. Management may conceal or not disclose negative organizational outcomes during their tenures (Harrison & Harrell, 1993). Sometimes, managers deliberately hide negative financial data to avoid alarming stockholders and bankers or to trade on withheld private information. Therefore, the board of directors provides an “internal monitoring package” that reduces the possibility for managers to engage in self-



serving behaviour, at the same time forcing them to disclose additional information. According to this view, both board of directors and voluntary disclosure are complementary mechanisms of accountability aiming at reducing the information asymmetries and the agency costs (Cerbioni & Parbonetti, 2007). This gives rise to a positive association between board of directors monitoring and voluntary disclosure, which finds largely empirical support (Cheng & Courtenay, 2006; Li et al., 2008).

However, evidence also exists on the opposite pattern. Eng & Mak (2003) find that as the proportion of outside directors in the board increases, firms tend to reduce the amount of voluntary disclosure. Barako et al. (2006) and Gul & Leung (2004) also document a negative relationship between board independence and voluntary disclosure. These latter studies point out the substitution effect between board of directors and corporate disclosure. The underlying rationale is that, as voluntary disclosure is costly, firms may prefer to reduce the information asymmetries by improving other internal corporate governance mechanisms. In such a setting the internal corporate governance system provides investors with a “warranty” that substitutes disclosure in its role of reducing information asymmetries and the agency costs. Despite the potential for substitution, Cerbioni & Parbonetti (2007) suggest that in the presence of a strong demand for information on critical aspect of a firm’s activities and future performance, firms seek to satisfy this demand by disclosing additional value-relevant information, to prevent investors from interpreting nondisclosure as “bad news”. Moreover, Patelli & Prencipe (2007) point out that effective board of directors (as measured by the board independence) and voluntary disclosure tend to coexist since the existence of either of the two mechanisms attenuates the costs the firm bears to introduce the other. According to this view and in line with the well documented complementary hypothesis between disclosure and corporate governance, a positive association is predicted between board monitoring and voluntary disclosure.

*HP<sub>2</sub> Ceteris paribus, voluntary disclosure is increasing in the level of board monitoring*

The second set of incentives derives from the features of the institutional environment. The focus is particularly on characteristics of the regulatory and



enforcement regime as an external control mechanism that can shape managerial incentives in providing voluntary information (LaPorta et al., 1998).

Disclosure literature has largely recognized the role of the legal/judicial regime for corporate transparency. Ball (2001) suggests that corporate disclosure practices evolve as a function of the country's economic, legal, and political infrastructure. In the context of mandatory disclosure Burgstaler et al. (2006) argue that institutional factors and market forces shape firms' incentives to report earnings that reflect the underlying economic performance. In accordance, a large number of studies document that common law countries have a high level of transparency relative to the civil law countries (Jaggi & Low, 2000). For instance, Ball et al. (2000a) show that financial reporting quality (as proxied by the earnings timeliness) is higher in East Asian countries with more market-oriented reputation than countries with strong political influence on financial reporting practices. Similarly, Ball et al. (2000b) document that in shareholder-oriented corporate governance system accounting income is significantly more timely than in stakeholder-oriented system.

Nevertheless, the influence of institutional environment on voluntary disclosure practices is much less clear. Hope (2003) predicts that the level of enforcement of accounting standards is positively associated with the analyst forecast accuracy. Francis et al. (2003) argue that a strong regulatory and enforcement regime creates an environment of higher credibility that enhances firms incentive to voluntarily disclose additional value-relevant information. Furthermore, countries with strong investor protection, having institutional features that are typical for "outsider economies", are characterized by higher demand for public disclosure, as investors are "arm's length" and do not have any privileged access to information (Leuz, 2010). As a consequence, managers are forced toward more transparent disclosure practices (Bushman et al., 2004). On the contrary, in countries with weak investor protection managers have low incentives to provide costly voluntary disclosure due to the lower demand and credibility of public disclosure.

Moving from these arguments it is predicted that an increasing strength of the regulatory and enforcement regime (i) creates an environment of higher credibility for voluntary disclosure, (ii) increases the demand for public disclosure channel to



reduce information asymmetries. Both these factors enhance firms incentive to voluntarily disclose additional value-relevant information. Therefore, a positive relationship is predicted between the strength of regulatory regime and voluntary disclosure.

*HP<sub>3</sub> Ceteris paribus, voluntary disclosure is increasing in the strength of regulatory and enforcement regime.*

### ***2.3 The interaction between firm- and country-level incentives***

As a further element of this analysis, this study examines the interaction between incentive deriving from internal vs. external monitoring and their impact on disclosure strategies. This is done following the suggestion of Denis & McConnell (2003) and Carcello et al. (2011). They call for studying the interrelationships between external and internal corporate governance mechanisms in order to provide a better picture of their functioning and their related outcome. The existence of such interrelationships is largely documented by the existing literature. For instance, Doidge et al. (2007) show that country characteristics (e.g legal protections for minority investors and the level of economic and financial development) influence firms' incentives in improving their own governance and transparency more than observable firm characteristics. Leuz et al. (2003) show that earnings management decreases with the degree of investor protection provided by a country's institutional and legal framework. Durnev & Kim (2005) argue that firms have incentives to improve their governance practices in countries with weaker legal frameworks. In their empirical examination they also document that ownership concentration appears to be a more important tool to solve agency conflict between controlling and minority shareholders when investor protection is weaker. According to their findings, it seems that firms tend to compensate the inefficiency of the legal regime (as an external governance mechanism) by establishing more efficient governance practices.

It follows that differences in the institutional environment are likely to influence also the role and the functioning of the board of directors as internal monitoring device



over voluntary disclosure practices. Particularly, in line with the augment of Durnev & Kim (2005), it could be observed that where regulatory regime ensures a strong protection of outside investors, there is less need for other internal control mechanisms that constraint managerial opportunistic behaviour. However, the relationship between internal monitoring and regulatory environment is still under-explored and the existing studies report conflicting result. For instance, Cheng & Courtenay (2006) suggest that in a regulatory environment that encourages enhanced transparency and disclosure, independent directors are likely to promote higher levels of managerial disclosure to advance their reputation. According to their view, board monitoring over voluntary disclosure is higher in countries with strong regulatory and enforcement regime. Nevertheless, Berretta et al. (2010), analyzing the Internal Control System disclosure for a sample of EU firms, report opposite evidence. They suggest that, in countries where ICS disclosure is enforced by the law, managers have incentive to disclose the minimum level of information to comply with the regulation when the board monitoring is strong. As a consequence, they predict (and find) a negative relationship between board monitoring and ICS disclosure. Their result gives support to the substitution hypothesis among alternative monitoring mechanisms (Williamson, 1984), providing evidence consisting with the idea that board monitoring of management's voluntary disclosure is lower under a strong regulatory regime.

Given these mixed evidence, it is recognized that differences in regulatory and enforcement regime may shape the relationship between board monitoring and voluntary disclosure, and the following non directional hypothesis is formulated:

*HP<sub>4</sub> Ceteris paribus, the strength of regulatory and enforcement regime moderate the relationship between board monitoring and voluntary disclosure*

So far, features of the institutional setting have been hypothesized to affect the relationship between board-based monitoring and voluntary disclosure. However, the differences across countries also reflect themselves on the provision of information that are mandated by the law. Consistent with this view, there is a well established literature suggesting that in common law countries the quality of mandatory financial reporting is higher than in the civil law countries due to the prevalence of “market



forces” (i.e. the amount of publicly traded equity, the size of the market, the extent of the private versus public contracting) relative to the “political forces” (Ball et al., 2000a; Ball et al., 2003; Guenther & Young, 2000; Jaggi & Low, 2000; Francis et al., 2003). If countries with strong regulatory and enforcement regime have a higher level of compliance to mandated disclosure, and lower level of information asymmetries, this in turn can reduce the variability across firm-specific mandatory disclosures, affecting the trade-off between benefits and costs of voluntary disclosure. For this reasons, it is anticipated that the regulatory and enforcement regime may also have a moderating role on the interplay between mandatory and voluntary disclosure. However, given the lack of robust theory and evidence on the nature of such a relationship, the following non-directional hypothesis is posited:

*HP<sub>5</sub> Ceteris paribus, the strength of regulatory and enforcement regime moderate the relationship between mandatory and voluntary disclosure*

### **3. Research Method**

#### ***3.1 Sample selection and data source***

In order to explore the nature of interaction between mandatory and voluntary disclosure and the influence of firm- and country-level incentives, an analysis of risk disclosure provided by EU Oil&Gas companies in the fiscal year 2010 is conducted.

Firstly, the focus is explicitly on risk disclosure for the Oil&Gas industry because it provides an interesting setting for studying the interplay between mandatory and voluntary disclosure with reference to the same type of information (information on the company’s risk profile). In the EU context the disclosure on company risks is not fully regulated. Besides the information on financial risks (i.e. information on risk arising from the change in the value of financial instrument displayed in the balance sheet) which are mandatory, there are also other information on non financial risk factors (environmental factor, political factor) that are still not regulated, at least for the timespan of this analysis. Despite the US setting, firms from the EU countries are only encouraged to disclose information on non-financial risk by several guidances (e.g. GRI-Reporting, Carbon Disclosure Project). Therefore, managers have great



discretionality on the type, the form, the width and the depth of information to disclose, as it is confirmed by the large variance of disclosures practices across companies, industries and years (Carbon Disclosure Project - Global 500, 2010). Thus, this setting is exploited in order to get measures of voluntary as well as mandatory information related to the overall company's risk exposure.

Secondly, it was chosen to analyze risk disclosure for one industry only, because different industries are likely to display different patterns in disclosure strategies. Therefore, this study preferably focuses on a sample with sufficient within-industry variability, for which the use of a single measure of disclosure quality seems to be appropriate. For this reason, the Oil&Gas industry is selected, that is a global sector with similar environment across countries. Thus, any difference in disclosure practices among firms is likely to be attributed either to firm-specific characteristics (e.g. managers incentive) or to country factors (e.g. disclosure regime, regulatory and enforcement regime). The Oil&Gas industry is also interesting from a disclosure point of view. For these companies risk disclosure arises as a focal issue due to uncertainty and turbulence of the inherent environment and the high stakeholders' demand for transparency in their financial report.

Finally, according to previous study on voluntary disclosure, the analysis is limited to one year only, since firms disclosure choices appear to be relatively constant over time (Botosan, 1997). Thus, the attention is turned to the fiscal year 2010 because it is recent enough to ensure reasonable access to companies' report.

Table 1 shows the sample selection procedure.

***Table 1. Sample selection***

	<i>Freq.</i>
COMPUSTAT GLOBAL 2010	30573
	(29582)
OIL&GAS COMPANIES	991
	(835)
IFRS ADOPTERS	156
	(45)
FINAL SAMPLE	111

Table 1 reports the sample selection procedure. Oil&Gas companies are selected by the following two-digit SIC code: 1311-1381-1389-2911. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010.



The initial sample comprises all companies from COMPUSTAT GLOBAL Dataset. Next, companies operating in the Oil&Gas industry are selected by using the two-digit sic code classification (1311-1381-1389-2911). Then companies are eliminated that are listed in Stock Market other than EU and the EU companies that do not apply IFRS. Finally, companies are eliminated that do not provide an English version of their annual report and the ones with missing data for the financial and governance variables. The total number of companies included in the final sample is 111 belonging to 14 different EU countries (Table 2). Even though the composition of the sample reflects the geographical distribution of Oil&Gas companies in 2010, it should be noticed that UK and Norwegian companies account for the majority of the sample. This could affect the results because either corporate governance or enforcement level varies across EU countries (Cerbioni & Parbonetti, 2007).

***Table 2. Sample firms by countries of origin***

<i>Countries</i>	<i>Freq.</i>	<i>Percent</i>	<i>Cum.</i>
AUSTRALIA	6	5.41	5.41
AUSTRIA	2	1.80	7.21
SWITZERLAND	1	0.90	8.11
DENMARK	1	0.90	9.01
FINLAND	1	0.90	9.91
FRANCE	3	2.70	12.61
UNITED KINGDOM	55	49.55	62.16
GREECE	2	1.80	63.96
IRELAND	5	4.50	68.47
ITALY	4	3.60	72.07
NETHERLANDS	1	0.90	72.97
NORWAY	25	22.52	95.50
PORTUGAL	1	0.90	96.40
SWEDEN	4	3.60	100.00
<b>Total</b>	<b>111</b>	<b>100.00</b>	<b>100.00</b>

Table 2 reports the sample distribution by countries of origins. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010.

### ***3.2 Measuring voluntary and mandatory disclosure***

#### ***Voluntary disclosure index***

To measure voluntary disclosure this study relies on a self-constructed index which is sufficiently narrow to distinguish between mandatory and voluntary risk disclosure



(Botosan, 1997; Francis et al., 2008)<sup>93</sup>. To get the disclosure indices a manual content-analysis on companies' annual report for the fiscal year 2010 is performed.

Content analysis is a well-established method in social sciences to investigate the features of narrative disclosure (Krippendorff, 1980). This methodology has been chosen because it allows to effectively classify a large amount of qualitative risk data in categories of voluntary and mandatory information defined consistently with this framework of the analysis (Lajili & Zeghal, 2005). One advantage of self-constructed indices based on content analysis of financial reports is that, unlike an analyst's subjective assessment of disclosure, they are less biased. However, as manual content-analysis is labour intensive, this choice comes at the cost of limited sample size due to the difficulty of constructing a database of disclosure rankings for a large sample of firms. The limitation of this choice is acknowledged in terms of generalizability of the results and subjectivity in the scoring. However, in order to keep those factors to a minimum, this study adopts a very straightforward coding schema and performs several tests to assess the internal as well as external consistency of disclosure indices. Moreover, to reduce the variability across coders, and improve the overall reliability of the disclosure indices, the coding process has been entirely realized by the author<sup>94</sup>.

According to existing research on disclosure this study analyzes disclosure in annual reports because they are the official public documents and are considered the most important source of a company's information by external users (Lang & Lundholm, 1993). Additionally, they are the only source containing a complete picture of risk factors that have affected the companies activity during the year. Therefore, they are the most suitable documents to analyze firms mandatory and voluntary risk disclosure strategies. The electronic version of annual reports from companies

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<sup>93</sup> As this study is interested in analyzing the interplay between voluntary and mandatory disclosure of information that share a common signal (risk), other voluntary disclosures such as conference call, press release and other interim reporting are ignored. However, this study attempts to control for these additional disclosures using proxy for firm size.

<sup>94</sup> To ensure reliability of the coded output, the coder first undertakes a deeper examination of different examples of the various types of risk information in companies report, then he/she performs a pilot analysis over a small sub-sample of companies in order to validate the checklist and the decision rules.



websites is downloaded and the focus is on a section that provides direct and indirect information on the company risk exposure.

Previous literature adopt a variety of recording units (i.e. word, sentence, theme) to identify and code the information examined. Information is selected as coding unit, because it can avoid problems of counting the number of the word/sentence in annual translated from original languages with different styles of writing. Annual reports were read and risk disclosure information identified, according to the widely adopted Linsley & Shrives's (2006) definition of risk. The information identified were then separated and coded according to whether it is a voluntary or a mandatory disclosure. This study considers information on financial risk factors as mandatory disclosure, since it is required and regulated by the IFRS 7. On the contrary, information on non-financial risk factors can be considered as voluntary disclosure. Therefore, the measures of voluntary disclosure are the self-constructed indices that capture the quality of disclosure of risk information referring to non-financial risk factors.

***Table 3. Classification of non-financial risk***

<b><i>COMPLIANCE &amp; CONTROL RISK</i></b>	<b><i>STRATEGIC RISK</i></b>	<b><i>OPERATIONAL RISK</i></b>	<b><i>ENVIRONMENTAL, HEALTH &amp; SAFETY RISK</i></b>
Ethical misconduct	Industry	Product Quality	Climate change
Regulatory	Stakeholder engagement	Human Resources	Health & Safety
Litigation risk	Reputation	Product Development	Environmental
Legal	Brand name erosion	Efficiency	
Tax	Third parties dependence	Capacity	
	Pricing	Performance gap	
	Competition	Sourcing	
	Political	Obsolescence/shrinkage	
	Geographical	Business interruption	
	Capital availability	Infrastructure	
	Management of growth	Product/service failure	
	Reserves replacement		
	Catastrophic loss		

Table 3 reports the classification of non-financial risk, our proxy for voluntary disclosure. Information about non financial risk factors is assigned to one type of risk and then classified in one of the four categories of non-financial risks. the categories and types of risks are specified following the Arthur Andersen Business Risk Model, modified according to specific features of the business model of our sample firms.



Particularly, any information on non-financial risk factors is classified according to 4 sub-categories developed in accordance to previous studies (Arthur Andersen Business Risk Model) and showed in Table 3<sup>95</sup>.

In order to capture the quality of voluntary non financial risk disclosure a 4-point scale is used. To each item of information on non-financial risk factors identified, a score of 0 is assigned if firms provide no disclosure; 1 if firms provide a general description of non-financial risk factors (minimum coverage); 2 if firms provide a description of non-financial risks and commentary on action taken to mitigate the risks (sufficient); 3 if firms provide extensive information consisting in a detailed description of non-financial risk factors, a risk commentary on action taken accompanied by an assessment of the risks and/or quantitative risk information and/or changes over the year (extensive).<sup>96</sup> Appendix B Panel A provides an example of coding process for non financial risk disclosure.

A partial index ( $NF\_SCORE_j$ ) is computed by dividing the score for the observed disclosure in any category  $j$  of non financial risk factor ( $NF_j$ ) to the maximum score to be assigned to the category  $j$  ( $max\_NF_j$ ) as follows:

$$NF\_score_j = \frac{NF_j}{max\_NF_j}$$

where:

$$NF_j = \sum_{k=1}^n score_k * item_k$$

$$max\_NF_j = \sum_{k=1}^n max\_score_k * tot\_item_k$$

$score_k$  = assigned score to the item  $k$ ;

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<sup>95</sup> Appendix A Panel A provides further details on coding rules while Panel B presents detailed classification and definition of non-financial risks.

<sup>96</sup> Given the voluntary nature of non-financial risk disclosure, to define the coding scheme all the relevant section of the annual report is first read and the type of non-financial risk information provided by sample companies is identified. Then, the information disclosed is categorized using a 4-point scale. As a consequence, the coding schema turns out to be appropriate to classify all the possible disclosure strategies adopted by sample firms.



$item_k$ = specific type of risk disclosed within the category  $j$  of non financial risk;

$max\_score_k$ = maximum score to be assigned to the items;

$tot\_item_k$ = total items within the category  $j$  of non financial risk.

To obtain the final proxy for voluntary disclosure on non-financial risk for company $_i$  (NF\_SCORE $_i$ ) the partial scores for each category are summed as follows:

$$NF\_score_i = \sum_{j=1}^4 NF\_score_j / 4$$

### *Mandatory disclosure index*

To proxy for mandatory disclosure this study relies on information on financial risks that firms are required to disclose in their annual report. In accordance with the measurement of the voluntary disclosure, the measure of mandatory disclosure is obtained by performing a content analysis of the audited section of firms' annual report (footnotes). Still adopting the information as coding unit, the Linsley & Shrive's (2006) definition of risk, it is followed a coding schema similar to the IFRS check-list (E&Y). Therefore, information on financial risk is classified according to one of the categories identified by the IFRS 7 (credit risk, liquidity risk, market risk) and showed in APPENDIX A Panel C<sup>97</sup>.

For any item required by IFRS 7, 1 is assigned if the information is disclosed and 0 otherwise. The same weight is assigned to the qualitative and the quantitative information as they are both compulsory and strictly regulated by the most recent versions of the accounting standard. For each category of financial risk  $j$  a partial coverage score (F\_SCORE $_j$ ) is computed capturing the relative amount of items  $k$  disclosed as the sum of the items disclosed ( $item_k$ ) related to the total amount of relevant items ( $tot\_item_k$ )<sup>98</sup>.

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<sup>97</sup> This study refers to the version of IFRS 7 that includes amendments resulting from IFRSs issued up to 31 December 2009 since the sample period includes annual reports published in 2010 fiscal year end. This study also considers the amendments to IFRS 7 occurred during the sample period, and accounts for any differences in the risk information required.

<sup>98</sup> As relevant items all the item required by IFRS 7 are considered unless the company explicitly says that they are irrelevant/unrepresentative.



$$F\_score_j = \frac{\sum_{k=1}^n item_k}{tot\_item_k}$$

Then, the final proxy for mandatory disclosure on financial risk for company  $i$  ( $F\_SCORE_i$ ) is obtained as the sum of the partial scores for each category as follows:

$$F\_score_i = \sum_{j=1}^3 F\_score_j / 3$$

Appendix B Panel B provides coding examples for selected financial risk disclosures.

#### *Validity of voluntary and mandatory disclosure indices*

As discussed in the previous section this study relies on self-constructed disclosure indices to capture the cross-sectional variation of voluntary as well as mandatory disclosure. However, given the degree of subjectivity and the potential for bias, it is necessary to perform various tests in order to assess their internal as well as external validity. Previous literature suggests that firm disclosure strategies are expected to be similar along all the disclosed items (Botosan, 1997). As a consequence, a correlation analysis among all the subcomponents of NF\_SCORE and NF\_SCORE is performed in order to examine their internal consistency. Panel A of Table 4 provides the results of correlation analysis for NF\_SCORE.

As expected, both the parametric and non-parametric correlation coefficient for all the sub-components of NF\_SCORE are highly correlated with each other and also with NF\_SCORE (p-value 10%), indicating that firms that tend to disclose more according to one type of risk factors, provide detailed information also over the other categories of non financial risks. Panel B in Table 4 reports the correlation analysis between the subcomponent of F\_SCORE and the summary score. Again, a high level of internal consistency is observed for the subcomponents of F\_SCORE as it is documented by the significance of both the Pearson and the Sperman correlation analysis.



**Table 4. Validation of disclosure indices**

<b>Panel A: Correlation between voluntary disclosure index and its sub-components</b>							
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>		
<b>A: NF_SCORE</b>		0.820*	0.867*	0.834*	0.867*		
<b>B: NF_SCORE_CC</b>	0.843*		0.715*	0.621*	0.626*		
<b>C: NF_SCORE_STR</b>	0.851*	0.710*		0.709*	0.637*		
<b>D: NF_SCORE_OPR</b>	0.735*	0.547*	0.726*		0.643*		
<b>E: NF_SCORE_EHS</b>	0.890*	0.623*	0.601*	0.474*			

<b>Panel B: Correlation between mandatory disclosure index and its sub-components</b>							
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
<b>A: F_SCORE</b>		0.832*	0.815*	-0.005	0.538*	0.565*	0.672*
<b>B: F_SCORE_CR</b>	0.844*		0.526*	-0.134	0.276*	0.358*	0.363*
<b>C: F_SCORE_LR</b>	0.829*	0.542*		-0.057	0.396*	0.325*	0.406*
<b>D: F_SCORE_IRR</b>	-0.019	-0.121	-0.024		-0.151	-0.109	0.229*
<b>E: F_SCORE_CUR</b>	0.627*	0.378*	0.411*	-0.146		0.462*	0.711*
<b>F: F_SCORE_PRR</b>	0.639*	0.395*	0.376*	-0.171*	0.586*		0.806*
<b>G: F_SCORE_MR</b>	0.723*	0.399*	0.446*	0.140	0.586*	0.847*	

<b>Panel C: Correlation between voluntary and mandatory disclosure index and firm-characteristics</b>							
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	
<b>A: F_SCORE</b>		0.252*	0.281*	0.590*	0.433*	-0.491*	
<b>B: NF_SCORE</b>	0.363*		0.058	0.306*	0.032	-0.312*	
<b>C: ROE</b>	0.102	0.045		0.490*	0.098	-0.492*	
<b>D: SIZE</b>	0.616*	0.514*	0.325*		0.618*	-0.689*	
<b>E: LEV</b>	0.174*	0.100	-0.376*	0.400*		-0.514*	
<b>F: SD_RET</b>	0.013	0.097	-0.066	-0.082	-0.287*		

Table 4 reports the results of the validity test for the self-constructed disclosure indices. Panel A tests the internal consistency of the index capturing mandatory disclosure on financial risk. Panel B tests the internal consistency of the index capturing voluntary disclosure on non-financial risk. Panel C tests the external consistency of both mandatory and voluntary disclosure indices. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010. NF\_SCORE\_CC is the partial disclosure index relative to the Compliance&Control Risk category. NF\_SCORE\_STR is the partial disclosure index relative to the Strategic Risk category. NF\_SCORE\_OPR is the partial disclosure index relative to the Operational Risk category. NF\_SCORE\_EHS is the partial disclosure index relative to the Environmental, Health&Safety Risk category. F\_SCORE\_CR is the partial disclosure index relative to the Credit Risk category. F\_SCORE\_LR is the partial disclosure index relative to the Liquidity Risk category. F\_SCORE\_IRR is the partial disclosure index relative to the Interest Rate Risk category. F\_SCORE\_CUR is the partial disclosure index relative to the Currency Risk category. F\_SCORE\_PRR is the partial disclosure index relative to the Price Risk category. F\_SCORE\_MR is the partial disclosure index relative to the Market Risk category. See Table 6 for other variables definitions. \* denotes significance at 10% level (two-tailed).

As second validity test for indices, this study explores the relationship between the level of disclosure and various firm characteristics. Panel C in Table 4 report the results of the correlation analysis between the summary indices and three proxies of firms financial and operating structure. In particular the firm size, the level of firm



profitability, the leverage and the degree of operating risk are considered. According to previous studies (Ahmed and Courtis, 1999), mandatory disclosure index is highly related to the firm size and leverage, while it exhibits a non significant correlation with the level of operating risk. On the contrary, the voluntary disclosure index is positively and significantly related with the size, whereas it shows a very weak correlation with the other measures of firms financial and operating structure.

In sum, the results of the previous tests confirm (i) the internal consistencies among the various components of NF\_SCORE as well as F\_SCORE, (ii) the significant correlations between the summary indices and various financial and operating firm characteristics. Therefore, this analysis suggests the validity of NF\_SCORE and F\_SCORE in capturing the mandatory and voluntary disclosure levels of firms risk disclosure.

### ***3.3 Measures of firm- and country-level incentives***

#### ***Board of directors' monitoring***

To capture the cross sectional determinants of voluntary disclosure, this study relies on a set of variables which proxy for firm level as well as country-level incentives. As firm-level incentive, the internal monitoring provided by the board of directors is analyzed. Board of directors holds the responsibility for setting objectives and controlling the firm's activities (Fama & Jensen, 1983). It has the duty to oversee management decision affecting the overall level of corporate transparency (Vafeas, 2000). In the agency framework the ability of the board monitoring to constrain the managers incentive to withhold and/or manipulate the information disclosed, mainly depends on board of directors characteristics (Zahra & Pearce, 1989) Following the existing literature, this study relies on seven board of directors' characteristics.

The first three proxies refer to the composition of the board of directors. They are (i) board size (ii) board independence and (iii) the number of directors serving multiple boards. The trade-off between having a large rather than a small board has been subject to considerable research effort (Armstrong et al., 2010). From one hand, smaller board is supposed to monitor more effectively because it is more cohesive and productive, while a board comprised of too many directors may experience



coordination costs and free-riding problems that prevent the effective monitoring on the financial reporting practices (Lipton & Lorsh, 1992; Jensen, 1993). From the other hand, larger boards may offer a better advice to the CEO due to the broader expertise of their members (Dalton et al., 1999). Coles et al. (2008) exploit this duality of views by examining whether one board size fits all. They conclude that the relationship between board size and firm value is U-shaped, because different firms have distinct optimal board size. In particular, complex firms (i.e. large, diversified and highly-leveraged firms) have larger boards than simple ones<sup>99</sup>. To examine how board size affects its monitoring on voluntary disclosure practices, the total number of directors sitting on the board (B\_SIZE) is computed. Following Coles et al. (2008) suggestions, this study also considers the squared of B\_SIZE (B\_SIZE2), as additional explanatory variable to capture the potential non linear relationship between board size and voluntary disclosure.

A second dimension of the board composition is the board independence (IND). Director independence is considered a key attribute for board of directors monitoring ability. Independent outside directors may bring a greater breadth of experience and are in a better position to control managers and protect the interests of other parties (Fama, 1980). They not only ensure a better monitoring over financial reporting process, but are also less aligned to managers, thus encouraging them to disclose additional information (Eng & Mak, 2003; Chen & Jaggi, 2000). The presence of independent directors has been related to management voluntary disclosure in a number of international studies (e.g., Ho & Wong, 2001; Chau & Gray, 2002; Haniffa & Cooke, 2002; Karamanou & Vafeas, 2005). Following this well grounded literature, board independence is measured as the proportion of independent directors on the board, and it is expected to be positively related to voluntary disclosure.

The third proxy is the presence of directors with multiple appointments (EXT), a condition often referred as interlocking directors or directors busyness. In the

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<sup>99</sup> Coles et al. (2008) go one step further and argue that the non-linear relation between board size and firm value is driven by differences between complex and simple firms, with Tobin's Q increasing in board size for complex firms, while decreasing in for simple firms. However, the examination of the reasons why either large or small boards are optimal goes beyond the scope of this analysis, this study just considers the potential for non-linear relationship between board size and voluntary disclosure, and include some controls for firm complexity (such as size and leverage) to take properly into account these aspects.



agency-related literature the role of interlocking directors is highly debated. Some studies argue that directors who serve on multiple boards develop reputational capital as experts and are therefore more experienced in their monitoring function (Fama & Jensen, 1983; Kosnik, 1987; Kaplan & Reishus, 1990; Shivdasani, 1993). However, other research points out the costs coming from directors' busyness, such as the lack of time and resources to effectively perform their duties (Fich & White, 2005; Fich & Shivdasani, 2006). It is not surprising that empirical analyses on the association between director interlock and corporate transparency also suggest conflicting results, with some reporting a positive association (Brickley et al., 1999), while others finding a negative one (Erickson et al., 2006; Bowen et al., 2008; Devos et al., 2009). As a consequence, the director interlock with the logarithm of the total number of external appointments for each board of directors is measured, but no directional hypothesis on its association with voluntary disclosure practices is formulated.

In addition to the board composition, attributes related to the board leadership, structure and competence are also measured. The board leadership refers to the combination in the same individual of the role of chairman of the board and the role of chief executive officer (D\_CEO). In the agency-centered theories this condition has been blamed for higher agency costs, lower board independence and ineffective monitoring (Ho & Wong, 2001). As a consequence, codes of best practice in corporate governance recommend the separation of these roles (Fama & Jensen, 1983). The concentrated decision making power resulting from CEO duality could also have an adverse effect over corporate transparency, reducing the board's ability to execute its oversight on the dissemination of corporate information to outsiders (Finkelstein & D'Aveni, 1994; Gul & Leung, 2004). Thus, a negative relationship between CEO duality and voluntary disclosure is predicted.

The proxy for the board structure is the provision of a specific audit committee. The board may appoint various sub-committees to whom delegate various activities in order to enhance its overall monitoring ability. However, the audit committee is the most important in ensuring the oversight over the firms' financial report and internal control. In addition, when there is no formal risk committee, the audit committee should assess the risk management in place, identifying and managing financial and



non financial risks in the company. As the presence of the audit committee is almost widespread among all companies, being required by the existing corporate governance codes and best practices, the monitoring ability of the audit committee is measured with the logarithm of the number of directors sitting in the audit committee (AC\_SIZE) that is expected to be positively related with voluntary disclosure (DeFond et al., 2005).

As final dimension of the board monitoring ability the board competence that refers to overall expertise of the board of directors in accounting and finance area (B\_FE) is captured. Directors with a background in public accounting, auditing, or financial operation have more technical knowledge and higher expertise with regard to monitoring and advising financial reporting and disclosure issues. They are more aware of their formal responsibilities and may also lead to a greater cooperation between the internal and the external auditor, which in turn enhance the overall firm's transparency. Several studies have found that directors expertise is associated with measures of financial reporting quality such as lower earnings management (Carcello et al., 2010; Dhaliwal et al., 2010) and higher accounting conservatism (Krishnan & Visvanathan, 2008). In the light of the previous discussion, the board expertise is also expected to be positively related with the level of voluntary disclosure, as financial and accounting experts are more familiar with accounting and disclosure practices.

Given the absence of specific European rules to identify the expertise of directors, this study relies on classification criteria similar to the ones defined by the SEC rules in the US context, in order to keep the subjectivity of this coding to the minimum. Each board member biography is read and director is classified as accounting/financial expert according to the classification criteria. Specifically, a board member is considered to be an accounting/financial expert if she/he has experience as public accountant, chief accounting officer, auditor CFO, controller or former CEO of a for-profit organization. The proxy of board of directors competence is the logarithm of the number of directors with accounting/financial expertise.

#### *Country-level institution*

To explore the effect of country-level incentives on disclosure policies, some



features of the institutional framework are taken into account that can shape the level of internal monitoring provided by the board of directors.

The characteristics of the institutional environment are multidimensional, including the strength of countries' securities regulation, enforcement, capital market development, investor protection, disclosure and transparency of reporting practices. However, it has been noticed that these aspects are highly correlated because they all reflect the same degree of the underlying quality of investor protection in a country (Rossi & Volpin, 2004).

Leuz (2010) has recently performed a cluster analysis of 31 countries suggesting that there exist three institutional clusters with similar institutional features related to the level of securities regulation, investor protection and legal enforcement systems (Leuz, 2010). Therefore, the role of regulatory and enforcement regime for the level of firms transparency is exploited by relying on the country-cluster classification proposed by Leuz (2010). In particular, this study follows the grouping of European countries into Leuz's three country-clusters (2010) as outlined in Table 5 panel A<sup>100</sup>.

***Table 5. Cluster membership***

<i>Panel A: Cluster membership using regulatory and market outcome variables</i>		
<i>Cluster 1</i>	<i>Cluster 1</i>	<i>Cluster 1</i>
AUSTRALIA	AUSTRIA	ARGENTINA
CANADA	BELGIUM	BRAZIL
HONG KONG	CHILE	COLOMBIA
ISRAEL	DENMARK	ECUADOR
MALAYSIA	FINLAND	EGYPT
SINGAPORE	FRANCE	INDONESIA
UNITED KINGDOM	GERMANY	JORDAN
UNITED STATES	GREECE	KENYA
	INDIA	MEXICO
	IRELAND	NIGERIA
	ITALY	PAKISTAN
	JAPAN	PERU
	KOREA (SOUTH)	PHILIPPINES

<sup>100</sup> This study refers to the country-cluster membership using regulatory and market outcome variables as reported in Panel B of table 3 pg. 243 Leuz (2010).



## CHAPTER TWO

	NETHERLANDS	SRI LANKA			
	NEW ZEALAND	THAILAND			
	NORWAY	TURKEY			
	PORTUGAL	URUGUAY			
	SOUTH AFRICA	VENEZUELA			
	SPAIN	ZIMBABWE			
	SWEDEN				
	SWITZERLAND				
	TAIWAN				
<hr/>					
<i>Panel B: Cluster membership of sample firms</i>					
<hr/>					
<i>Outside economies with strong regulatory and enforcement (INST=1)</i>		<i>Inside economies with weak regulatory and enforcement (INST=0)</i>			
	<i>Freq.</i>	<i>Percent</i>		<i>Freq.</i>	<i>Percent</i>
AUSTRALIA	6	9.09	AUSTRIA	2	4.44
UNITED KINGDOM	55	83.33	SWITZERLAND	1	2.22
IRELAND	5	7.58	DENMARK	1	2.22
			FINLAND	1	2.22
			FRANCE	3	6.67
			GREECE	2	4.44
			ITALY	4	8.89
			NETHERLANDS	1	2.22
			NORWAY	23	55.56
			PORTUGAL	1	2.22
			SWEDEN	4	8.89
<i>TOT</i>	<i>66</i>	<i>100</i>		<i>45</i>	<i>100</i>

Table 5 reports the distribution of firms according to the Leuz's (2010) country-cluster classification. Panel A provides the results of the cluster analysis using three institutional variables (securities regulation, investor protection and enforcement) and three financial development variables from Djankov et al. (2008) (i.e. the ratio of stock market capitalisation held by small shareholders to GDP, the ratio of the number of domestic firms listed in a given country to its population, and the ratio of equity issued by newly-listed firms in a given country to its GDP). Panel B provides the partition of our sample firms using the indicator variable INST. Firms belonging to the Cluster 1 are assigned a value of INST equal to one; firms belonging to the Cluster 2 are assigned a value of INST equal to zero. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010.

According to Leuz (2010) the first cluster is interpreted as composed of countries having institutional features typical for “outside economies”, with large stock markets, low ownership concentration, extensive outsider rights, and strong legal enforcement. On the contrary, countries in the last two clusters are characterized by smaller stock markets, higher ownership concentration, and weaker investor protection and regulatory regime, thus showing institutional features similar to the



“insider economies”<sup>101</sup>. Given the sample firms’ country of origin, the variability between cluster 2 and cluster 3 is not exploited since all sample firms allocate between the first and the second clusters. This feature is suitable to this research design because allows to define a binary variable (INST) taking the value of 1 for firms from countries in the first cluster (which is interpreted as countries with strong legal and enforcement regime), 0 for firms from countries included in the second cluster. Table 5 panel B reports the classification of sample firms according to Leuz’s (2010) country-cluster classification and the coding of the binary variable.

### ***3.4 Control variables***

According to the existing literature a set of variables is included to control for proprietary costs associated to voluntary disclosure practices (Leuz, 2003). Proxies for firm size (SIZE), profitability (ROE), leverage (LEV) and the level of operating risk (SD\_RET) are included.

The firm size is controlled using the logarithm of firm total asset. Large firms are more visible and therefore face demand for greater transparency from financial analysts and third party interested in their results. Furthermore, they suffer from higher information asymmetries between managers and outside parties, thus benefiting more from increased disclosure aiming at reducing adverse selection and agency costs. Finally, they have great potential for costs savings and are in a better position to defend themselves from the adverse action of competitors, thus having lower costs of producing and disseminating information, as well as competitive costs. For all these reasons larger companies face lower proprietary costs and lower incentives to withhold information (Prencipe, 2004). According to the previous studies on proprietary costs, a positive association between firms’ size and voluntary disclosure is predicted.

High profitable firms have high incentive to voluntary disclose information to signal their profitability. However, they can also face more severe proprietary costs as

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<sup>101</sup> According to Leuz (2010) countries in these two clusters are similar to the previous dimensions but differ in the strength of their legal systems. However this variation is not exploited as all the sample firms allocate between the first and the second cluster.



competitors may exploit the information disclosed against the firms, thus dampening firms incentive to disclose more (Leuz & Verrecchia, 2007). As a consequence, profitability with the return on equity, measured as the net income divided by the end of the year book value of equity, is controlled, but no prediction on its impact over firms disclosure strategies is made.

To the extent that public debt ensures an higher level of monitoring of management activities, highly leveraged firms are expected to produce more information. Nevertheless, leverage is also a proxy for risk in many disclosure related studies and the findings show mixed results (Ali, 2005; Linsley & Shrivess, 2005; Abraham & Cox, 2007; Amran et al., 2009). For instance, an high level of leverage may be reached by means of private financing. This can have an adverse effect over the demand of public disclosure that in turn can be substituted by other “private” channel (Leuz et al., 2003). Therefore, no specific sign will be a priori assigned to the relationship between leverage and voluntary disclosure.

Finally, firms operating risk, measured as the stock volatility (i.e. the standard deviation of the daily-stock returns over the fiscal year) are controlled and it is expected to be positively related to the level of risk disclosure (SD\_RET). Positive accounting theory predicts that agency costs is an increasing function of company risk. Therefore, to reduce the contracting costs associated with higher levels of risk and greater information asymmetry and maximize firm value, companies will increase risk disclosure. Moreover, the higher the level of risk, the higher the litigation costs the firms may incur by not disclosing such information. However, firm-level volatility of stock may also proxy for the extent to which firm-specific information is incorporated into stock prices (Morck et al., 2000). As a consequence, firms that provide more transparent risk reporting are expected to be perceived as less risky, since a great portion of information on contingencies and risk factors is already incorporated in stock prices. This, in turn, leads to a decrease in the degree of uncertainty and as a consequence of the stock return volatility. Given this conflicting augment no directional hypothesis on the relationship between stock return volatility and firms’ voluntary disclosure is predicted.



Archival data on board of directors are hand-collected from proxy statement, while financial variables are collected from COMPUSTAT Database.

Table 6 provides further details on the measurement and sources of dependent, independent and control variables.

**Table 6. Variables definition**

Variable Name	Variable Label	Definition	Source
<b>Panel A: Disclosure variables</b>			
NF_SCORE	Voluntary Disclosure index	Self-constructed index capturing the extent of Annual Report's disclosure on non-financial risk factors	Hand-collected from Annual Report
F_SCORE	Mandatory Disclosure index	Self-constructed index capturing the extent of Annual Report's disclosure on financial risk factors	Hand-collected from Annual Report
<b>Panel B: Firm-level incentive variables</b>			
B_SIZE	Board Size	Total number of directors sitting on company board	Hand-collected from Annual Report
IND	Board Independence	Proportion of independent directors sitting on company board	Hand-collected from Annual Report
AC_SIZE	Board Structure	Natural logarithm of the number of directors sitting on the audit committee	Hand-collected from Annual Report
EXT	External Appointment	Natural logarithm of the number of directors' external appointment	Hand-collected from Annual Report
D_CEO	Board Leadership	Dummy variable =1 if CEO is also Chairman of the board; 0 otherwise	Hand-collected from Annual Report
B_FE	Board Competence	Natural logarithm of the number of directors with financial/accounting expertise	Hand-collected from Annual Report
<b>Panel C: Country-level incentive variable</b>			
INST	Strenght of Institution	Dummy variable =1 if of sample firm belongs to the Leuz's (2010) Cluster 1; 0 otherwise.	Leuz's (2010) country-cluster classification
<b>Panel C: Control variable</b>			



SD_RET	Operating Risk	Standard deviation of the firm's daily stock return	COMPUSTAT GLOBAL
ROE	Return on Equity	Net Income divided by the end-of-the year book value of equity	COMPUSTAT GLOBAL
SIZE	Firm Size	Natural Logarithm of the end-of-the year Total Asset	COMPUSTAT GLOBAL
LEV	Leverage	End-of-the year Total Liabilities divided by the end-of-the year Total Asset	COMPUSTAT GLOBAL

Table 6 reports label of variables used in the empirical analysis, their definition and the sources of the data. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010.

## 4. Results

### 4.1 Descriptive statistics and correlation analysis

Table 7 provides a descriptive analysis of the disclosure indices for NF\_SCORE and F\_SCORE and their sub-components.

**Table 7. Survey on risk disclosure**

<i>Panel A: Voluntary disclosure index and its sub-components</i>								
	<i>N</i>	<i>mean</i>	<i>min</i>	<i>p25</i>	<i>p50</i>	<i>p75</i>	<i>max</i>	<i>sd</i>
NF_SCORE	111	0.101	0	0.006	0.066	0.167	0.477	0.112
NF_SCORE_CC	111	0.092	0	0	0.067	0.133	0.533	0.123
NF_SCORE_STR	111	0.086	0	0	0.005	0.128	0.538	0.098
NF_SCORE_OPR	111	0.074	0	0	0.061	0.121	0.394	0.086
NF_SCORE_EHS	111	0.151	0	0	0	0.222	1	0.224
<i>Panel B: Mandatory disclosure index and its sub-components</i>								
	<i>N</i>	<i>mean</i>	<i>min</i>	<i>p25</i>	<i>p50</i>	<i>p75</i>	<i>max</i>	<i>sd</i>
F_SCORE	111	0.407	0.099	0.330	0.405	0.487	0.722	0.122
F_SCORE_CR	111	0.411	0	0.286	0.430	0.518	0.937	0.176
F_SCORE_LR	111	0.374	0	0.25	0.375	0.486	0.667	0.151
F_SCORE_MR	111	0.437	0.185	0.352	0.426	0.495	0.821	0.127

Table 7 reports the descriptive statistics for disclosure indices and their sub-components. Panel A provides results for voluntary disclosure indices and its sub-components. Panel B provides results for mandatory disclosure indices and its sub-components. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010. NF\_SCORE\_CC is the partial disclosure index relative to the Compliance&Control Risk category. NF\_SCORE\_STR is the partial disclosure index relative to the Strategic Risk category. NF\_SCORE\_OPR is the partial disclosure index relative to the Operational Risk category. NF\_SCORE\_EHS is the partial disclosure index relative to the Environmental, Health&Safety Risk category. F\_SCORE\_CR is the partial disclosure index relative to the Credit Risk category. F\_SCORE\_LR is the partial disclosure index relative to the Liquidity Risk category. F\_SCORE\_MR is the partial disclosure index relative to the Market Risk category. See Table 6 for other variables definitions.



Given the characteristics of this sample, it is not really surprising that firms voluntarily providing information on non-financial risk, disclose mostly information related to the environmental, health and safety risk (NF\_SCORE\_EHS). However, the disclosure of information for this category seems to exhibit also an high variability, with more than a half of the firms not providing any information, while only the last 25% percentile disclosing a great amount of environmental, health and safety risk information. This causes the distribution of NF\_SCORE\_EHS to be highly skewed on the right. The other subcomponent of NF\_SCORE, exhibits a very similar distribution, where the compliance & control risk have higher mean and median value, and a greater standard deviation, while the information on strategic risk tends to be reported seldom in median. Finally, disclosure on operational risk has lower value of mean and sample variability. Panel B reports the descriptive statistics for mandatory disclosure on financial risks and its distribution among the subcategories identified by the IFRS7. For this latter group the mean value and the median are quite similar while the maximum value of each index is higher and the standard deviation is lower then the one reported for non financial risk disclosure indices, that seems to be obvious given the different nature of these disclosures.

Table 8 presents descriptive statistics for variables used in regression analysis.

**Table 8. Descriptive statistics by high/low mandatory disclosure**

<b>Panel A: Disclosure variables</b>								
	<i>N</i>	<i>mean</i>	<i>min</i>	<i>p25</i>	<i>p50</i>	<i>p75</i>	<i>max</i>	<i>sd</i>
NF_SCORE	111	0.101	0	0.006	0.066	0.167	0.477	0.112
<i>high</i>	55	0.126*	0	0.006	0.086	0.215	0.477	0.128
<i>low</i>	56	0.076	0	0.003	0.044	0.123	0.412	0.089
F_SCORE	111	0.407	0.099	0.330	0.405	0.487	0.722	0.122
<i>high</i>	55	0.503	0.407	0.441	0.487	0.527	0.722	0.078
<i>low</i>	56	0.313	0.099	0.265	0.334	0.380	0.405	0.075
F_SCORE2								
<i>high</i>	55	0.259	0.166	0.195	0.237	0.278	.5215	0.085
<i>low</i>	56	0.104	0.009	0.070	0.111	0.145	.1639	0.043
<b>Panel B: Firm-level incentive variables</b>								
	<i>N</i>	<i>mean</i>	<i>min</i>	<i>p25</i>	<i>p50</i>	<i>p75</i>	<i>max</i>	<i>sd</i>
B_SIZE	111	7.324	3	5	7	9	19	2.899
<i>high</i>	55	8.527*	3	6	8	10	19	3.344
<i>low</i>	56	6.143	3	5	6	7	11	1.721



## CHAPTER TWO

B_SIZE2		111	61.973	9	25	49	81	361	56.160
	<i>high</i>	55	83.691*	9	36	64	100	361	70.111
	<i>low</i>	56	40.643	9	25	36	49	121	23.383
IND		111	0.386	0	0.2	0.4	0.545	1	0.239
	<i>high</i>	55	0.429*	0	0.2	0.429	0.571	0.9	0.232
	<i>low</i>	56	0.345	0	0.183	0.333	0.5	1	0.242
AC_SIZE		111	1.185	0	1.099	1.386	1.386	2.197	0.479
	<i>high</i>	55	1.282*	0	1.099	1.386	1.609	2.197	0.449
	<i>low</i>	56	1.089	0	1.099	1.099	1.386	1.792	0.492
EXT		111	1.594	0	1.099	1.609	2.197	3.932	0.894
	<i>high</i>	55	1.712	0	1.099	1.792	2.485	3.932	0.990
	<i>low</i>	56	1.478	0	1.099	1.386	2.079	3.638	0.780
D_CEOD		111	0.153	0	0	0	0	1	0.362
	<i>high</i>	55	0.145	0	0	0	0	1	0.356
	<i>low</i>	56	0.161	0	0	0	0	1	0.371
B_FE		111	1.325	0	1.099	1.386	1.609	2.197	0.438
	<i>high</i>	55	1.400*	0	1.099	1.386	1.609	2.197	0.458
	<i>low</i>	56	1.250	0	1.099	1.386	1.609	1.946	0.407

### ***Panel C: Country-incentive variable***

		<i>N</i>	<i>mean</i>	<i>min</i>	<i>p25</i>	<i>p50</i>	<i>p75</i>	<i>max</i>	<i>sd</i>
INST		111	0.595	0	0	1	1	1	0.493
	<i>high</i>	55	0.509*	0	0	1	1	1	0.504
	<i>low</i>	56	0.679	0	0	1	1	1	0.471

### ***Panel D: Control variables***

		<i>N</i>	<i>mean</i>	<i>min</i>	<i>p25</i>	<i>p50</i>	<i>p75</i>	<i>max</i>	<i>sd</i>
SD_RET		111	0.150	0.012	0.022	0.033	0.050	6.402	0.796
	<i>high</i>	55	0.133	0.012	0.019	0.027	0.038	5.550	0.744
	<i>low</i>	56	0.167	0.017	0.028	0.042	0.057	6.402	0.851
ROE		111	-0.083	-3.273	-0.137	-0.023	0.093	1.155	0.437
	<i>high</i>	55	-0.065	-3.273	-0.080	0.015	0.117	1.155	0.535
	<i>low</i>	56	-0.099	-0.948	-0.184	-0.041	0.032	0.7816	0.317
SIZE		111	5.974	1.279	4.142	5.493	7.795	12.372	2.447
	<i>high</i>	55	7.046*	1.279	4.891	7.165	8.853	12.372	2.661
	<i>low</i>	56	4.921	2.125	3.508	4.772	5.852	8.841	1.656
LEV		111	0.788	-6.691	0.150	0.551	1.431	5.283	1.365
	<i>high</i>	55	0.979	-6.691	0.349	1.184	1.756	5.283	1.791
	<i>low</i>	56	0.600	0.001	0.101	0.293	0.784	2.483	0.711

Table 8 reports the descriptive statistics for variables used for empirical analysis. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010. Sample firms are divided in two sub-groups (high/low) according the sample median of mandatory disclosure. Panel A provides results for disclosure indices. Panel B and C provides results for firm-level and country-level incentives. Panel D provides results for control variables. \* denotes significance at 10% level (two-tailed). The p-values of the tests of differences in means for continuous variables are based on t-test. The p-values of the tests of differences in means for binary variables are based on test of proportions. See Table 6 for variables definitions.



For the full sample, the mean (median) of NF\_SCORE is 0.101 (0.066) while the mean (median) of F\_SCORE is 0.407 (0.405). The mean and the median value of board members for the sample firms is about seven, moving from three to nineteen, while the percentage of independent directors is in mean (median) 38% (40%). Among the sample firms the mean (median) number AC\_SIZE is of 1.185 (1.386) while the mean (median) of B\_FE is 1.325 (1.386), suggesting that directors with financial/accounting expertise are about 3 for each board. The mean (median) number of external appointment is about 6 (4) as shown by the mean (median) value of EXT. Regarding the strength of the regulatory and enforcement regime, a half of the sample firms belongs to the first country-cluster (strong enforcement, regulatory regime, outside economy), while the other half has characteristics similar to the inside economies, with weaker regulatory and enforcement system (cluster 2). Moving to the control variables, it can be observed that the distribution of the operating risk, the profitability and the leverage tend to be positively skewed. On the contrary, the degree of skewness for the firm size is very low. Next, the sample firms are divided in two sub-groups above and below the median value of F\_SCORE (0.405). It appears that firms disclosing more mandatory information on financial risks tend to disclose significantly more voluntary information on non-financial risks. Firms belonging to the two sub-groups are also different regarding to the board composition and structure, where firms from the sub-group with high F\_SCORE having larger boards with a higher percentage of independent directors and a greater number of directors sitting in the audit committee (the difference in mean and median is significant at 10% in both cases). Board of directors of high F\_SCORE firms is also significantly more competent in financial and accounting issues and has an higher degree of busyness relative to the board of firms with low F\_SCORE. Finally, firms having higher value of F\_SCORE index tend to be significantly larger and more leveraged, while the value of operating risk and profitability do not exhibit a significant difference across the two sub-samples.

Table 9 reports the results of the Pearson (Spearman) correlation analysis. As expected, NF\_SCORE is positively and significantly correlated with the value of F\_SCORE and F\_SCORE. It also has a positive and significant correlation with the board monitoring variables, with the only exception of the CEO duality status.



**Table 9. Correlation analysis**

	N	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q
<b>A:</b> NF_SCORE	111		0.252*	0.252*	0.439*	0.439*	0.208*	0.461*	0.436*	-0.104	0.354*	0.107	-0.312*	0.058	0.306*	0.032
<b>B:</b> F_SCORE	111	0.363*		1.000*	0.447*	0.447*	0.173*	0.309*	0.175*	-0.064	0.208*	-0.241*	-0.491*	0.281*	0.590*	0.433*
<b>C:</b> F_SCORE2	111	0.375*	0.979*		0.447*	0.447*	0.173*	0.309*	0.175*	-0.064	0.208*	-0.241*	-0.491*	0.281*	0.590*	0.433*
<b>D:</b> B_SIZE	111	0.488*	0.449*	0.459*		1.000*	0.076	0.537*	0.377*	0.066	0.535*	-0.299*	-0.418*	0.224*	0.654*	0.422*
<b>E:</b> B_SIZE2	111	0.434*	0.409*	0.421*	0.971*		0.076	0.537*	0.377*	0.066	0.535*	-0.299*	-0.418*	0.224*	0.654*	0.422*
<b>F:</b> IND	111	0.237*	0.168*	0.177*	0.065	0.048		0.193*	0.156	-0.151	0.153	-0.006	-0.206*	-0.054	0.156	0.150
<b>G:</b> AC_SIZE	111	0.398*	0.299*	0.295*	0.394*	0.380*	0.193*		0.565*	0.072	0.320*	0.122	-0.328*	0.226*	0.377*	0.158*
<b>H:</b> EXT	111	0.479*	0.256*	0.294*	0.406*	0.387*	0.159*	0.468*		0.060	0.250*	0.214*	-0.258*	0.158*	0.256*	-0.014
<b>I:</b> D_CEO	111	0.038	-0.114	-0.065	0.065	0.081	-0.141	0.067	0.054		-0.148	-0.056	0.076	-0.037	-0.007	0.003
<b>L:</b> B_FE	111	0.289*	0.194*	0.201*	0.509*	0.469*	0.157	0.162*	0.175*	-0.199*		-0.115	-0.319*	0.063	0.332*	0.297*
<b>M:</b> INST	111	0.012	-0.205*	-0.211*	-0.289*	-0.257*	-0.015	0.201*	0.173*	-0.056	-0.082		0.299*	-0.324*	-0.511*	-0.465*
<b>N:</b> SD_RET	111	-0.098	0.013	-0.003	-0.052	-0.060	-0.024	0.032	-0.040	-0.054	0.012	-0.036		-0.492*	-0.689*	-0.514*
<b>O:</b> ROE	111	0.045	0.102	0.129	0.155	0.153	-0.036	-0.041	0.012	0.003	-0.015	-0.249*	-0.066		0.490*	0.098
<b>P:</b> SIZE	111	0.514*	0.616*	0.636*	0.719*	0.678*	0.183*	0.317*	0.370*	0.043	0.299*	-0.473*	-0.082	0.325*		0.618*
<b>Q:</b> LEV	111	0.100	0.174*	0.165*	0.316*	0.295*	0.121	0.107	0.064	0.092	0.168*	-0.263*	-0.287*	-0.376*	0.400*	

Table 9 reports the correlation analysis for variables used for empirical analysis. Above (below) the diagonal are reported Spearman (Pearson) correlation coefficients. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010. \* denotes significance at 10% level (two-tailed). See Table 6 for variables definitions.



However, it is positively but not significantly correlated with the dummy variable capturing the strength of the regulatory and enforcement regime. Quite interesting, this latter variable is negatively correlated with the size of the board of directors, while it is positively correlated with the size of audit committee and the director busyness, motivating the interest in exploring the role of the external environment in the relationship between voluntary and mandatory disclosure as well as its impact on the internal monitoring provided by the board. The correlation among the other independent variables is acceptable except for the squared variables of B\_SIZE and F\_SCORE, that are highly correlated with the base level of both variables by definition.

## 4.2 Regression analysis

### 4.2.1. Analysis of the interplay between mandatory and voluntary disclosure

This study investigates the relationship between mandatory and voluntary risk disclosure and the influence of firm- and country-level incentives through a multivariate regression analysis. In all the models glm regressions (logit link function) are performed since the dependent variable is defined as a proportion. The empirical analysis starts with a parsimonious model regressing NF\_SCORE, that proxies for voluntary risk disclosure, on F\_SCORE and F\_SCORE2, which measure the base and the squared level of mandatory risk disclosure, and a set of controls (model 1). Model 1 is specified including country dummies and excluding the intercept to avoid multicollinearity.

$$NF\_SCORE_i = \beta_1 * F\_SCORE_i + \beta_2 * F\_SCORE2_i + \beta_3 * SD\_RET_i + \beta_4 * ROE_i + \beta_5 * SIZE_i + \beta_6 * LEV_i + \varepsilon_i \quad (1)$$

This model allows to test  $H_{p1a}$  and  $H_{p1b}$  on the interplay between mandatory and voluntary disclosure. According to hypotheses NF\_SCORE is expected to be positively related with F\_SCORE and negatively related with F\_SCORE2. Table 10 reports the results of the first set of regression analysis.



**Table 10. The interplay between mandatory and voluntary disclosure**

	(1) NF_SCORE
F_SCORE	8.314** (2.10)
F_SCORE2	-9.435** (-2.22)
SD_RET	-0.265 (-0.99)
ROE	-0.503* (-1.75)
SIZE	0.284*** (6.53)
LEV	-0.280*** (-2.88)
<i>Intercept</i>	<i>No</i>
<i>Country-fixed effects</i>	<i>Yes</i>
<i>Obs.</i>	<i>111</i>

Table 10 reports the regression analysis on the interplay between mandatory and voluntary disclosure. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010. All regressions are glm (link logit function) \*, \*\*, \*\*\* denotes significance at 10%, 5%, 1% levels (two-tailed). In parentheses are reported z test statistics. See Table 6 for variables definitions.

Consistent with the main prediction and in line with the results of univariate analysis, a U-shaped relationship between voluntary disclosure and mandatory disclosure is found. As expected, a positive and both economically and statistically significant relationship between NF\_SCORE and F\_SCORE ( $\beta_1 = 8.314$ ) is observed, while a negative and significant association between NF\_SCORE and F\_SCORE2 ( $\beta_2 = -9.435$ ). These results suggest that firms with low mandatory risk disclosure tend to provide less voluntary information on non-financial risks. As the level of mandatory disclosure increases, firms start disclosing additional value relevant information that help investors interpreting the overall risk profile of the firm, thus fostering the reduction of information asymmetries in the market. However, this positive relationship occurs up to a threshold. Above this point firms change their trade-off between the benefit of disclosing additional information and the associated proprietary costs. At high level of mandatory risk disclosure the unknown variance in the firm's value is already low, being explained by the information mandated by the law<sup>102</sup>. Therefore, the costs of voluntarily disclosing information on other non-

<sup>102</sup> It is recognized that this relationship can be shaped by the existence of other disclosures such as information provided by external analysts. However, previous literature has shown that analysts



financial risk factors overcome the benefits coming from a reduction in the information asymmetries, leading to a negative relationship between mandatory and voluntary risk disclosure<sup>103</sup>.

Looking at the coefficient of control variables, a positive association between NF\_SCORE and the proxy for firm size is observed, as predicted, suggesting that large firms exhibit higher level of voluntary risk disclosure, due to their lower proprietary costs and lower incentives to withhold information. On the contrary, more profitable and highly leveraged firms face more severe proprietary costs that prevent their voluntary disclosure activity. Finally, the degree of operating risk do not significantly affect the level of voluntary disclosure, at least for the sample firms.

In sum, the results of this first analysis are consistent with the idea that voluntary disclosure strategies are strictly related to the level of mandatory disclosure, that in turn alters the trade-off between benefits and costs of voluntary disclosure. Specifically, the reported evidence corroborates the hypotheses of a complementary relationship between mandatory and voluntary disclosure at low level of mandatory disclosure ( $Hp_{1a}$ ), and a substitutive relationship between the two when the information environment is particularly rich ( $Hp_{1b}$ ).

#### *4.2.2. Analysis of the influence of firm-level and country-level incentives*

As second step of analysis, this study examines the cross-sectional determinants of voluntary disclosure choices, considering both the firm-level incentives coming from the board monitoring ( $Hp_2$ ) and country-level incentives related to the characteristics of the regulatory and enforcement regime ( $Hp_3$ ). In order to test hypotheses model 1 is augmented including board variables and the institutional dummy (INST) to capture the marginal effect of the internal board-based monitoring and the external

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following is increasing in the firm size. To the extent that firm size does not control for these other information, the results can be overstated.

<sup>103</sup> In untabulated results a regression of NF\_SCORE on F\_SCORE is also performed and control is made by dividing sample firms in two subgroups according to the median of F\_SCORE. Consistent with the main analysis, for firms with low F\_SCORE the relationship between mandatory and voluntary disclosure is found to be complementary, while for firms with high F\_SCORE it becomes substitutive. However a loss of significance is observed for the coefficient of interests probably induced by the limited sample size.



monitoring provided by the regulatory and enforcement regime over voluntary disclosure practices (model 2)<sup>104</sup>.

$$\begin{aligned} \text{NF\_SCORE}_i = & \beta_0 + \beta_1 * \text{F\_SCORE}_i + \beta_2 * \text{F\_SCORE2}_i + \beta_3 * \text{B\_SIZE}_i + \beta_4 * \text{B\_SIZE2}_i + \\ & \beta_5 * \text{IND}_i + \beta_6 * \text{AC\_SIZE}_i + \beta_7 * \text{EXT}_i + \beta_8 * \text{D\_CEOD}_i + \beta_9 * \text{B\_FE}_i + \beta_{10} * \text{INST}_i + \\ & \beta_{11} * \text{SD\_RET}_i + \beta_{12} * \text{ROE}_i + \beta_{13} * \text{SIZE}_i + \beta_{14} * \text{LEV}_i + \varepsilon_i \end{aligned} \quad (2)$$

Table 11 shows results of the analysis that exploit the cross-sectional variation of voluntary disclosure practices according to firm and country-level incentives. Column (1) reports coefficients from a regression of NF\_SCORE on board monitoring variables only; Column (2) report results of regression of NF\_SCORE on board monitoring and institutional dummy; Column (3) report results of the full model considering the role played by mandatory disclosure strategies in addition to board-based and the country-level incentives<sup>105</sup>. Results from Column (1) show that the level of voluntary risk disclosure is increasing in almost all board monitoring variables. Specifically, NF\_SCORE has a positive and significant association with the board size ( $\beta_1=0.553$ ). However, the relationship between board size and voluntary risk disclosure is a non-monotonic one, consistent with the idea that either small or large boards are both optimal in monitoring management disclosure decisions, according to the type of the firm (Coles et al., 2008). The percentage of independent directors is positively and significantly related with the disclosure of additional voluntary information on risk factors ( $\beta_3=1.188$ ), suggesting that more independent board is a better monitoring device of the managerial behaviour and tend to voluntarily increase the level of disclosure, over and above that which is mandated by law or stock exchange rules (Donnelly & Mucagy, 2008). According to the agency theorists, CEO duality is associated with lower levels of voluntary risk disclosures ( $\beta_8=-0.573$ ) since the board becomes more entrenched with the managers, being unable to limit the use of reporting discretion for their own purposes.

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<sup>104</sup> Differently from model 1, model 2 does not include country-dummies when the grouping variable capturing the strength of the regulatory and enforcement regime is included to avoid multicollinearity problems.

<sup>105</sup> It is recognized that the board monitoring may also affect the level of mandatory disclosure provided by the firm. However, this research design is unable to control for this confounding effect. As further development, this research will rely on structural regression to take into account this endogeneity.



Nevertheless, neither the board structure, proxied by the size of the audit committee, nor the number of external appointment show a significant association with NF\_SCORE. Finally, the expertise of directors does not play any role for the managers' decision to provide voluntary risk disclosure.

**Table 11. Firm-level and country-level incentives**

	(1) NF_SCORE	(2) NF_SCORE	(3) NF_SCORE
F_SCORE			8.162** (2.03)
F_SCORE2			-9.685** (-2.38)
B_SIZE	0.553*** (3.15)	0.589*** (3.69)	0.563*** (3.67)
B_SIZE2	-0.027** (-3.34)	-0.025*** (-3.84)	-0.025*** (-4.01)
IND	1.188*** (3.31)	1.209*** (3.64)	1.1875*** (3.63)
AC_SIZE	0.576 (1.57)	0.913*** (3.05)	0.993*** (3.23)
EXT	0.076 (0.69)	0.127 (1.04)	0.259** (2.08)
D_CEOD	-0.573* (-1.86)	0.198 (1.07)	0.158 (0.78)
B_FE	0.011 (0.05)	-0.042 (-0.20)	0.019 (0.09)
INST		0.124 (0.58)	0.083 (0.40)
SD_RET	-0.351 (-1.41)	-0.393 (-1.35)	-0.425 (-1.61)
ROE	-0.630** (-2.17)	-0.666** (-2.46)	-0.686** (-2.53)
SIZE	0.257*** (4.66)	0.175*** (3.15)	0.219*** (3.67)
LEV	-0.348*** (-3.44)	-0.278*** (-2.98)	-0.312*** (-3.34)
<i>Intercept</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>
<i>Country-fixed effects</i>	<i>Yes</i>	<i>No</i>	<i>No</i>
<i>Obs.</i>	<i>111</i>	<i>111</i>	<i>111</i>

Table 11 reports the regression analysis on the influence of firm- and country-level incentives on voluntary disclosure. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010. All regressions are glm (link logit function) \*, \*\*, \*\*\* denotes significance at 10%, 5%, 1% levels (two-tailed). In parentheses are reported z test statistics. See Table 6 for variables definitions.

The sign and the significance of control variables is the same discussed for model 1. Overall, results from Column (1) are consistent with the hypothesis 2 predicting a



positive effect of firm-level incentives coming from board-based monitoring over voluntary disclosure practices.

Next, the effect of country-level incentives on the firm decision to voluntarily disclose information on risks not mandated by the existing rules is explored. Column (2) reports results of a regression including the dummy variable (INST) capturing characteristics of the institutional regime to the board monitoring variables and controls. The regression coefficient on board monitoring variables are similar to the ones shown in Column (1) either in the magnitude or in the significance with the only exception of AC\_SIZE and D\_CEO, whose results seem reversing. In particular, considering the role played by the characteristics of the institutional environment, it appears that the monitoring provided by the audit committee becomes significant ( $\beta_6=0.913$ ), while the power of the CEO-Chairman does not play any significant role on voluntary risk disclosure strategies. More interestingly, the coefficient on the institutional variable is positive ( $\beta_{10}=0.124$ ) but not significant at any of the conventional level. This suggests that, contrary to this prediction, the country-level incentive related to the strength of the regulatory and enforcement regime plays no additional external monitoring on the managers' decision to disclose non-mandatory risk information, beyond that internally exercised by the board of directors. This result, although counterintuitive, is in line with the conflicting evidence on the influence of the regulatory and enforcement regime over voluntary disclosure choices, and questions the existence of a direct link between the external monitoring provided by the institution and voluntary risk disclosure practices. However, this does not necessarily mean that the regulatory and enforcement regime does not matter for the relation under analysis. Indeed, it could be argued that the external environment does play a role on voluntary disclosure strategies, but indirectly, by affecting either the board-monitoring intensity or the enforcement of the existing rules on mandatory risk reporting. Therefore, this study will come back later on this issue, when examining the moderating role of the institutional environment for the influence of board monitoring and mandatory risk disclosure on the provision of voluntary information on risk.

Finally, the full model 2 is run by also including the variable capturing the role of mandatory risk disclosure (Column 3). Not surprisingly, the sign of coefficients on



F\_SCORE and F\_SCORE2 repeats those of model 1, without any loose of significance. This suggests that the effect of mandatory risk disclosure on the trade-off between disclosing and not disclosing additional non-mandatory risk information, still persists above and beyond the influence of board monitoring and institutional variables. Furthermore, in addition to the proxies of board monitoring that were significant in Column (2), the number of external appointments also reports a positive and significant coefficient ( $\beta_7=0.258$ ). This evidence supports the strand of literature that point out the benefits of having directors on multiple boards for the board monitoring activity and corporate transparency. By sitting on multiple board these directors may develop a wider experience in monitoring management (Kosnik, 1987) and are also more likely to have greater incentives to be effective monitors of in order to preserve their reputation capital or improve their external labor market (Kaplan & Reishus, 1990). However, their monitoring role becomes significant only controlling for the influence of mandatory risk disclosure and the other cross-sectional determinants of voluntary disclosure.

To summarize, the analysis of the influence of firm-level and country-level incentives on voluntary disclosure confirms the prediction on the incentive effect of board-based monitoring for the managers decision to disclose information not mandated by law and other accounting rules ( $H_{p2}$ ). Nevertheless, the results do not support  $H_{p3}$  on the direct influence of the external monitoring provided by the institution over voluntary disclosure strategies. Finally, results from regression analysis in Column (3) corroborate  $H_{p1a}$  and  $H_{p1b}$  by documenting a highly significant U-shaped relationship between mandatory and voluntary disclosure strategies, even after controlling for the effect of board-based monitoring and the characteristics of the firm's regulatory and enforcement environment.

#### *4.2.3. Analysis of the interaction between firm-level and country-level incentives*

So far, the effects of mandatory disclosure over voluntary disclosure strategies and the influence of both internal monitoring provided by the board of directors and external monitoring related to the institutional environment have been examined. However, as discussed in the previous section, no evidence is found consisting with the assumption of a direct relationship between country-level incentives and the



decision to disclose voluntary risk information. Therefore, as further step, this study analyzes the moderating effect of the institutional environment on the role played by internal monitoring and mandatory disclosure. It is anticipated that the strength of the regulatory and enforcement regime may have an indirect influence on voluntary disclosure strategies, by affecting the board-monitoring intensity ( $Hp_4$ ) and/or the enforcement of the existing rules for mandatory disclosure ( $Hp_5$ ). In order to test these hypotheses, board monitoring proxies are combined into one summary measure to interact with the institutional dummy (INST)<sup>106</sup>. Specifically, a factor analysis is applied to the seven board monitoring variables and retain the first factor that exhibits an eigenvalue of 1.468 and explains the 98% of the total variance. Table 12 provides the factor loadings and the Kaiser-Meyer-Olkin measure of sampling adequacy of the variables combined into the new factor variable (BOD\_FACTOR). All variables (except from CEO duality) exhibit an acceptable KMO value (above 0.5) according to the Kaiser (1974) scale.

**Table 12. Factor analysis**

<i>Variable</i>	<i>Factor loadings</i>	<i>kmo</i>
B_SIZE	0.7013	0.5896
IND	0.2378	0.6176
CEO_DUAL	-0.0160	0.4085
EXT	0.5734	0.6964
AC_SIZE	0.5699	0.6840
B_FE	0.5162	0.5299
Number of obs.:	111	
Eigen value:	1.4686	
Variation explained:	0.9841	
Overall kmo:	0.6073	

Table 12 reports results of the factor analysis. Kmo is the Kaiser-Meyer-Olkin measure of sampling adequacy for variables including in the factor. The first factor is retained which is the only one having an eigenvalue greater than 1. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010. See Table 6 for variables definitions.

Table 13 reports the descriptives for BOD\_FACTOR and other variables used in this last set of this analysis. Descriptive statistics are reported for the full sample and the

<sup>106</sup> This study opts for a factor analysis of these measures instead of interacting any single variable with the institutional dummy to avoid multicollinearity problem coming from the presence of too many interaction terms.



two subgroups of firms belonging to countries with outside economies and strong regulatory/enforcement regime (cluster 1) and firms from inside economies and weaker institutional setting (cluster 2).

**Table 13. Descriptive statistics by level of regulatory and enforcement regime**

		<i>N</i>	<i>mean</i>	<i>min</i>	<i>p25</i>	<i>p50</i>	<i>p75</i>	<i>max</i>	<i>sd</i>
NF_SCORE		111	0.101	0	0.006	0.066	0.167	0.477	0.112
	INST=1	66	0.102	0	0.020	0.075	0.153	0.412	0.101
	INST=0	45	0.099	0	0	0.036	0.189	0.477	0.128
F_SCORE		111	0.407	0.099	0.330	0.405	0.487	0.722	0.122
	INST=1	66	0.387*	0.099	0.305	0.385	0.452	0.708	0.116
	INST=0	45	0.437	0.182	0.369	0.454	0.519	0.722	0.125
F_SCORE2		111	0.181	0.009	0.109	0.164	0.237	0.521	0.103
	INST=1	66	0.163*	0.009	0.093	0.149	0.204	0.502	0.096
	INST=0	45	0.207	0.033	0.136	0.206	0.269	0.521	0.108
BOD_FACTOR		111	9.40e-10	-1.644	-0.509	-0.084	0.553	2.819	0.830
	INST=1	66	-0.030	-1.644	-0.488	-0.034	0.367	1.984	0.744
	INST=0	45	0.044	-1.497	-0.535	-0.163	0.621	2.819	0.950
SD_RET		111	0.150	0.0125	0.022	0.033	0.050	6.402	0.796
	INST=1	66	0.126	0.013	0.028	0.039	0.053	5.550	0.678
	INST=0	45	0.185	0.012	0.019	0.026	0.034	6.402	0.950
ROE		111	-0.083	-3.273	-0.137	-0.023	0.093	1.155	0.437
	INST=1	66	-0.172*	-3.273	-0.181	-0.041	0.024	0.413	0.481
	INST=0	45	0.049	-0.948	-0.060	0.079	0.171	1.155	0.325
SIZE		111	5.974	1.279	4.142	5.493	7.795	12.372	2.447
	INST=1	66	5.023*	2.126	3.513	4.822	5.519	12.372	2.086
	INST=0	45	7.369	1.279	5.885	7.725	8.820	12.158	2.279
LEV		111	0.788	-6.691	0.149	.551	1.431	5.283	1.365
	INST=1	66	0.492*	-5.243	0.113	.293	0.639	5.283	1.097
	INST=0	45	1.223	-6.691	0.778	1.431	2.086	4.616	1.599

Table 13 reports the descriptive statistics for variables used in the analysis of the role of firm- and country-level incentives. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010. Sample firms are divided in two sub-groups, according to whether they belong to the Cluster 1 (INST=1) or Cluster 2 (INST=0). \* denotes significance at 10% level (two-tailed). The p-values of the tests of differences in means for continuous variables are based on t-test. The p-values of the tests of differences in means for binary variables are based on test of proportions. See Table 6 for variables definitions.

The starting point is a parsimonious model which regresses NF\_SCORE on BOD\_FACTOR and the institutional dummy. Then, still using the BOD\_FACTOR previous models are augmented to include (i) the interaction terms between board factor and institutional dummy, (ii) the interaction between institutional dummy and F\_SCORE and F\_SCORE2, to take into account the moderating effect of institutional environment over both board monitoring and mandatory disclosure



(model 3). Again, country dummies are excluded given the partitioning of sample countries according to the strength of the regulatory and enforcement regime.

$$\text{NF\_SCORE}_i = \beta_0 + \beta_1 \text{F\_SCORE}_i + \beta_2 \text{F\_SCORE2}_i + \beta_3 \text{BOD\_FACTOR}_i + \beta_4 \text{INST}_i + \beta_5 \text{INST\_BODFACTOR}_i + \beta_6 \text{INST\_F\_SCORE}_i + \beta_7 \text{INST\_F\_SCORE2}_i + \beta_8 \text{SD\_RET}_i + \beta_9 \text{ROE}_i + \beta_{10} \text{SIZE}_i + \beta_{11} \text{LEV}_i + \varepsilon_i \quad (3)$$

Table 14 provides results from the analysis of the interaction between firm-level incentives coming from the board monitoring intensity and country-level incentives related to the institutional environment. Column (1) reports results of the base model, while column (2) includes the interaction term between board monitoring and institutional dummy. Finally, column (3) reports the full regression with mandatory disclosure proxies by also allowing these coefficients to vary according to the strength of the regulatory and enforcement regime.

***Table 14. The interaction between firm-and country-level incentives***

	(1) NF SCORE	(2) NF SCORE	(3) NF SCORE
F_SCORE			79.842** (2.41)
F_SCORE2			-67.044** (-2.36)
BOD_FACTOR	0.318** (2.53)	0.323** (2.54)	0.287** (2.06)
INST	0.238 (1.24)	0.287 (1.15)	22.206** (2.31)
INST_BOD_FACTOR		-0.059 (-0.31)	0.185 (0.84)
INST_F_SCORE			-72.189** (-2.16)
INST_F_SCORE2			56.574** (1.96)
SD_RET	-0.306 (-0.75)	-0.304 (-0.76)	-0.178 (-0.64)
ROE	-0.568** (-2.11)	-0.578** (-2.10)	-0.477* (-1.95)
SIZE	0.222*** (4.25)	0.231*** (3.84)	0.231*** (3.87)
LEV	-0.206** (-2.40)	-0.209** (-2.38)	-0.125 (-1.55)



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<i>Test on coeff.</i>			
$(\beta_3+\beta_5)=0$	-	0.2159	0.0280
$(\beta_1+\beta_6)=0$	-	-	0.0887
$(\beta_2+\beta_7)=0$	-	-	0.0313
<i>Intercept</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Country-fixed effects</i>	<i>No</i>	<i>No</i>	<i>No</i>
<i>Obs.</i>	<i>111</i>	<i>111</i>	<i>111</i>

Table 14 reports the regression analysis on the interaction between firm-and country-level incentives and their influence on voluntary disclosure. The full sample comprises 111 unique firms belonging to the Oil&Gas industry from 14 EU countries in 2010. All regressions are glm (link logit function) \*, \*\*, \*\*\* denotes significance at 10%, 5%, 1% levels (two-tailed). In parentheses are reported z test statistics. See Table 6 for variables definitions.

Consistent with the analysis in section 4.2.2, the first regression shows a positive and significant effect of board-based monitoring over voluntary risk disclosure ( $\beta_3=0.318$ ), while a positive but not significant effect of the institutional dummy (Column 1). Next, the coefficient on board factor is allowed to vary across the dummy variable, in order to test whether the internal board-based monitoring over voluntary disclosure choices differs according to the strength of the regulatory and enforcement regime ( $H_{p4}$ ). Column 2 of table 14 reports results of this interaction. The coefficient on BOD\_FACTOR still remains positive and significant ( $\beta_3=0.323$ ), while the coefficient on the interaction term INST\_BOD\_FACTOR is negative but not significant at a conventional level ( $\beta_5=-0.059$ ). This suggests that voluntary risk disclosure is increasing in board-based monitoring only in countries with weak legal and enforcement regime (cluster 2). On the contrary, the total effect of board-based monitoring on voluntary disclosure for firms belonging to cluster 1 ( $\beta_3+\beta_5$ ) is positive but not significant<sup>107</sup>. Therefore, the interpretation of these results is that in countries with strong institutional environment the internal monitoring provided by the board of directors does not play any additional role on the level of voluntary risk disclosure. Finally, column (3) reports results of the full model adding mandatory disclosure proxies, to test whether institutional forces has an indirect effect on managers decision to disclose additional information, by influencing the degree of enforcement of the existing rules for mandatory risk disclosure. The coefficient on F\_SCORE is still positive and significant ( $\beta_1=79.842$ ), suggesting a complementary

<sup>107</sup> The results of the Wald test on the INST and INST\_BOD\_FACTOR coefficients, do not allow to reject the hypothesis that they are jointly equal to 0.



relationship between mandatory and voluntary disclosure in weak institutional environment, when the amount of mandated risk information available to the market is low. However, the coefficient on the interaction term between F\_SCORE and INST is negative ( $\beta_6 = -72.189$ ), thus documenting a decreasing marginal effect of mandatory disclosure for voluntary disclosure strategies in countries with strong regulatory and enforcement regime. Similarly, the negative coefficient on F\_SCORE2 ( $\beta_2 = -67.044$ ) supports the substitution hypothesis between mandatory and voluntary disclosure for firms belonging to weak institutional regime. However, the marginal effect for firms from cluster 1 is positive and significant ( $\beta_7 = 56.574$ ). Despite the marginal effects for countries with strong regulatory and enforcement regime, the total effect of mandatory risk disclosure for the provision of voluntary risk information still behaves in the predicted fashion. Summing up coefficients on the main effects and the interaction terms, a positive relationship between mandatory and voluntary risk disclosure at a low level of mandatory disclosure ( $\beta_1 + \beta_6 = 7.651$ ) is still obtained, that becomes negative at a high level of mandatory disclosure ( $\beta_2 + \beta_7 = -9.470$ ), even though the magnitude of the coefficients is lower than the one reported for firms in weak institutional regime<sup>108</sup>.

To conclude, the evidence partially confirms *Hp<sub>4</sub>* on the substitution between internal and external monitoring for the managers decision to disclose additional information non mandated by the laws. Moreover, consistent with *Hp<sub>5</sub>* it appears that the strength of the institutional environment also moderates the relationship between mandatory disclosure and voluntary disclosure. Specifically, a U-shaped relationship between mandatory and voluntary disclosure is observed both in weak and strong institutional setting. However, since the information environment is extremely rich for all the firms belonging to cluster 1 due to the higher level of enforcement of the existing rules, the effect of the cross-sectional variation among firm-specific level of mandatory disclosure is more attenuated, relative to one observed in countries with weak institutional regime.

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<sup>108</sup> The test on the joint significance of the coefficients is significant in both cases. A likelihood-ratio test is also performed on the full model and the constrained model without the interaction term to test the hypothesis that the coefficient interaction term are all equal to 0. This test also confirms the main results.



## **5. Conclusion**

Most existing studies on voluntary disclosure do not consider its interaction with the information mandated by the law (Einhorn, 2005). This research tries to disentangle the nature of the relationship between mandatory and voluntary disclosure, by analyzing mandatory and voluntary risk information provided by a sample of EU Oil&Gas companies. The proxies for mandatory and voluntary risk disclosure are self-constructed disclosure indices capturing the extent of mandatory information on financial risk and voluntary information on non-financial risk factors.

The first main result is the existence of a non-monotonic relationship between mandatory and voluntary risk disclosure. A significant positive association between the voluntary risk disclosure index and the mandatory risk disclosure index is found that becomes negative when the association between voluntary risk disclosure and the squared value of mandatory risk disclosure index is analyzed. These results are consistent with a complementary relationship between mandatory and voluntary information, at a low level of mandatory disclosure. However, when the information mandated by the law becomes particularly high, the relationship between them turns to a substitutive one.

Recognizing that voluntary disclosure also depends upon managerial incentives, this study then examines the influence of firm-level incentives coming from the board monitoring over voluntary disclosure choices and country-level incentives related to the regulatory environments. It is found that while voluntary disclosure is increasing in the board-based monitoring, its relationship with the external monitoring provided by the institutions is positive but not significant. Next, the potential for a moderating role of the institutional environment is exploited. Weak evidence is found that the strong regulatory and enforcement regime play a role in shaping the relationship between either board-monitoring and voluntary disclosure choices. On the contrary, it is observed that the effect of mandatory disclosure for voluntary disclosure seems to be stronger in countries with weak institutional environment. These results support the view that strong institutional environment reduces the influence of firm-specific mandatory disclosure on voluntary disclosure strategies due to the higher level of



enforcement of mandatory disclosure regulation, that in turn reduces the variance across firm-specific level of compliance to mandated disclosure rules.

Taken together, this study's evidence suggests that firms use voluntary disclosure to complement the information in mandatory filings. Therefore, firms with poor mandatory disclosure tend not to disclose additional value-relevant information, due to the credibility issue. When the level of mandatory disclosure increases it creates an environment in which firms may credibly convey their private information. However, this complementary relationship occurs up to a threshold, above that it starts reversing, since the costs of disclosing additional proprietary information overcome its benefits. The results also suggest that the documented relationship between mandatory and voluntary disclosure still persists even after controlling for the firm-level and the country-level determinants of voluntary disclosure strategies.

This study is closely related to the theoretical study on the interaction between mandatory and voluntary disclosure (Eihorn, 2005; Bagnoli & Watts, 2007), providing empirical evidence on the nature of such a relationship. It also adds to the risk disclosure literature by exploring the role of both internal board monitoring and external monitoring provided by the institutions, and the interplay among them (Abraham & Cox, 2007; Linsley & Lawrence, 2007; Elzahar & Hussainey, 2012; Berretta & Bozzolan, 2004; Amran et al., 2009; Berretta et al., 2010).

The results of this study have important theoretical and practical implications. One implication is that firms voluntary disclosure strategies cannot be studied without taking into account the impact of their mandatory disclosures. Correspondingly, regulators cannot evaluate the impact of new regulation for mandatory disclosure, without considering their influence on the firm-specific mix between mandatory and voluntary disclosure. In addition, this study sheds light on the potential externalities coming from regulatory changes. The evidence indicates that when the information environment is particularly rich, a new regulation that reduces the scope of mandatory information, may have positive externalities on voluntary disclosure. Conversely, regulatory requirements that lead to a more expansive mandatory disclosure may produce negative externalities on voluntary disclosure, by reducing the firms net benefit of providing additional value relevant information.



This study is also subject to several limitations that suggests a number of other venues for future research. The most important challenge of this work is the endogeneity that characterizes firms decision to voluntary provide information, mandatory reporting choices and the characteristics of the internal and external governance mechanisms. One important extension would be to build more robust statistical test (3SLS) to take into account also the endogenous nature of corporate governance and disclosure. Another significative limitation of this study is the limited generalizability of the evidence because of the choice to analyze one year and one industry only. Thus, a natural improvement of this work would be to check for the robustness of these results across different industries and years. Finally, in this study the focus has been on the two most important channels of communication between firm and investors (mandatory and voluntary annual report disclosure). However, it should be noted that firms may mitigate information asymmetries through several other channels such as management forecasts, press releases, conference calls. In addition, third party information (i.e. information diffused by external analysts) may play a significative role. Therefore, future research on the relationship between mandatory and voluntary disclosure in capital markets should consider the interactions among all these different information channels.



## CHAPTER THREE

### WHY ARE MANAGERS OPTIMISTIC? AN INVESTIGATION OF CORPORATE ENVIRONMENTAL DISCLOSURE TONE

1. Introduction. – 2. Theoretical background and hypotheses. – 2.1 *Discretionary strategies in environmental disclosure.* – 2.2 *Disclosure tone: incremental information or impression management?* – 2.3 *The influence of board monitoring and stakeholder orientation.* – 3. Research method. – 3.1 *Sample and data collection.* – 3.2 *Measure of environmental performance.* – 3.3 *Measure of discretionary disclosure strategies.* – 3.4 *Measures of board monitoring and stakeholder orientation.* – 3.5 *Control variables.* – 4. Results. – 4.1 *Descriptive statistics and correlation analysis.* – 4.2 *Factor analysis of board monitoring and stakeholder orientation measures.* – 4.3 *Regression Analysis.* – 4.3.1. *Analysis of the tone's informativeness.* – 4.3.2. *Analysis of the influence of board monitoring and stakeholder orientation.* – 4.3.3 *Additional analysis: disclosure tone in environmental press releases.* – 5. Conclusion.



## 1. Introduction

In a context of growing competitiveness and scarce resources disclosure on environmental issues and, more in general CSR activities, has become of increasing relevance not only for the external community but also for capital market participants. Empirical studies suggest that it translates into a decrease of the cost of equity capital, an increase in the firm's value and a decrease in the analyst forecast error (Aerts et al., 2008; Plumlee et al., 2008; Dhaliwal et al., 2011). Such evidence would explain why there has been a growing diffusion of this type of disclosures either in the annual report or in *ad-hoc* stand-alone reporting (Bebbington et al., 2008; Simnett et al., 2009). A recent survey conducted by KPMG (2011) points out that 95 percent out of the 250 largest global companies now report on their CSR activities.

At the same time, a debate has opened in the academic literature over its potential for increasing firms' accountability towards stakeholders, versus being just another tool for corporate public relations (Cho et al., 2012). For instance, anecdotal evidence shows that companies engaging in unscrupulous business practices (e.g. oil companies) may turn to environmental disclosure as a form of promotional strategy, to counter the negative public sentiments in the aftermath of environmental disasters (Du & Vieira, 2012). In these cases, the discrepancy between the declared intentions and the environmental consequence of their actions results in a sense of skepticism about their real commitment toward CSR strategies. According to this perspective, environmental reporting is considered a tool to cheat on stakeholders, hide the firm's detrimental impact on local communities, and ultimately manage organizational legitimacy (Woolfson & Beck, 2005).

A factor that further contributes to this skepticism is the still voluntary and unregulated nature of environmental disclosure. In the U.S setting<sup>109</sup> according to the

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<sup>109</sup> According to the requirements relating to environmental disclosure in SEC filings, a duty to disclose actual or potential environmental liabilities in SEC filings may arise under: (i) the specific disclosure requirements of Regulation S-K promulgated under the Securities Act of 1933, as amended (the "Securities Act"); (ii) the general antifraud provisions of the Securities Act or the Securities Exchange Act of 1934 (the "Exchange Act"); (iii) and the requirements of Form 20-F with respect to foreign private issuers filing annual reports or registration statements pursuant to the Securities Act or the Exchange Act. Moreover there are several accounting standards and guidance governing



existing disclosure requirements in Regulation S-K and accounting guidance (i.e. FAS 5), companies are required to disclose a variety of environmental information. Nevertheless, securities regulations and accounting standards do not specifically address the way in which this information should be presented. Therefore, managers may engage in a number of communication tactics that can enhance the informativeness of such disclosure, but also increase their potential for controlling or manipulating the impression conveyed to external stakeholders (Clatworthy & Jones, 2001).

Motivated by these factors, the aim of this study is to investigate whether managers use environmental disclosure opportunistically to affect the users perception of corporate achievement (i.e. impression management), or rather provide useful information for predicting future environmental performance. Moreover, it explores whether and to what extent the informativeness of discretionary disclosure strategies varies according to reporting incentives coming from the board of directors' characteristics.

This study analyzes a sample of firms listed in the US Stock Exchange in 2009 and 2010, belonging to the Oil & Gas industry. The Oil & Gas is one of the most controversial industries, at the heart of the public debate around companies' environmental violations and abuses. Therefore, for these companies environmental disclosure may serve as an effective tool for gaining a broader social acceptance, ensuring the continuous flow of resources and contribute to their long-term prosperity (De Roeck & Delobbe, 2012).

This analysis starts by recognizing that discretionary disclosure strategies in narrative sections of corporate documents can be used either for impression management or for incremental information purposes. Most of the research on environmental disclosure with few exceptions (Clarkson et al., 2008), seems to ignore this duality and often implicitly adopts the opportunistic view (Neu et al., 1998; Cho et al., 2010; Jones, 2011). This approach, however, may be misleading unless one can demonstrate that discretionary choices in corporate environmental disclosure reflects

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environmental liabilities (i.e. FAS 5) [Davis Polk, Environmental Disclosure in SEC Filing, Jan. 21, 2009].



managerial opportunistic behavior aiming at exploiting information asymmetries through engaging in biased reporting. Therefore, this study attempts to differentiate between these two perspectives, analyzing the relationship between manager's use of language and future environmental performance.

Specifically, the focus is on the bias towards positive tone and formulate two alternative hypotheses. The incremental information hypothesis posits that managers use optimistic tone in environmental disclosure to signal expected positive future environmental performance. Conversely, under the impression management hypothesis, managers would use optimistic tone to conceal expected negative future environmental performance. The empirical results support the incremental information hypothesis, documenting that sample firms use optimism in environmental disclosures to signal future positive environmental performance.

Next, this study exploits the cross sectional variation across board of directors characteristics to investigate their influence on the tone's informativeness. This occurs following a recent stream of literature that investigates the relationship between discretion in corporate narratives and some corporate governance characteristics, mainly related to the board of directors. These studies find that board monitoring constrains managerial incentives to engage in discretionary disclosure strategies (Abrahamson & Park, 1994; García Osma & Guillamón-Saorín, 2011). However, recent research points out that, other than board monitoring, the board stakeholder orientation plays a role in shaping environmental disclosure (Mallin et al., 2012). The analysis of the use of language in environmental disclosures is added to this literature and, considering either the impression management or the incremental information hypothesis, it is anticipated that strong board monitoring and stakeholder orientation lead managers to use the tone bias in environmental disclosure not to mislead stakeholders, but rather to convey truthful information.

To examine the influence of board monitoring and stakeholder orientation on the informativeness of tone, both separately and simultaneously, some agency- and resource dependence-measures of the board characteristics are combined in two different factors. Then, the firms are partitioned according to the sample median of these factors, and using a matrix format, four clusters are created corresponding to



different “board types” (*effective monitored - stakeholder oriented*; *effective monitored - not stakeholder oriented*; *ineffective monitored – stakeholder oriented*; *ineffective monitored – not stakeholder oriented*). It is predicted, and found, that the contemporaneous presence of board monitoring and stakeholder orientation pushes *effective monitored & stakeholder oriented* firms to use more optimistic language to truthfully convey information on future environmental performance, thus both meeting stakeholders’ societal expectations and providing market participants with effective signal on future superior environmental performance.

Finally, this study investigates whether the main results are driven by the mandatory nature of 10-K environmental disclosure, performing an additional analysis on environmental disclosure in press releases. Press releases are different in nature and scope, being also subject to lower litigation risk (Aerts & Cormier, 2009; Guillamon-Saorin et al., 2012). Therefore, it is anticipated that managers can be strategic in their choice of language in environmental press releases. The Heckman model is used to control for selectivity in the firms’ decision to issue an environmental press release (Guillamon-Saorin et al., 2012) and it is still found that managers use optimistic tone in environmental press releases to predict future environmental performance. Therefore, these results suggest that managers’ language choices do not differ across alternative disclosure media.

The research contributes in several ways to the literature and the practice. First of all, it answers the recent call in the disclosure literature for incorporating both possibilities (impression management vs. incremental information) into research design aiming at investigating the discretionary disclosure strategies in corporate narratives (Merkl-Davies & Brennan, 2007).

Second, it does not only assesses the extent of discretion in environmental reporting, but it also identifies some corporate governance dimensions that may affect the informative - rather than opportunistic - role, thus contributing also to the corporate governance literature. By combining two different theories to explain the board of directors’ influence on the informativeness of the tone, it is also possible to investigate the influence of two roles of the board both simultaneously and in isolation. This evidence indicates that corporate board significantly affects disclosure



tone in environmental narratives only when they exhibit both strong monitoring and high stakeholder orientation.

Finally, this research contributes to the literature's debate on whether CSR disclosure is more about increased transparency or corporate image manipulation (Cho et al., 2012). In line with prior work (Mallin et al., 2012) it is found that the presence of stakeholder oriented boards increases the ability of external stakeholders to enforce their environmental claims, forcing managers to transparent communication and avoiding unduly optimistic disclosures.

Moreover, these results could provide investors with valuable insight to interpret managers' use of language in corporate narratives. While it is not provided a general examination of disclosure tone, the evidence on environmental disclosure suggests that managers use optimistic language to truthfully reveal their private information about future firm performance. These results also contribute to the regulators' debate on whether and under what conditions managers should be held legally accountable for qualitative disclosures in general, and linguistic choices in particular. It is shown that, at least in a high litigation environment, the inherent flexibility of the language provides firms with the opportunity to achieve a further reduction of information asymmetries, avoiding the costs of a tight regulation on disclosures. However, this evidence also stresses the importance of shareholder litigation as an external control mechanism in limiting managers' opportunistic disclosure choices. (Rogers et al., 2011)

The research is structured as follows. The following paragraph reviews relevant literature and develop testable hypotheses. The third paragraph details research design, discussing sample data and describing measures used in the empirical analysis. The forth paragraph presents descriptive and regression results, while the fifth concludes with a discussion of the main implications, limitations of this study and avenues for future research.

## **2. Theoretical background and hypotheses**

This study combines three different areas of research: environmental disclosure; impression management and corporate governance. This paragraph starts by



reviewing different theoretical perspectives on the use of discretionary disclosure strategies. Then, it introduces the thematic manipulation of disclosure through the use of language and formulate the first set of hypotheses. Finally, it discusses the influence of the board of directors' attributes in addressing the informativeness of language in environmental reporting and posits the second set of hypotheses.

### ***2.1 Discretionary strategies in environmental disclosure***

Discretionary disclosure strategies can be explained in the light of two competing views: the incremental information vs. impression management arguments (Merkl-Davies & Brennan, 2007).

According to agency theory, disclosure mitigates information asymmetries and agency costs between insiders and outsiders (Verrecchia, 2001). Therefore, managers exploit discretion in corporate narratives to truthfully convey additional value-relevant information in order to reduce the cost of capital and increase the market value of the firm (Healy & Palepu, 2001). This perspective is known in literature as the incremental information argument and assumes that managers have no economic incentives to engage in opportunistically biased reporting, since the market is able to assess bias, punishing the firm with low share price performance (Clarkson et al., 2010).

Nevertheless, another stream of literature suggests that managers may successfully engage in self-serving communication tactics to influence prices because the market is unable to assess reporting bias, at least in the short term (*Impression management*) (Clatworthy & Jones, 2001). The impression management view is grounded either in agency theory or in socio-political theories (e.g. legitimacy theory, stakeholder theory). Under agency theory, opportunistic managers might obfuscate failures and emphasize success to enhance their reputation and compensation, avoiding the negative consequences of poor performance. From a different point of view, socio-political theories argue that managers use impression management strategies to alter the user's perception of corporate achievements in an attempt to convince stakeholders to accept the management's view of society (Hooghiemstra, 2000). Although impression management literature stems from different theoretical



frameworks, the main argument is that managers self-servingly use the discretion in corporate communication to manipulate public' impression of the company, rather than conveying truthful information.

Although there are a few studies that attempt to differentiate between incremental information and impression management arguments (Lang & Lundholm, 2000; Barton & Mercer, 2005; Bowen et al., 2005), research on environmental disclosure seems to ignore this duality, and, with few exceptions (Clarkson et al., 2008, 2010), often adopt an impression management perspective. For instance, analyzing a sample of 33 publicly traded Canadian companies from 1982 to 1991, Neu et al. (1998) claim that "*the textually-mediated environmental disclosures contained in annual reports provide organizations with an effective method of managing public impression*" (Neu et al., 1998: 279). Jones (2011) examines the selective inclusion of graphs and the distortion of graphs in social and environmental and finds that companies from high impact industries tend to be more selective, trying to present relatively more good news than bad news. Cho et al. (2012) find evidence of both enhancement and obfuscation in the graph displayed in corporate sustainability reports. These aforementioned studies interpret the use of discretionary disclosure strategies in environmental reporting as opportunistic managerial behavior, aiming at self-servingly biasing information through decisions on the amount of information, the range of topics, and the rhetorical devices to be included in such disclosure.

Nevertheless, this interpretation may be premature unless one can first assess whether discretionary strategies in corporate narratives provide truthful information about *future* firm performance or are an impression management tool. To discern between these two alternative views, the focus is on the verbal tone in environmental reporting, investigating its association with measures of future environmental performance.

## ***2.2 Disclosure tone: incremental information or impression management?***

Managers can adopt different discretionary strategies in corporate narratives: disclosure choices on quantity, thematic content and attribution of organizational



outcomes, choices on presentation and diffusion of information (Merkl-Davies & Brennan, 2007).

Previous studies on environmental disclosure mainly focus on the amount and the characteristics (Neu et al., 1998; Hughes et al., 2001), the thematic content (Cho & Patten, 2007) as well as visual and structural presentation of disclosure (Cho et al., 2012). However, the wide diffusion and the increase in the length of environmental disclosures (KPMG, 2011) shed light on another key dimension of corporate communication: the use of language and verbal tone (Cho et al., 2010).

Disclosure tone (i.e. the use of optimistic versus pessimistic language) is a characteristic of the narrative disclosure that is captured through the use of nouns, adjectives, or verbs that express different sentiments (Sydserff & Weetman, 1999). According to Davis et al. (2012) language use and verbal tone is an important element of the information package of the firm. It provides a unifying framework for disclosures, that affect how market participants process the information but also how they perceive and understand it (Morris et al., 2005). However, this aspect of disclosure is by nature largely unregulated, thus leaving managers an inherent flexibility that can be used either to signal their expectations about future performance or to opportunistically manage the impression of market participants about the firm. Prior work on the information content of disclosure tone reports mixed results, some supporting the incremental information argument, while others the impression management view.

Research arguing that tone is incrementally informative for market participants (*Incremental information school*) shows that it is significantly associated with both current and future firm performance. Demers & Vega (2010) find that language in management quarterly earnings press releases is incrementally informative over the contemporaneously available “hard” information. Davis & Tama-Sweet (2012) find that a higher level of pessimistic language is associated with lower future firm performance. Davis et al. (2012) find a significant association between “optimism” in earnings press releases and future firm performance, and conclude that the language has information content beyond the quantitative disclosures. They also document that investors respond to this incremental information.



Nevertheless, as disclosure tone is relatively costless and difficult to detect, it provides managers with the opportunity to engage in opportunistic behavior aiming at influencing market's perception about future firm performance. Therefore, another stream of literature points out that the language may serve as an impression management strategy to alter and/or manipulate users perception of corporate achievements (*Impression management school*). According to Merkel-Davis & Brennan (2007) the bias towards reporting good news vs. bad news represents a type of thematic manipulation that is known as "concealment" behavior, through which managers may obfuscate failures (obfuscation) and emphasize success (image enhancement). Consistently, Land & Lundholm (2000) find that managers use language to "hype" their stock before seasoned equity offerings. Cho et al. (2010) document that the worst environmental performers use more "optimism" (image enhancement) and less "certainty" (obfuscation) in their environmental disclosure than better performing peers.

Given this conflicting evidence, this study empirically investigates whether the "optimism" in environmental disclosure is a discretionary strategy to provide incremental information rather than being an impression management tool, by formulating two alternative hypotheses on its association with future environmental performance.

In line with the incremental information school, it is argued that if managers use the language of environmental disclosure to communicate truthful, value-relevant information, they will bias the tone of corporate narratives to align investors' expectation about future performance to their own assessment (Ajinkya & Gift, 1984). Therefore, managers anticipating positive environmental performance will use more optimistic language to convey their future expectation to shareholders. Thus, the following hypothesis is formulated (*Incremental information hypothesis*).

*HP<sub>1a</sub> Ceteris paribus, the "optimism" in corporate environmental disclosure is positively associated with future environmental performance*

Conversely, from an impression management perspective, managers may self-servingly bias environmental disclosure to pursue their own benefits at the expense of the informativeness of such disclosure and/or to face threats of legitimacy. In such



a setting, the more the firm performance differs from a desired benchmark, the more the management is motivated to adopt opportunistic language choices to alter stakeholders' impression of corporate achievements (Cho et al., 2010). Therefore, managers, anticipating poor environmental performance, are expected to use more "optimistic" language in environmental disclosure. Then, the following alternative hypothesis is formulated (*Opportunistic impression management hypothesis*).

*HP<sub>1b</sub> Ceteris paribus, the "optimism" in corporate environmental disclosure is negatively associated with future environmental performance*

### **2.3 The influence of board monitoring and stakeholder orientation**

Environmental disclosure is, however, part of the overall disclosure strategy that is determined by a cost-benefit assessment (Cormier & Magnam, 1999). Therefore, whether firms use tone as an informative strategy rather than an impression management tool should depend on the incentives that managers have when deciding to disclose truthfully rather than opportunistically. As disclosure emanates from the board (Haniffa & Cooke 2005; Cheng & Courtenay 2006; Cerbioni & Parbonetti 2007; Michelon & Parbonetti 2010), the focus is on that part of incentives stemming from the board of directors' characteristics.

Traditionally, studies on the influence of board of directors on corporate transparency emphasize the monitoring or control role of the board of directors (Johnson et al., 1996; Zahra & Pearce 1989). This literature, rooted in agency theory, claims that the primary role of the board is to monitor managers ensuring that they behave in the shareholders' interests. Because disclosure is selective and self-interested managers may exploit reporting discretion to conceal or distort information, the monitoring of the board is essential in ensuring high level of firm transparency (Jensen & Meckling, 1976). Within the agency framework, a well developed strand of literature examines whether board of directors' attributes, such as board size and structure or the board-CEO relationship mitigate opportunistic management behavior in the context of quantitative mandatory information (Beasley, 1996; Peasnell et al., 2005).



However, studies on the influence of board of directors on discretionary disclosure strategies are much more limited. Abrahamson & Park (1994) document that outside directors, large institutional investors, and accountants constrain the concealment of negative organizational outcomes in the president letters. Mather & Ramsay (2007) find that board independence limits the selective inclusion of graphs in financial reports and the distortion of the graphs' construction. Analyzing a broader set of impression management measures, García Osma & Guillamón-Saorín (2011) find that the strength of corporate governance (proxied by characteristics of structure and functioning of the board of directors) constrains managerial incentives to bias the presentation and the diffusion of information in ARPR, thus reducing the extent of impression management.

This study bases its prediction on this literature, but going one step further, it recognizes that discretionary strategies in corporate narratives may also fulfill an informative rather than an opportunistic role. Therefore, it is predicted that strong board-based monitoring reduces the managers incentives to opportunistically exploit reporting discretion in order to manipulate outsider's impressions, but increases the likelihood that they will engage in informative discretionary strategies to boost the corporate communication. In other words, it is anticipated that board monitoring intensity will push manager to language choices in environmental reporting that convey truthful value-relevant information about future environmental performance. This, in turn, lead to the following hypothesis:

*HP<sub>2</sub> Ceteris paribus, board monitoring intensity is positively associated with the informativeness of the tone in environmental disclosure.*

Nevertheless, according to the resource dependence theory, the board is assigned another important function: the service role (Hillman & Dalziel, 2003)<sup>110</sup>. Within this framework directors, because of their prestige in the profession and community, are able to extract resources vital to the corporation (e.g. information, ties, legitimacy), reducing the transaction costs associated with the environmental uncertainty (Pfeffer, 1972). Therefore, the importance of the board of directors is strictly related to its

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<sup>110</sup> A third role assigned to the board of directors is the strategic role. As the examination of the strategic role of directors is outside the scope of this analysis, see Pugliese et al. (2009) for a complete review.



ability to establish linkages with external environment, through which it may represent the firm in the community, thus enhancing organizational legitimacy and reputation (Daily & Dalton, 1994; Hambrick & D'Aveni, 1992)<sup>111</sup>. Mallin et al. (2012) point out that the service role of the board with respect to stakeholders gives rise to a further dimension of the board activity, which becomes particularly important in the context of environmental reporting: the “stakeholder orientation”.

This dimension captures the ability of the board of directors to fulfill its fiduciary duties not only towards the owners, but also towards all the firm's stakeholders, by responding to their various and diverse expectations. For instance, a board composed of directors who are highly reputed in the community, or with a greater variation among its members may increase the degree to which stakeholders enforce their claims because they are likely to be proposed by relevant stakeholders and their interests are more closely aligned with the external community (Kassinis & Vafeas, 2002). This, in turn, fosters the corporate social responsibility (Sacconi, 2006) and enhances the organizational legitimacy (Ullmann, 1985; Zattoni, 2011). Michelon & Parbonetti (2010) argue that the stakeholders-legitimacy perspective of directors' role can be considered complementary to the agency-based view of the board, and help explain the influence of board of directors on social and environmental disclosure. Haniffa & Cooke (2005) find that non-executive directors can put pressure on companies to engage in social and environmental disclosure to ensure the congruence between organizational actions and societal values or organizational legitimacy. In the analysis of the corporate governance path leading to social and environmental disclosure, Mallin et al. (2012), find that stakeholder-oriented governance mechanisms lead to higher environmental performance, and eventually to more transparent environmental disclosure<sup>112</sup>.

Therefore, the stakeholder orientation of the board is expected to play a role also in shaping managerial language choices in environmental disclosure. Specifically, it is

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<sup>111</sup> Also from a legalistic perspective the service role of the board involves enhancing company reputation, establishing contact with the external environment, giving counsel and advice to executives (Carpenter, 1988; Zahra & Pearce, 1989).

<sup>112</sup> Mallin et al. (2012) examine the determinants of the social and environmental disclosure taking into account dimensions of the corporate governance that go beyond the role of the board of directors, such as the nature and the concentration of the ownership. However, as this study is interested only in the effect of the board of directors, the characteristics of the board will be only considered.



anticipated that stakeholder-oriented boards push managers to bias disclosure tone in order to convey additional truthful environmental information addressing various social, environmental and ethical expectations, thus improving the informativeness of this type of communication for the broader community of stakeholders. Moreover, their role goes beyond improving the information flow between managers and outsiders. Minority representative directors, directors' community prestige and connections may themselves enhance the firm's status in the business community (Unerman & Bennett, 2004). This will prevent future legitimacy threats, which, in turn, reduces the need to engage in impression management strategies aiming at facing firm's legitimacy gap. Thus, the following hypothesis is posited:

*HP<sub>3</sub> Ceteris paribus, the board stakeholder orientation is positively associated with the informativeness of the tone in environmental disclosure.*

### **3. Research Method**

#### ***3.1 Sample and data collection***

A sample of firms listed in the US Stock Market in the 2009 and 2010 belonging to the Oil & Gas industry is selected. The focus is on the Oil & Gas industry since it is one of most controversial environmentally sensitive industries, at the heart of the public debate around companies' environmental violations and abuses. Therefore, for these companies environmental disclosure plays a very significant role for gaining a broader social acceptance, ensure the continuous flow of resources and contribute to their long-term prosperity (De Roeck & Delobbe, 2012). The choice of the sample is also driven by recent studies documenting a large diffusion among Oil & Gas companies of several communication tactics to boost the effectiveness of CSR-related information (Du & Vieira, 2012).

This initial sample comprises all companies from Compustat Global dataset. Next, US companies operating in the Oil & Gas industry are selected by using the two-digit SIC code classification. Then, companies that are not listed in KLD's SOCRATES database are eliminated. Finally, companies for which it is not possible to collect 10-K filings and other required documents are eliminated, as well as companies with



missing data for the financial and governance variables. The total number of the firm-years observation is equal 226, corresponding to 113 unique firms. (Table 1).

***Table 1. Sample distribution***

SIC-code	Year		Total
	2009	2010	
1311	64	64	128
1381	8	8	16
1382	3	3	6
1389	8	8	16
2911	11	11	22
4922	2	2	4
4923	7	7	14
4924	10	10	20
Total	113	113	226

Table 1 reports the sample distribution. The full sample comprises 226 firm-year observations corresponding to 113 unique US firms belonging to the Oil&Gas industry in 2009-2010.

### ***3.2 Measure of environmental performance***

To test the hypotheses it is required a measure of future environmental performance as dependent variable. To this aim, the analysis relies on KLD's SOCRATES database, which is a comprehensive research database measuring the social and environmental performance of corporations, widely used in the recent environmental accounting research (Cho et al., 2006; Cho & Patten, 2007; Cho et al., 2010). The database provides independent rates of hundreds of companies traded on the US Stock Exchanges measuring their social performance across a range of dimensions such as Community, Corporate Governance, Environment, Employee Relations. For each area, KLD analysts assign "strengths" and "concerns" on a 5-point scale. Among the multi-dimensional concepts of corporate social performance provided by the KLD's database, the scores are selected for the environmental performance of one fiscal year ahead (2010-2011) the year of analysis for environmental disclosure (2009-2010). Specifically, according to Cho et al., (2010) this study refers to the environmental concern ratings that are assigned to companies referring to the following seven items (i) Hazardous Waste, (ii) Regulatory Problems, (iii) Ozone Depleting Chemicals, (iv) Substantial Emissions, (v) Agricultural Chemicals, (vi)



Climate Change, (vii) Other Concern. Thus, firms with higher environmental concern scores have worse environmental performance. However, as more than 52% of the sample firms have environmental ratings equal to 0 ( $n = 119$ ), this analysis is conducted by focusing on sample firms that have at least one concern. Therefore, the dependent variables ( $EP_{t+1}$ ) is a dummy variable equal to one if sample firms exhibit environmental concerns greater or equal to 1, 0 otherwise.

### ***3.3 Measure of discretionary disclosure strategies***

The extent of discretionary disclosure strategies in environmental reporting is measured using the bias in disclosure tone. In doing so, this research follows the suggestion of Cho et al. (2010) arguing that *“the language and verbal tone used in environmental disclosures (...) must be considered when investigating the relationship between corporate disclosure and performance”*. According to Cho et al. (2010), the tone of environmental disclosure in the 10-K filings is captured, by performing a computer-aided content analysis of the information provided in Section 1 (Description of the Business)<sup>113</sup>. It has been chosen to analyze the tone of narrative information in 10-K mandatory filings, as they are among the potentially most effective means to manage impressions given the closeness of the narrative section and the more credible and verifiable audited information (Neu et al., 1998). However, as additional analysis, disclosure tone in voluntary corporate documents (environmental press releases) is also examined to check whether the nature of the information provided (mandatory vs. voluntary) affect the informative value of communication strategies.

DICTION 5.0 is used to measure disclosure. It is a widely used software for linguistic analysis. Relying on a set of dictionaries developed according to the linguistic theory (Bligh et al., 2004), this software perform a word frequency counts on the input text, providing as output five master variables (“optimism”, “activity”, “realism”, “commonality”) that allow users to perform a lexical analysis. The use of

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<sup>113</sup> Other sections that potentially could contain environmental information are Section 3 (Legal Proceedings) and Section 7 (Management’s Discussion and Analysis). However, following the suggestion of Cho et al. (2010) both Sections are excluded to minimize concern of a confounding analysis.



DICTION has several advantages. First, it computes an optimism score, which is a continuous variable rather than a categorical variable. Second, the score is normalized by the word number, increasing the comparability of results between disclosures of different lengths. Finally, it ensures greater objectivity of the results and allows substantial time saving relative to other manual coding procedures. Nevertheless, it is not without limitations. Unlike manual procedures, DICTION does not consider the context in which the words have been used, thus introducing noise into the computed score. However, the trade-off between DICTION's strength and weaknesses is arguably in favor of the use of this software. Thus, the "optimism" score is employed as the measure of the tone bias (OPT)<sup>114</sup>.

### ***3.4 Measures of board monitoring and stakeholder orientation***

The influence of reporting incentives over the informativeness of disclosure tone is captured by focusing on two roles of the board of directors: the board monitoring and the board stakeholder orientation. Each of the two dimensions emphasizes different directors' responsibility and is captured by different attributes of the board. From an agency perspective the quality of the board as a monitor is a function of several attributes such as the directors independence, the degree to which they are dependent from the CEO and the presence of the audit committee (Zahra & Pearce, 1989). Thus, the board monitoring intensity is measured with five different measures: (i) board size, (ii) CEO-duality, (iii) proportion of independent directors, (iv) expertise of the audit committee members.

A board comprised of many directors may experiment coordination costs and free-riding problems that prevent the effective monitoring on the financial reporting practices (Lipton & Lorsh, 1992). However, it may also offer a better advice to the CEO due to the broader expertise of its member (Dalton et al., 1999). The board size (B\_SIZE) is measured as the total number of directors sitting on the board.

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<sup>114</sup> Optimism is defined as "*Language endorsing some person, group, concept or event or highlighting their positive entailments*". It is computed through the following formula [Praise + Satisfaction + Inspiration] -[Blame + Hardship + Denial] (DICTION 5.0 Manual - Hart, 2000). Following Ober, Zhao, Davis & Alexander (1999) and Cho et al., (2010) the "optimism" master variable is reported without adjustment.



Board consisting primarily of insiders is considered to be less effective at monitoring. Conversely, independent directors are less susceptible to the CEO (Weisbach, 1988), thus they help aligning the board activities with the interest of stakeholders (Brammer & Pavelin, 2006), providing managers with incentives to convey truthful information (Haniffa & Cooke, 2005). This study captures the independence of the board (IND) by considering the proportion of independent directors.

CEO duality refers to the combination of the CEO and Chairman's role. Agency-centered theories and codes of best practice of corporate governance recommend the separation of these roles to ensure the board has greater independence from management (Fama & Jensen, 1983). Therefore, the independence of the board members from the CEO is measured with a dummy variable taking the value of 1 if CEO is also the Chairman of the board (CEO\_DUAL).

Among the various sub-committees that the board of directors may nominate, the audit committee is arguably the most important, having the ultimate responsibility to oversee corporate disclosure policies. To proxy for its monitoring ability it is employed the audit committee's financial expertise (DeFond et al., 2005). This measure captures the presence of audit committee members with specific knowledge in finance and accounting areas. To this aim, each board member biography is read and directors are classified as an accounting/financial expert if she/he has experience as public accountant, chief accounting officer, auditor, CFO, controller or former CEO of a for-profit organization. Then, the final proxy of audit committee financial expertise is a dummy variable equal to one if the number of financial expert in the audit committee is equal or above the sample median (AC\_FE).

This study also considers the stakeholder-orientation of the board. It relies on the characteristics of the board of directors that, according to the resource dependence theory, proxy for its ability to perform a service role towards firms stakeholders. They are: (i) directors connections, (ii) presence of directors who are "community influential", (iii) board diversity, (iv) presence of a specific CSR/ethic/sustainability committee.



The first attribute encapsulates the network of ties to other firms created through the presence of the same director on the board of different organizations, a situation that is often referred in the literature as interlocking directorship (Haunschild, 1993). Directors connections not only provide a network of ties with other organizations, that are pivotal for the company's success and survival but also professional competence and prestige, necessary to legitimizing the firm service (Zahra & Pearce, 1989). For instance, Bazerman & Schoorman (1983: 211) claim that an "organization's reputation can be affected by who serves on the board of directors and to whom the organization is seen to be linked" (Hambrick & D'Aveni, 1992). The directors connection is measured as the logarithm of the total number of directorships held by each director (B\_EXT).

This study also considers the presence of community influential members, i.e. retired politicians, academics, members of social organizations, that due to their experience bring connections to community groups and provide non-business perspectives on the firm's actions and strategies (Hillman et al., 2000). Their network of ties aids the company in understanding and responding to its environment. They often directly represent the interests of external stakeholders (Kassinis & Vafeas, 2002), and put pressure on executives for more informative disclosure in order to promote the firm's legitimacy. The presence of "community influential" is measured by a dummy variable taking the value of 1 if the number of "community influential" is equal or above the sample median (B\_CI). This proxy was chosen in order to better isolate firms that, having a number of "community influential" particularly high, distinguish themselves relative to their peers. According to Hillman et al. (2000) and Michelon & Parbonetti (2010) community influential is defined as academicians, politicians (including retired politicians), military officers (including retired military officers) and members or directors of social/non profit organizations (including members of clergy and religious leaders). This information was hand collected using the same procedure adopted to identify financial and accounting experts in the audit committee.



Board diversity refers to the variation among its members as proxied by the gender diversity (i.e. the presence of female on board)<sup>115</sup>. Several studies show that having more women on boards enhances firms' reputation (Bernardi et al., 2006; Brammer et al., 2009). Finally, women on board are more likely than man to be community influential (Hillman et al., 2002), being able to sensitize boards towards CRS activities, including environmental disclosure (Bear et al. 2010). Therefore, the board diversity is measured with the logarithm of the number of female directors (B\_FEM).

The last measure of stakeholder orientation is the presence of a specific CSR/ethic/sustainability committee (D\_SHE). It oversees the company's policies on social, environmental, and other matters of significance to the firm's reputation as a global corporate citizen. Among its responsibilities and activities there is the monitoring of practices relating to the company's global social and environmental accountability and the oversight of the publication of CSR Report (if present). As it provides stakeholders with the assurance that the firm involvement in CSR activities is real it is expected that it will force the board of directors to provide a more reliable environmental disclosure.

### ***3.5 Control variables***

As the use of impression management tactics in environmental reporting is a part of a broader communication strategy that includes financial accounting information, the first control variable is the level of earnings management. Several recent studies document the presence of a close relationship between the manipulation of quantitative accounting data (earnings management) and manipulation of more qualitative narrative information (impression management) (Godfrey et al., 2003; Guillamón-Saorín & García Osma, 2010; Aerts & Chen, 2011; García Osma & Guillamón-Saorín, 2011). As consequence it is anticipated that the extent of earnings management may play a role in addressing the manager decision to bias the tone as an opportunistic device to maintain organizational legitimacy and garner support from stakeholders whose interests are damaged by EM practices.

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<sup>115</sup> Board diversity is recognized as a broader concept, including not only gender diversity, but also race, age and possible disabilities. However, given the difficulties in proxying for such multiple aspects, following Mallin et al. (2012) and Coffey & Fryxell (1991) the focus is on gender diversity.



To measure the extent of earnings management, this study uses the cross-sectional modified Jones Model (Dechow et al., 1995) by pooling firms for year to estimate coefficients in equation (1):

$$TA_{i,t}/Assets_{i,t} = a_1*(1/Assets_{i,t}) + a_2*(\Delta SALES_{i,t}/Assets_{i,t}) + a_3*(PPE_{i,t}/Assets_{i,t}) + \varepsilon_{i,t} \quad (1)$$

where:

Assets: Total Assets for the period t;

$TA_{i,t} = EBEI_{i,t} - CFO_{i,t}$ ;

$EBEI_{i,t}$  = Earnings before extraordinary items for the period t;

$CFO_{i,t}$  = Operating Cash Flow for the period t;

$\Delta SALES_{i,t}$  = Change in sales from period t-1 to period t;

$PPE_{i,t}$  = Gross level of property, plant and equipment;

Then, the estimated parameters from the Equation (1) is used in the following model (2) to calculate non discretionary accruals ( $NDA_{i,t}$ ):

$$NDA_{i,t} = \hat{a}_1*(1/Assets_{i,t}) + \hat{a}_2*[(\Delta SALES_{i,t} - \Delta AR_{i,t})/Assets_{i,t}] + \hat{a}_3*(PPE_{i,t}/Assets_{i,t}) + \varepsilon_{i,t} \quad (2)$$

where:

$\Delta SALES_{i,t}$  = change in sales from period t-1 to period t;

$\Delta AR_{i,t}$  = change in accounts receivable from period t-1 to period t;

$PPE_{i,t}$  = gross level of property, plant and equipment.

Then, discretionary accruals ( $DA_{i,t}$ ) are computed as follows.

$$DA_{i,t} = (TA_{i,t}/Assets_{i,t}) - NDA_{i,t}$$

The final measure of earnings management is the absolute value of the computed discretionary accruals ( $DA\_ABS$ ), as it is not of interest the direction of the manipulation, but rather the level of manipulation,

Then, this study considers variables that may drive discretionary disclosure strategies and also affect the informativeness of the tone, including variables that might influence future environmental performance. It is measured the presence of growth



opportunities with the Market-to-Book ratio (MTB) and the level of capital intensity with the level of property, plant and equipment divided by the total asset (TANG). Firm size is controlled with the logarithm of total asset. Finally, economic performance is controlled with the Return on Equity (ROE) and the financial structure is controlled with an indicator variable taking the value of 1 if the company total debt is increased by more than 10% in the current period, 0 otherwise (D\_ISSUE). Archival data on board of directors are hand-collected from proxy statement or gathered from Corporate Library Database, while financial variables are collected from COMPUSTAT Database<sup>116</sup>.

Table 2 provides a detailed explanation of the variables definition and sources.

**Table 2. Variables definition**

Variable Name	Variable Label	Definition	Source
<b>Panel A: Environmental performance</b>			
EP <sub>t+1</sub>	Environmental performance one year ahead	Dummy variable equal to one if firm has at least one environmental concern in the year t+1	KLD's SOCRATES database
<b>Panel B: Discretionary disclosure strategies</b>			
OPT	Optimism in environmental 10-K disclosure	DICTION's "optimism" score computed by analyzing Section 1 of 10-K filings	Companies 10-K filings
OPT_PR	Optimism in environmental press releases	DICTION's "optimism" score computed by analyzing environmental press releases	Companies Press Releases
<b>Panel C: Board monitoring</b>			
B_SIZE	Board Size	Total number of directors sitting on company board	Corporate Library
IND	Board Independence	Proportion of independent directors sitting on company board	Corporate Library
CEO_DUAL	CEO_Duality	Dummy variable =1 if CEO is also Chairman of the board; 0 otherwise	Corporate Library
AC_FE	Audit committee financial expertise	Dummy variable= 1 if the number of audit committee members with financial expertise is equal or above the sample median; 0 otherwise	Hand-collected from 10-K filings

<sup>116</sup> To control for outliers some financial variables are winsorized at 10%.



### CHAPTER THREE

<b>Panel D: Stakeholder orientation</b>			
B_EXT	Directors connections	Natural logarithm of the total number of directorships held by each director	Corporate Library
B_FEM	Female representation	Natural logarithm of the number of female directors	Corporate Library
B_CI	Community Influentials	Dummy variable= 1 if the number of “community influential” (Hillman et al., 2000) is equal or above the sample median; 0 otherwise	Hand-collected from 10-K filings
D_SHE	CSR/Ethic/Sustainability committee	Dummy variable =1 if company board has a formal CSR/ethic/sustainability committee; 0 otherwise.	Hand-collected from 10-K filings
<b>Panel E: Control variables</b>			
DA_ABS	Discretionary accruals	Absolute value of discretionary accruals from the Modified-Jones Model	COMPUSTAT GLOBAL
TANG	Tangibility	End of the year property, plant and equipment divided by the end of the year total asset	COMPUSTAT GLOBAL
ROE	Return on Equity	Net Income divided by the end of the year book value of equity	COMPUSTAT GLOBAL
SIZE	Firm Size	Natural Logarithm of the end of the year Total Asset	COMPUSTAT GLOBAL
D_ISSUE	Debt issue	Dummy variable=1 if company total debt is increased by more than 10% in the current period; 0 otherwise	COMPUSTAT GLOBAL
<b>Panel F: Earnings management variables</b>			
TA	Total Accrual Earnings before extraordinary items	EBI-CFO	COMPUSTAT GLOBAL
EBI	Operating Cash Flow	Earnings before extraordinary items for the period t	COMPUSTAT GLOBAL
CFO	Change in Net Sales	Operating Cash Flow for the period t	COMPUSTAT GLOBAL
ΔSALES	Property, plant and equipment	Net Sales for the period t minus net Sales for the period t-1	COMPUSTAT GLOBAL
PPE	Total Asset	Gross level of property, plant and equipment for the period t	COMPUSTAT GLOBAL
ASSETS	Change in Accounts Receivables	Total Asset for the period t	COMPUSTAT GLOBAL
ΔAR		Net Account Receivables for the period t minus Account Receivables for the period t-1	COMPUSTAT GLOBAL

Table 2 reports label of variables used in the empirical analysis, their definition and the sources of the data. The full sample comprises 226 firm-year observations corresponding to 113 unique US firms belonging to the Oil&Gas industry in 2009-2010.



## 4. Results

### 4.1 Descriptive statistics and correlation analysis

Table 3 presents descriptive statistics for dependent and independent variables used in the empirical analysis.

**Table 3. Descriptive statistics**

	N	mean	min	p25	p50	p75	max	sd
<b>Panel A: Environmental performance and disclosure tone</b>								
EP <sub>t+1</sub>	226	0.473	0	0	0	1	1	0.501
OPT	226	47.011	44.24	45.64	47.215	48.41	49.18	1.633
<b>Panel B: Board monitoring</b>								
B_SIZE	226	9.606	5	8	10	11	17	2.321
CEO_DUAL	226	0.575	0	0	1	1	1	0.495
IND	226	0.644	0	0.555	0.666	0.75	0.888	0.156
AC_FE	226	0.513	0	0	1	1	1	0.500
<b>Panel C: Board stakeholder orientation</b>								
B_FEM	226	0.431	0	0	0	0.693	1.386	0.473
B_EXT	226	2.643	0.693	2.565	2.706	2.706	3.663	0.313
B_CI	226	0.495	0	0	0	1	1	0.501
D_SHE	226	0.143	0	0	0	0	1	0.349
<b>Panel D: Control variables</b>								
DA_ABS	226	0.106	0.001	0.027	0.059	0.109	2.309	0.211
MTB	226	2.211	-23.322	1.383	1.937	2.491	33.460	3.676
TANG	226	1.317	0.177	0.893	1.113	1.444	7.165	0.808
SIZE	226	7.734	3.616	6.620	7.766	8.702	12.252	1.775
D_ISSUE	226	0.518	0	0	1	1	1	0.501
ROE	226	-0.066	-3.601	-0.084	0.051	0.125	1.095	0.496

Table 3 reports the descriptive statistics for variables of analysis. Panel A provides results for environmental performance and disclosure tone. Panel B provides results board monitoring proxies. Panel C provides results for stakeholder orientation proxies, while Panel D provides descriptives for control variables. The full sample comprises 226 firm-year observations corresponding to 113 unique US firms belonging to the Oil&Gas industry in 2009-2010. See Table 2 for variables definitions.

As expected more than a half of the sample firms have positive environmental performance ( $EP_{t+1}=0$ ), confirming that companies from high environmental sensitive industry (Oil & Gas) are under greater pressure for their environmental outcomes. The optimism score takes values between 44.24 and 49.18, with the average company having a score of 47.01. Concerning the characteristics of the board of directors the mean (median) value of directors sitting on a board is about 10, with the minimum of 5 to the maximum of 17.



**Table 4. Correlation analysis**

	N	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R
<b>A: EP<sub>t+1</sub></b>	226		-0.098	0.176*	0.098	0.056	0.125*	0.024	0.033	0.018	0.250*	0.001	0.117*	0.112*	0.518*	0.170*	0.148*
<b>B: OPT</b>	226	-0.105		0.048	0.073	0.065	0.064	0.040	0.050	-0.020	-0.126*	-0.025	-0.002	0.150*	-0.020	0.020	-0.038
<b>C: B_SIZE</b>	226	0.191*	0.036		0.058	0.302*	0.148*	0.583*	0.453*	0.502*	0.392*	-0.259*	-0.140*	-0.220*	0.622*	0.068	0.204*
<b>D: CEO_DUAL</b>	226	0.098	0.049	0.082		0.128*	0.059	0.025	0.032	0.151*	0.067	-0.071	-0.025	0.012	0.202*	0.066	0.183*
<b>E: IND</b>	226	0.088	0.043	0.261*	0.161*		0.033	0.317	0.274*	0.248*	0.360*	-0.139*	-0.170*	0.024	0.330*	0.097	0.102
<b>F: AC_FE</b>	226	0.125*	0.064	0.159*	0.059	0.018		0.048	0.078	0.008	0.065	-0.104	-0.077	0.085	0.145*	-0.054	0.021
<b>G: B_FEM</b>	226	0.028	0.010	0.604*	0.034	0.316*	0.056		0.380*	0.382*	0.326*	-0.225*	-0.133*	-0.196*	0.361*	-0.027	0.185*
<b>H: B_EXT</b>	226	0.108	-0.035	0.463*	0.008	0.233*	0.099	0.348*		0.338*	0.251*	-0.084*	-0.123*	-0.189*	0.325*	-0.033	0.044*
<b>I: B_CI</b>	226	0.018	-0.033	0.496*	0.150*	0.173*	0.009	0.387*	0.328*		0.174*	-0.153*	-0.169*	0.014	0.377*	-0.003	0.152*
<b>L: D_SHE</b>	226	0.250*	-0.148*	0.409*	0.0667	0.312*	0.065	0.334*	0.319*	0.174*		-0.099	0.020	-0.119*	0.403*	0.138*	0.207*
<b>M: DA_ABS</b>	226	-0.084	0.054	-0.092	-0.127*	-0.217*	-0.120*	-0.069	-0.028	-0.124*	-0.077		0.166*	-0.008	-0.265*	0.143*	-0.151*
<b>N: MTB</b>	226	0.118*	0.010	-0.126*	-0.127*	-0.145*	-0.073	-0.019	-0.071	-0.165*	-0.017	0.121*		0.085	-0.052	0.176*	0.106
<b>O: TANG</b>	226	0.065	0.139*	-0.241*	0.072	0.073	-0.000	-0.159*	-0.106	-0.023	-0.126*	-0.111*	-0.051		-0.022	0.142*	-0.095
<b>P: SIZE</b>	226	0.484*	-0.031	0.635*	0.222*	0.294*	0.173*	0.398*	0.363*	0.405*	0.438*	-0.268*	-0.089	-0.129*		0.121*	0.292*
<b>Q: D_ISSUE</b>	226	0.170*	0.025	0.081	0.066	0.073	-0.054	-0.025	-0.028	-0.000	0.138*	0.153*	0.057	-0.180*	0.097		0.085
<b>R: ROE</b>	226	0.077	-0.030	0.111*	0.133*	0.038	0.076	0.059	0.028	0.115*	0.128*	-0.041	-0.393*	-0.057	0.152*	0.059	

Table 4 reports the correlation analysis for variables used for empirical analysis. Below (above) the diagonal are reported Pearson (Spearman) correlation coefficients. The full sample comprises 226 firm-year observations corresponding to 113 unique US firms belonging to the Oil&Gas industry in 2009-2010. \* denotes significance at 10% level (two-tailed). See Table 2 for variables definitions.



The proportion of independent directors has a mean of (median) 64% (66%), while the average audit committee is composed of at least two financial experts. These results suggest that the board of directors of the average sample company behaves as an effective monitor, which seems in line with the strict enforcement and regulatory regime existing in the US post Sarbanes-Oxley era. Looking at the board's stakeholder orientation attributes, a tendency towards a low degree of board diversity can be observed, with the mean (median) number of female sitting on the board equal to 0. The average directors' connections with external community is quite high, since a half of the sample firms has at least one community influential, with the mean (median) number of directors' connections about 13. Very surprisingly, only 14% of the board has a formal CRS/ethics/Sustainability committee. Finally, concerning the financial structure the average sample firm tends to be a growing firm with high level of capital intensity, strong financial needs and a negative economic performance.

Table 4 provides the Pearson (Spearman) correlation coefficients between the variables employed in the empirical analysis. Environmental concerns are negatively correlated with the optimism score, and positively with some of the board of directors' characteristics. Board of directors' attributes are positively correlated to each other. The only exception is the audit committee's financial expertise that is positively correlated with other monitoring proxies, and negatively correlated with stakeholder orientation's variables.

#### ***4.2 Factor analysis of board monitoring and stakeholder orientation measures***

Previous literature suggests that monitoring and stakeholder orientation refers to two roles of the board of directors that are theoretically distinct, but may be performed together (Hillman et al., 2000). Therefore, to examine the effects of these two dimensions on the informativeness of the tone both separately and simultaneously a matrix format is built as follows. To capture the extent of monitoring intensity and stakeholder orientation of the board, the board of directors' measures are combined in two binary factors through a principal component analysis. The first factor (MONITORING) proxies for the board monitoring intensity and include the agency-based board attributes (board size; CEO duality; proportion of independent directors;



size and financial expertise of the audit committee). The second factor (STAKEHOLDER\_ORIENTATION) captures the stakeholder orientation of the board and includes measures that, according to the resource dependence role, are indicative of an orientation towards the stakeholders (directors connections; female representation; community influential; presence of a CSR/ethical/sustainability committee).

**Table 5. Factor analysis**

<b>Panel A: Monitoring factor</b>		
<i>Variable</i>	<i>Eigenvectors</i>	<i>kmo</i>
B_SIZE	0.610	0.525
CEO_DUAL	0.415	0.590
IND	0.587	0.520
AC_FE	0.334	0.504
Number of obs:	226	
Eigenvalue:	1.395	
Variation explained:	0.349	
Overall kmo:	0.5293	
<b>Panel B: Stakeholder orientation factor</b>		
<i>Variable</i>	<i>Eigenvectors</i>	<i>kmo</i>
B_FEM	0.544	0.678
B_EXT	0.517	0.714
B_CI	0.482	0.677
D_SHE	0.452	0.694
Number of obs:	226	
Eigenvalue:	1.951	
Variation explained:	0.488	
Overall kmo:	0.690	

Table 5 reports results of the principal component analysis. Panel A provides eigenvectors and the Kaiser-Meyer-Olkin measure of sampling adequacy (kmo) for the monitoring factor, while Panel B provides these measures for the stakeholder orientation factor. In both cases we retain the first factor which is the only one having an eigenvalue greater than 1. The full sample comprises 226 firm-year observations corresponding to 113 unique US firms belonging to the Oil&Gas industry in 2009-2010. See Table 2 for variables definitions.

Table 5, Panel A provides eigenvectors and the Kaiser-Meyer-Olkin measure of sampling adequacy for the monitoring factor, while Panel B provides these measures for the stakeholder orientation factor.



Next, the sample firms are partitioned by creating two binary variables according to the sample median of both factors. Specifically, a firm is classified as having high monitoring (MON=1) if it has the firm-specific value of monitoring factor above the sample median. Similarly, a firm is classified as having high stakeholder orientation (STK=1) if it has the firm-specific value of board stakeholder orientation factor above the sample median. By developing these two separate dimensions of board structure, MON and STK, it is possible to analyze the effects of board on the information content of the tone in four distinct circumstances. Figure 1 illustrates the four possible combinations of board types using MON and STK in a matrix format.

**Figure 1. Board types matrix**

		<b><u>STAKEHOLDER ORIENTATION</u></b>	
		<b>HIGH</b>	<b>LOW</b>
<b><u>MONITORING</u></b>	<b>HIGH</b>	<b>Effective monitored stakeholder oriented (MON_STK)</b>	<b>Effective monitored not stakeholder oriented (MON)</b>
	<b>LOW</b>	<b>Ineffective monitored stakeholder oriented (STK)</b>	<b>Ineffective monitored not stakeholder oriented (NO_MON_STK)</b>

Figure 1 displays the matrix obtained by combining the MONITORING and STAKEHOLDER ORIENTATION factors, according to the sample median. Firms from the upper left quadrant exhibit the firm-specific value of both MONITORING and STAKEHOLDER ORIENTATION factors above the sample median (n=80). Firms from the upper right quadrant exhibit the firm specific value of MONITORING factor above the sample median while the value of STAKEHOLDER ORIENTATION factor equal or below the sample median (n=33). Firms from the lower left quadrant exhibit the firm specific value of MONITORING factor equal or below the sample median while the value of STAKEHOLDER ORIENTATION factor above the sample median (n=34). Firms from the lower right quadrant exhibit the firm-specific value of both MONITORING and STAKEHOLDER ORIENTATION factors equal or below the sample median (n=79). The full sample comprises 226 firm-year observations corresponding to 113 unique US firms belonging to the Oil&Gas industry in 2009-2010. See Table 2 for variables definitions.

In the upper left quadrant, the *effectively monitored stakeholder oriented* board (high MON and high STK) tends to exhibit large board size, greater independence from the CEO with an audit committee large and competent in financial and accounting issues. Moreover, it has a strong network of ties with other organizations and the



firm's external environment, due to the presence of directors with experience linkages relevant to the firm's community. Finally, it tends to exhibit a broader representation of minorities and appears more actively involved in CSR practices. Therefore, this type of board looks like an effective "watchdogs" for the company shareholders, being also able to satisfy the interests of all the other firm's stakeholders, as indicated by the high reputation and legitimacy in the community.

Moving to the upper right quadrant, the *effectively monitored not stakeholder oriented* board (high MON and low STK) tend to be characterized by separation of CEO and chair roles, a high proportion of independent directors, larger board size and higher expertise of the audit committee members. However, it lacks strong network connections with other organization. Directors would also have low reputation and legitimacy in the community, due to their scarce influence over important non-business organizations. Finally, it is characterized by very low adherence to CSR standards (such as the presence of CSR committee). Thus, directors concerns are more about the maximization of shareholder wealth, controlling opportunistic managerial choices, rather than protecting the interest of the firm's broader community of stakeholders.

In the lower left quadrant the *ineffectively monitored stakeholder oriented* board (low MON and high STK), tends to exhibit CEO duality, low proportion of independent directors, smaller board and less experienced audit committee. Thus, it is less able to protect the interests of shareholders, being more "a pawns of powerful managers" (Mace, 1971). At the same time, this type of board of directors exhibits a high number of links to external community and greater board diversity. These characteristics suggest that the board of directors of these firms would perform a "social role", ensuring that the company behaves within the bounds of the society, enhancing stakeholder engagement and organizational legitimacy.

Finally, in the lower right quadrant, the *ineffectively monitored not stakeholder oriented* board (low MON and low STK) can be considered the opposite of the upper left quadrant board type. It looks like a small managerial board, whose directors lack of experience in controlling manager disclosure choices. Moreover, they also lack of independence from the CEO as well as prestige and reputation in the external



environment. Therefore, this type of board appears not really aligned with the interests of either shareholders or other firm's stakeholders, being unable to fulfill both the monitoring and the service role.

This matrix format offers the opportunity to perform a univariate comparison of firms characteristics across the four different quadrants. To this aim, first are computed the variables' means for each quadrant and, then, are performed a battery of tests to contrast the variables means across quadrants. The results of this comparison are shown in Table 6.

**Table 6. Comparison of variables means across board types**

<i>Variable</i>	<i>MON_STK vs. MON</i>	<i>MON_STK vs. STK</i>	<i>MON_STK vs. NO_MON_STK</i>	<i>MON vs. STK</i>	<i>MON vs. NO_MON_STK</i>	<i>STK vs. NO_MON_STK</i>
OPT	0.347	-0.157	-0.199	-0.505*	-0.547*	-0.041
B_SIZE	-2.454*	-2.134*	-3.689*	0.319	-1.235*	-1.555*
CEO_DUAL	0.098	-0.514*	-0.320*	-0.613*	-0.418*	0.195*
IND	-0.028	-0.199*	-0.183*	-0.171*	-0.155*	0.015
AC_FE	0.138*	-0.385*	-0.283*	-0.523*	-0.421*	0.102
B_FEM	-0.664*	-0.343*	-0.601*	0.321*	0.063	-0.257*
B_EXT	-0.288*	-0.107*	-0.363*	0.181*	-0.076	-0.257*
B_CI	-0.627*	-0.135*	-0.811*	0.492*	-0.184*	-0.676*
D_SHE	-0.325*	-0.148	-0.325*	0.176*	0	-0.176*
DA_ABS	0.006	0.082*	0.088*	0.076*	0.082*	0.006
MTB	-0.912	0.734	1.305*	1.646	2.218*	0.572
TANG	0.331	0.043	0.063	-0.288*	-0.268	0.020
SIZE	-1.197*	-1.540*	-2.419*	-0.343	-1.222*	-0.879*
D_ISSUE	0.075	0	0.019	-0.076	-0.057	0.018
ROE	-0.226*	-0.164*	-0.148*	0.062	0.078	0.015

Table 6 reports the results comparison of variables means across quadrants corresponding to the four boards types. MON\_STK denotes firms from the upper left quadrant of Figure 1 (*effective monitored stakeholder oriented*). MON denotes firms from the upper right quadrant of Figure 1 (*effective monitored not stakeholder oriented*). STK denotes firms from the lower left quadrant of Figure 1 (*ineffective monitored stakeholder oriented*). NO\_MON\_STK denotes firms from the lower right quadrant of Figure 1 (*ineffective monitored not stakeholder oriented*). \* denotes significance at 10% level (two-tailed). The p-values of the tests of differences in means for continuous variables are based on t-test. The p-values of the tests of differences in means for binary variables are based on test of proportions. The full sample comprises 226 firm-year observations corresponding to 113 unique US firms belonging to the Oil&Gas industry in 2009-2010. See Table 2 for variables definitions.

Firms belonging to the upper two and the lower two quadrants are quite similar in term of optimism scores. However, *effectively monitored not stakeholder oriented* firms tend to be significantly more optimistic than *ineffectively monitored stakeholder oriented* and *ineffectively monitored not stakeholder oriented* ones. As expected, the four groups are statistically different with regard to the board of



directors characteristics. *Effectively monitored stakeholder oriented* firms exhibit highest level of almost all board monitoring proxies, followed by *effectively monitored not stakeholder oriented* firms. Firms from the lower left quadrant (*ineffectively monitored stakeholder oriented*) show higher stakeholder orientation measures than *effectively monitored not stakeholder oriented* firms. Firms in the lower right quadrant (*ineffectively monitored not stakeholder oriented*) have the lowest value of both monitoring and stakeholder orientation variables. Finally, moving from the upper left to the lower right quadrant firms tend to exhibit increasing value of discretionary accruals and growth opportunities, while decreasing value of size, tangibility and profitability. The difference among economic characteristics that are part of the controls are, however, not always significant across the quadrants.

The results of this univariate analysis, however, tell little about the informativeness of the language in environmental press releases. Therefore, attention is turned to the analysis of the relationship between language and future environmental performance.

### **4.3 Regression analysis**

#### *4.3.1. Analysis of the tone's informativeness*

Empirical analysis starts by examining whether the language choices serve as incremental information strategy or impression management tool. It is hypothesized that if tone bias is a discretionary strategy to communicate truthful information, then “optimism” in environmental disclosure should predict positive future environmental performance (*Incremental information hypothesis*). Conversely, if managers use tone to opportunistically bias environmental reporting, they are expected to be more optimistic to conceal negative environmental performance (*Impression management hypothesis*). Empirically, for the incremental information hypothesis to hold, a positive association between “optimism” in environmental disclosure in the year  $t$  and the likelihood of having positive environmental performance in the year  $t+1$  should be found. On the contrary, if a negative relationship between “optimism” in the year  $t$  and environmental disclosure in the year  $t+1$  is observed, this will give



support to the opportunistic impression management hypothesis. Figure 2 illustrates this hypotheses.

**Figure 2. Empirical predictions**

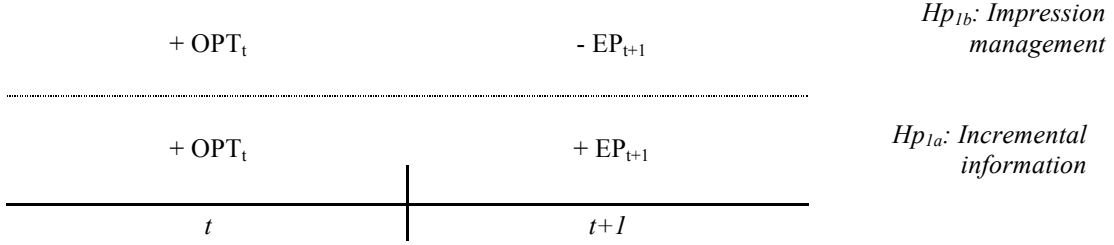


Figure 2 depicts empirical predictions for the analysis of the tone's informativeness. Under the Incremental information hypothesis ( $Hp_{1a}$ ) a positive association between optimism in the year  $t$  and environmental performance in the year  $t+1$  is expected. Under the Impression management hypothesis ( $Hp_{1b}$ ) a negative association between optimism in the year  $t$  and environmental performance in the year  $t+1$  is expected.

To identify the relation between tone and future environmental performance, a probit regression is used, since the dependent variable ( $EP_{t+1}$ ) is specified as a dummy variable. Furthermore, other factors are controlled potentially influencing the language choice<sup>117</sup>. Thus, the first model is stated as<sup>118</sup>:

$$EP_{t+1} = \beta_0 + \beta_1 * OPT + \beta_2 * DA\_ABS + \beta_3 * MTB + \beta_4 * TANG + \beta_5 * SIZE + \beta_6 * D\_ISSUE + \beta_7 * ROE + \varepsilon \quad (1)$$

Table 7 reports the results of the model testing  $Hp_{1a}$  and  $Hp_{1b}$ <sup>119</sup>. Optimism in the year  $t$  is negatively and significantly related with the likelihood of having at least one environmental concern in the year  $t+1$  ( $\beta_1 = -0.133$ ). This result gives support to the *Incremental information hypothesis*, suggesting that sample firms use optimistic language to convey additional value-relevant information on firms future environmental performance. This result is not really surprising for at least three reasons. First, US litigation environment imposes asymmetric loss function to the firms (i.e. firms are more likely to be sued when they have large negative surprises). This, in turn, encourages firms to be less optimistic in their forecast about future firms performance (Rogers & Stocken, 2005). Second, the Oil & Gas industry can be

<sup>117</sup> All regression models include year fixed effects and robust standard errors to control for heteroskedasticity.

<sup>118</sup> For ease of reading firms-years subscripts are suppressed.

<sup>119</sup> This study reports the estimated coefficients rather than the odds ratio since the interest is in evaluating the sign of the association.



considered one of the most important environmental sensitive sectors, and it faces greater societal pressure with regard to the environmental impact of companies' activities. Third, in the US there is a form of semi-strong/strong market efficiency where investors, on average, are able to assess reporting bias. These factors push managers to use discretion in corporate narratives in order to overcome information asymmetries, avoiding unduly optimistic disclosures that would cause higher cost of capital, lower share price performance and increased likelihood to be sued (Rogers et al., 2011).

***Table 7. The informativeness of the tone***

<i>Variable</i>	(1) EP <sub>t+1</sub>
OPT	-0.133** (-2.42)
DA_ABS	0.232 (0.50)
MTB	0.137*** (2.89)
TANG	0.365*** (2.68)
SIZE	0.506*** (7.13)
D_ISSUE	0.445** (2.27)
ROE	0.330 (1.29)
<i>Wald Chi2</i>	68.10
<i>Obs.</i>	226
<i>Intercept</i>	Yes
<i>Year-dummies</i>	Yes

Table 7 reports results of the probit regression testing the informativeness of the tone in environmental 10-K disclosure. The full sample comprises 226 firm-year observations corresponding to 113 unique US firms belonging to the Oil&Gas industry in 2009-2010. \*, \*\*, \*\*\* denotes significance at 10%, 5%, 1% levels (two-tailed). In parentheses are reported z test statistics based on robust standard errors. See Table 2 for variables definitions.

As expected, the proxies for firms economic characteristics are significantly correlated with the likelihood of having at least one environmental concern in the year  $t+1$ , with the exception of ROE. This result indicates that large growing firms with high capital intensity and more financing needs are more likely to experiment negative environmental performance in the year  $t+1$ . The coefficient on DA\_ABS is



positively, but not significantly related with negative environmental performance in  $t+1$ <sup>120</sup>.

#### 4.3.2. *Analysis of the influence of board monitoring and stakeholder orientation*

So far, this study has examined the association between the disclosure tone and future environmental performance to disentangle whether managers use discretion in environmental reporting to truthfully convey additional information or to opportunistically conceal negative organizational outcomes. However, the role of board of directors maybe pivotal in addressing environmental disclosure transparency (Mallin et al., 2012). Therefore, it is investigated the influence of two dimensions of the board activity, monitoring and stakeholder orientation, on the informativeness of the tone using a matrix format (see Figure 1) as discussed in section 4.2.

Under the agency theory, a more optimistic language is expected predicting positive environmental performance for firms in the upper two quadrants of the matrix (*effectively monitored stakeholder oriented* and *effectively monitored not stakeholder oriented*), due to the higher control and monitoring capabilities ( $Hp_2$ ). Directors sitting on the board of firms belonging to the lower two quadrants (*ineffectively monitored stakeholder oriented* and *ineffectively monitored not stakeholder oriented*) should, indeed, be unable to constrain managerial opportunistic disclosure choices, increasing the likelihood that tone bias reflect impression management strategies.

From a different perspective, according to the resource dependence theory more informative tone is likely to occur in the upper and lower left quadrants of the matrix (*effectively monitored stakeholder oriented* and *ineffectively monitored stakeholder oriented*) because of the stakeholder orientation of the board. In both these quadrants, managers would bias language in environmental reporting to improve the communication with external stakeholders to enhance the firm reputation in the external community ( $Hp_3$ ). Conversely, firms from the upper and lower right

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<sup>120</sup> As suggested by prior work, environmental disclosure tone may be affected by the level of environmental performance in the current year (Cho et al., 2010). Therefore, as additional test, regression analysis is performed using a dummy variable equal to one if sample firms exhibit environmental concerns greater or equal to 1 in the year  $t$ , 0 otherwise ( $EP_t$ ). The results remain unchanged.



quadrant should engage in less informative language choices. However, the effects of the board monitoring intensity are ignored in this scenario.

To explore how the board monitoring and stakeholder orientation simultaneously affect the informativeness of the tone, the predictions of both theories are combined into one single matrix (Figure 3).

**Figure 3. Interaction between agency and resource dependence theory predictions**

		<b><u>STAKEHOLDER ORIENTATION</u></b>	
		<b>HIGH</b>	<b>LOW</b>
<b><u>MONITORING</u></b>	<b>HIGH</b>	<b>Effective monitored stakeholder oriented</b> <i>Incremental information</i>	<b>Effective monitored not stakeholder oriented</b> <i>Incremental information</i> vs. <i>Impression management</i>
	<b>LOW</b>	<b>Ineffective monitored stakeholder oriented</b> <i>Incremental information</i> vs. <i>Impression management</i>	<b>Ineffective monitored not stakeholder oriented</b> <i>Impression management</i>

Figure 3 displays combined predictions for the influence of the board of directors on the informativeness of the tone based on both the agency and the resource-dependence theory. Firms from the upper left quadrant exhibit the firm-specific value of both MONITORING and STAKEHOLDER ORIENTATION factors above the sample median (n=80). Firms from the upper right quadrant exhibit the firm specific value of MONITORING factor above the sample median while the value of STAKEHOLDER ORIENTATION factor equal or below the sample median (n=33). Firms from the lower left quadrant exhibit the firm specific value of MONITORING factor equal or below the sample median while the value of STAKEHOLDER ORIENTATION factor above the sample median (n=34). Firms from the lower right quadrant exhibit the firm-specific value of both MONITORING and STAKEHOLDER ORIENTATION factors equal or below the sample median (n=79). The full sample comprises 226 firm-year observations corresponding to 113 unique US firms belonging to the Oil&Gas industry in 2009-2010. See Table 2 for variables definitions.

By interacting these two dimensions, however, the informativeness of the tone becomes *a-priori* predictable only for the upper left and the lower right quadrants. Firms with *effectively monitoring stakeholders oriented* board are, indeed, expected to use optimistic language to convey managers' private information on future environmental performance. The stronger monitoring and the higher stakeholder orientation would reinforce each other leading to highly informative language choices. On the opposite, firms with *ineffectively monitoring not stakeholder oriented* board are more likely to engage in biased language to manage the



stakeholder perception of corporate achievements, due to the lack of both monitoring and stakeholders orientation capabilities. Nevertheless, in the other two quadrants monitoring and stakeholder orientation will cause confounding outcomes, with a net effect on the informativeness of the tone depending on whether these two dimensions serve as complement or substitutes.

To empirically investigate the information content of the tone in presence of different board types, this study performs a multivariate analysis. Still using a probit regression model, model 1 is augmented to include the dummy variables indicating respectively *effectively monitorig stakeholder oriented* board (MON\_STK=1); *effectively monitoring not stakeholder oriented* board (MON=1); *ineffectively monitoring stakeholder oriented* board (STK=1); *ineffectively monitoring not stakeholder oriented* board (NO\_MON\_STK=1). The model is stated as follows:

$$EP_{t+1} = \beta_1 * OPT + \beta_2 * MON + \beta_3 * STK + \beta_4 * MON\_STK + \beta_5 * NO\_MON\_STK + \beta_6 * DA\_ABS + \beta_7 * MTB + \beta_8 * TANG + \beta_9 * SIZE + \beta_{10} * D\_ISSUE + \beta_{11} * ROE + \varepsilon \quad (2)$$

Table 8 documents the regression results. Column 1 reports estimation results for the naïve model testing the effect of optimism, after introducing the indicator variables for different board types (model 2).

The optimism score in the year  $t$  is found to be significantly and negatively related with the likelihood of having at least one environmental concern in the year  $t+1$  ( $\beta_1 = -0.140$ ). This result is in accord with the regression results presented for model 1. Similarly, the control variables behave in the expected way. Looking at the effect of the board types on environmental performance, the coefficient of MON, STK, MON\_STK and NO\_MON\_STK are found to be positively related with the likelihood of having at least one environmental concern. However, as none of these coefficients is statistically significant, the conclusion is that having different board types does not affect *per se* the future environmental performance of the firm.

Next, this study examines the informativeness of the tone for firms having different board types, by including the interaction effects between the four indicator variables and the optimism score.



**Table 8. The influence of board monitoring and stakeholder orientation**

<i>Variable</i>	(1) EP <sub>t+1</sub>	(2) EP <sub>t+1</sub>
OPT	-0.140** (-2.39)	
MON	1.124 (0.39)	10.58 (1.02)
STK	0.615 (0.22)	-0.232 (-0.03)
MON_STK	0.0342 (0.01)	-0.277 (-0.07)
NO_MON_STK	0.906 (0.32)	-1.440 (-0.30)
MON_OPT		-0.342 (-1.57)
STK_OPT		-0.125 (-0.66)
MON_STK_OPT		-0.137* (-1.69)
NO_MON_STK_OPT		-0.093 (-0.94)
DA_ABS	0.321 (0.68)	0.305 (0.64)
MTB	0.149*** (3.02)	0.150*** (2.98)
TANG	0.385*** (2.93)	0.396*** (3.05)
SIZE	0.648*** (7.53)	0.666*** (7.60)
D_ISSUE	0.389* (1.93)	0.408** (2.01)
ROE	0.454 (1.64)	0.449 (1.60)
<i>Wald Chi2</i>	79.91	77.79
<i>Obs.</i>	226	226
<i>Intercept</i>	No	No
<i>Year-dummies</i>	Yes	Yes

Table 8 reports results of the probit regressions testing the influence of board types on the informativeness of the tone in environmental 10-K disclosure. MON is a dummy variable equal to one if firms belong to the upper right quadrant of Figure 1 (*effective monitored not stakeholder oriented*); otherwise it is zero. STK is a dummy variable equal to one if firms belong to the lower left quadrant of Figure 1 (*ineffective monitored stakeholder oriented*); otherwise it is zero. MON\_STK is a dummy variable equal to one if firms belong to the upper left quadrant of Figure 1 (*effective monitored stakeholder oriented*); otherwise it is zero. NO\_MON\_STK is a dummy variable equal to one if firms belong to the lower right quadrant of Figure 1 (*ineffective monitored not stakeholder oriented*); otherwise it is zero. MON\_OPT is the interaction term indicating the optimism score for *effective monitored not stakeholder oriented* firms (MON=1). STK\_OPT is the interaction term indicating the optimism score for *ineffective monitored stakeholder oriented* firms (STK=1). MON\_STK\_OPT is the



interaction term indicating the optimism score for *effective monitored stakeholder oriented* firms (MON\_STK=1). NO\_MON\_STK\_OPT is the interaction term indicating the optimism score for *ineffective monitored not stakeholder oriented* firms (NO\_MON\_STK=1). The full sample comprises 226 firm-year observations corresponding to 113 unique US firms belonging to the Oil&Gas industry in 2009-2010. \*, \*\*, \*\*\* denotes significance at 10%, 5%, 1% levels (two-tailed). In parentheses are reported z test statistics based on robust standard errors. See Table 2 for other variables definitions.

Model 3 is stated as follows<sup>121</sup>:

$$\begin{aligned} EP_{t+1} = & \beta_1 * MON + \beta_2 * STK + \beta_3 * MON\_STK + \beta_4 * NO\_MON\_STK + \beta_5 * MON\_OPT \\ & + \beta_6 * STK\_OPT + \beta_7 * MON\_STK\_OPT + \beta_8 * NO\_MON\_STK\_OPT + \beta_9 * DA\_ABS \\ & + \beta_{10} * MTB + \beta_{11} * TANG + \beta_{12} * SIZE + \beta_{13} * D\_ISSUE + \beta_{14} * ROE + \varepsilon \end{aligned} \quad (3)$$

Table 8 Column 2 reports estimation results for the full model (model 3). With the only exception of MON, the indicator variables for board types now exhibit negative but not significant coefficients. More interestingly, the coefficient on the interaction term between MON\_STK and OPT is negative and statistically significant ( $\beta_7 = -0.137$ ). This suggests that the optimism of environmental disclosure of time  $t$  is a significant predictor of the likelihood of being good environmental performers in the year  $t+1$  only for firms with *effectively monitoring stakeholder oriented* boards. As predicted, in this case strong board monitoring interacted with successful stakeholder orientation, pushes managers to be more optimistic in environmental reporting in order to align the stakeholders' expectation about future environmental performance with their own assessment and manage their external scrutiny.

Contrary to the expectations, firms from the lower right quadrant (*ineffectively monitored not stakeholder oriented*) also exhibit a negative relationship between optimism and the measure of environmental performance, although not this association is not statistically significant. An alternative explanation for this counterintuitive result is that the litigation environment of the sample can behave as an additional external mechanism that compensates the internal governance inefficiency, thus limiting managers' opportunistic disclosure choice. Similarly, firms from the remaining two quadrants have a negative relationship between OPT and  $EP_{t+1}$ , suggesting that for the sample firms the two dimensions of the board activity, monitoring and stakeholder orientation would potentially substitute each

<sup>121</sup> For ease of interpretation the intercept of the model is suppressed, but the indicator variables are included for all the four groups. Accordingly, OPT is included only interacted with the MON, STK, MON\_STK, NO\_MON\_STK.



other. However, as the regression coefficients are not statistically significant it is not possible to draw further conclusion on the informativeness of tone for these latter cases.

#### *4.3.3 Additional analysis: disclosure tone in environmental press releases*

As discussed earlier, firms with effective monitored and stakeholder oriented board tend to use tone in environmental reporting to overcome information asymmetries, by revealing managers' expectation about future environmental performance, regardless of the board types. This evidence has been interpreted in the light of the litigation threat affecting US Oil & Gas companies in the post Sarbanes-Oxley's era. Nevertheless, another factor potentially explaining these results is the measurement of environmental disclosure tone through information provided in mandatory section of 10-K filings (Section 1). Thus, the high scrutiny concern and the risk of detection characterizing mandatory disclosures could further dampen managerial incentives to engage in self-serving disclosure choice.

Therefore, to check whether managers strategically choose the language to convey environmental information in mandatory filings vs. other voluntary disclosure channels, an additional analysis is performed on the tone of environmental press releases. According to Guillamon-Saorin et al. (2012), press releases are a more tactically oriented disclosure vehicle used to fulfill different disclosure strategies. Moreover, they are largely unregulated and unaudited being also subject to a limited external scrutiny. These features, in turn, may lower litigation risk increasing the potential for impression management strategies.

To perform this additional test, all the press releases issued by sample companies during the fiscal year 2009-2010 are reviewed. Then, the ones providing information with regard to environmental issues are selected<sup>122</sup>. Once environmental press releases are identified, the optimism for each single press release with DICTION is separately quantified, as described in the paragraph 3. Similar to previous work (Kothari et al., 2009), the final optimism score is computed as a firm-specific

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<sup>122</sup> This study includes press releases concerning (among others) energy efficiency programs; environmental incidents; Oil spill; LEED certification; environmental permits and licences; EISs; EPAs; climate change; reduction of greenhouse gas; waste reduction; compliance to environmental regulations; research with environmental impact; environmental projects (e.g. Enhanced Oil Recovery); other environmentally sensitive policies.



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average of the DICTION's optimism scores for press releases issued by a company during each fiscal year (OPT\_PR).

The univariate analysis starts comparing environmental disclosure, governance and economic characteristics between firms issuing and not issuing environmental press releases. Table 9 provides descriptive statistics for the two sub-groups.

***Table 9. Descriptives for firms issuing/not issuing environmental press-releases***

		N	mean	min	p25	p50	p75	max	sd
<b><i>Panel A: Environmental performance and disclosure tone</i></b>									
Ept+1	D_PR=1	119	0.571*	0	0	1	1	1	0.497
	D_PR=0	107	0.364	0	0	0	1	1	0.483
OPT	D_PR=1	119	46.883	44.24	45.04	47.1	48.41	49.18	1.768
	D_PR=0	107	47.152	44.24	46.31	47.33	48.41	49.18	1.464
OPT_PR	D_PR=1	119	49.093	46.76	48.29	49.04	50.297	51.06	1.379
	D_PR=0	107	0	0	0	0	0	0	0
<b><i>Panel B: Board monitoring</i></b>									
B_SIZE	D_PR=1	119	9.798	6	8	10	12	17	2.499
	D_PR=0	107	9.392	5	8	9	11	14	2.096
CEO_DUAL	D_PR=1	119	0.622	0	0	1	1	1	0.487
	D_PR=0	107	0.523	0	0	1	1	1	0.502
IND	D_PR=1	119	0.676*	0.308	0.571	0.7	0.778	0.875	0.131
	D_PR=0	107	0.609	0	.5	0.625	0.75	0.889	0.174
AC_FE	D_PR=1	119	0.487	0.502	0	0	1	1	0.502
	D_PR=0	107	0.542	0	0	1	1		0.500
<b><i>Panel C: Board stakeholder orientation</i></b>									
B_FEM	D_PR=1	119	0.494*	0	0	0.693	1.099	1.386	0.505
	D_PR=0	107	0.362	0	0	0	0.693	1.386	0.426
B_EXT	D_PR=1	119	2.672	1.946	2.565	2.706	2.706	3.663	0.287
	D_PR=0	107	2.612	0.693	2.565	2.706	2.706	3.526	0.339
B_CI	D_PR=1	119	0.538	0	0	1	1	1	0.500
	D_PR=0	107	0.467	0	0	0	1	1	0.501
D_SHE	D_PR=1	119	0.185*	0	0	0	0	1	0.390
	D_PR=0	107	0.093	0	0	0	1	1	0.292



<i>Panel D: Control variables</i>									
DA_ABS	D_PR=1	119	0.099	0.001	0.027	0.060	0.116	2.309	0.220
	D_PR=0	107	0.114	0.001	0.025	0.056	0.109	1.352	0.203
MTB	D_PR=1	119	2.478	0.616	1.455	1.984	2.473	33.460	3.180
	D_PR=0	107	1.933	-23.322	1.194	1.902	2.625	14.151	4.156
TANG	D_PR=1	119	1.210*	0.177	0.870	1.087	1.334	6.138	0.685
	D_PR=0	107	1.436	0.219	0.897	1.156	1.666	7.165	0.915
SIZE	D_PR=1	119	8.077*	3.616	7.170	8.186	9.075	12.252	1.880
	D_PR=0	107	7.351	3.616	6.253	7.474	8.144	10.867	1.573
D_ISSUE	D_PR=1	119	0.546	0	0	1	1	1	0.500
	D_PR=0	107	0.486	0	0	0	1	1	0.502
ROE	D_PR=1	119	-0.033	-3.610	-0.052	0.064	0.132	0.530	0.425
	D_PR=0	107	-0.102	0.564	-0.114	0.021	0.115	1.095	-3.610

Table 9 reports the descriptive statistics for the analysis of the informativeness of the tone in environmental press releases. Panel A provides results for environmental performance and disclosure tone. Panel B provides results board monitoring proxies. Panel C provides results for stakeholder orientation proxies, while Panel D provides descriptives for control variables. The full sample is divided in two sub-groups of firms: issuing firms (D\_PR=1) and not issuing firms (D\_PR=0). \* denotes significance at 10% level (two tailed). The p-values of the tests of differences in means for continuous variables are based on t-test. The p-values of the tests of differences in means for binary variables are based on test of proportions. The full sample comprises 226 firm-year observations corresponding to 113 unique US firms belonging to the Oil&Gas industry in 2009-2010. See Table 2 for variables definitions.

What is notable is that the two groups are different across many of the characteristics of the boards of directors. Concerning the board monitoring proxies, firms issuing press releases (n=119) have significantly worse environmental performance ( $EP_{t+1}$ ) and more independent directors (IND). Similarly, they also have significantly higher value of stakeholder orientation measures, such as minority representation (B\_FEM) and the provision of a CSR Committee (D\_SHE). Finally, they are larger and less capital intensive relative to the non-issuing firms (n=107).

The results of the univariate analysis suggest that firms issuing environmental press releases are statistically different from the others, since they tend to exhibit stronger board monitoring and stakeholder orientation. In addition, it should be considered that firms choose to issue a press releases and this choice may be itself an impression management strategy (Guillamon-Saorin et al., 2012). As a consequence, a key problem of this analysis is that a simple OLS regression would suffer from self-



selection (Heckman, 1978). In response to this problem the following two sets of equations are estimated:

$$D\_PR = \beta_0 + \beta_1*B\_SIZE + \beta_2*CEO\_DUAL + \beta_3*IND + \beta_4*AC\_FE + \beta_5*B\_FEM + \beta_6*B\_EXT + \beta_7*B\_CI + \beta_8*B\_SHE + \beta_9*DA\_ABS + \beta_{10}*MTB + \beta_{11}*TANG + \beta_{12}*SIZE + \beta_{13}*D\_ISSUE + \beta_{14}*ROE + \varepsilon \quad (4a)$$

$$EP_{t+1} = \beta_0 + \beta_1*OPT\_PR + \beta_2*D\_ISSUE + \beta_3*ROE + \beta_4*SIZE + \beta_5*INV\_MILLS + \varepsilon \quad (4b)$$

The first equation (4a) models the likelihood that firms issue environmental press releases, conditional on their governance and economic characteristics, through a probit regression. In model (4b), this study still uses a probit regression and estimates the likelihood that firms will have at least one environmental concern in the year  $t+1$  as a function of the optimism in environmental press releases in the year  $t$  ( $OPT\_PR$ ) and other variables potentially affecting environmental performance. If optimism in environmental press releases predicts future environmental performance, a negative coefficient  $\beta_1$  is expected to be observed in the model (4b).

Table 10, Panel A reports the regression result of the model (4a), while Panel B provides the results of the model (4b). Results from Panel A document that the likelihood of issuing environmental press releases is increasing with board independence, firm size and growth opportunities. Conversely, it decreases with board size and capital intensity. This result seems in line with the evidence that strong board monitoring force firms to be more forthcoming with regard to information on environmental issues. However, contrary to previous evidence, no support is found to the hypothesis that firms with lower quality of accounting numbers prefer not to issue an (environmental) press releases, since the coefficient  $\beta_{10}$  is positive and not statistically significant (Guillamon-Saorin et al., 2012).

Moving to the regression results of Panel B, the inverse mills ratio's significance confirms the concern for self-selection bias. Finally, looking at the coefficient of interest, a negative and significant relationship is found between  $OPT\_PR$  and  $EP_{t+1}$  ( $\beta_1 = -0.184$ ), documenting that managers use more optimistic language in environmental press releases to predict future environmental performance. This



result suggests that the sample firms do not strategically use language in 10-K filings vs. voluntary press releases. Furthermore, this evidence indicates that the main conclusion on the informativeness of the tone is not driven by the mandatory nature of the disclosure vehicle under analysis.

**Table 10. Disclosure tone in environmental press releases**

<b>Panel A: Stage 1</b>	
<i>Variable</i>	(1) D_PR
<b>Board monitoring</b>	
B_SIZE	-0.109* (-1.71)
CEO_DUAL	0.154 (0.83)
IND	1.793*** (2.84)
AC_FE	-0.169 (-0.93)
<b>Board stakeholder orientation</b>	
B_FEM	0.201 (0.81)
B_EXT	0.282 (0.83)
D_CI	0.001 (-0.00)
D_SHE	0.056 (-0.19)
<b>Controls</b>	
DA_ABS	0.212 (0.44)
MTB	0.055** (2.00)
TANG	-0.274** (-2.18)
SIZE	0.164** (2.29)
D_ISSUE	-0.018 (-0.10)
ROE	0.248 (1.29)
<i>Wald Chi2</i>	33.65
<i>Obs.</i>	226
<i>Intercept</i>	Yes
<i>Year-dummies</i>	Yes



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<i>Panel B: Stage 2</i>	
<i>Variable</i>	(1) EP <sub>t+1</sub>
OPT_PR	-0.184* (-1.93)
D_ISSUE	0.525* (1.86)
ROE	-0.381 (-1.31)
SIZE	0.636*** (5.04)
INV_MILLS	1.547* (1.86)
<i>Wald Chi2</i>	34.12
<i>Obs.</i>	119
<i>Intercept</i>	Yes
<i>Year-dummies</i>	Yes

Table 10 reports results of the probit regressions testing the informativeness of the tone in environmental press releases. The full sample comprises 226 firm-year observations corresponding to 113 unique US firms belonging to the Oil&Gas industry in 2009-2010. \*, \*\*, \*\*\* denotes significance at 10%, 5%, 1% levels (two-tailed). In parentheses are reported z test statistics based on robust standard errors. See Table 2 for variables definitions.

## 5. Conclusion

This research studies the extent of discretionary strategies in narrative disclosures with the goal of identifying whether they are informative about future environmental performance (incremental information hypothesis) or they are impression management tools to manipulate the users perception of corporate achievements (impression management hypothesis).

To this aim, the focus is on the tone of environmental disclosure issued by a sample of US Oil & Gas companies in 2009 and 2010 analyzing its relationship with future environmental performance. The results support the incremental information hypothesis: the optimistic tone of environmental disclosures does not reflect purely managerial opportunistic reasons, but rather predicts future positive environmental performance (Demers & Vega, 2010; Davis et al., 2012; Baginski et al., 2012).

This study contributes with several findings to the existing literature. First, it shows that in a context of high litigation risk the bias toward positive language in



environmental narratives is informative about future environmental performance. This result is in line with previous studies indicating that environmental disclosure is used as a signal to reveal superior performance because of the greater societal pressure with regard to environmental issues (Cormier & Magnan, 1999; Al-Tuwaijri et al., 2004; Clarkson et al., 2008). The evidence is also consistent with the literature suggesting that shareholder litigation can be viewed as an important mechanism limiting managerial opportunistic disclosure choices (Rogers et al., 2011).

Second, firm-specific incentives are identified that can lead to cross-sectional differences in the informativeness of the tone. Specifically, focusing on two dimensions of the board of directors (monitoring and stakeholder orientation), it is examined how they interact with each other, ultimately affecting the informativeness of the tone. In this way, prior work is extended confirming that although board monitoring and stakeholder orientation are theoretically distinct, they should be considered simultaneously when examining the influence of the board of directors on environmental disclosure (Mallin et al., 2012). However, this study does not support the view that board monitoring has a negative effect on firm's commitment towards CSR, including disclosure of environmental information (Surroca & Tribò, 2008). The results rather suggest that both monitoring and stakeholder orientation have a positive effect on the informativeness of disclosure tone in environmental narratives. When these two dimensions are simultaneously present, they can reinforce each other, enhancing the board's ability to fulfill its fiduciary duties toward a community of stakeholders broader than only investors.

Third, the analysis on disclosure tone in environmental press releases also extends the literature on the informativeness of the tone, by providing evidence in a voluntary disclosure setting. Conditioning the issuance of environmental press releases on the firm's governance and economic characteristics, managers are still found to use optimistic tone in environmental press releases to predict future environmental performance, rather than to self-servingly bias disclosures.

This research acknowledges its limitations. First of all, the analysis is based on a single country-industry, it does not allow to isolate the effect of external incentives that may limit managerial use of self-serving reporting strategies (e.g. litigation risk).



Therefore, a natural extension of this research could be investigating the same research question in different settings with lower litigation risk (such as other non-environmental sensitive industry and/or other non-US countries). Second, characteristics of environmental disclosure other than the tone (width, depth, coverage, readability, reliability) may also affect the future environmental performance. As this research design does not capture these aspects, it is not possible to assess whether the informative value of the tone is *incremental* relative to other features of environmental disclosure. Moreover, although the evidence indicates that the tone is informative about future environmental performance, it is not known if the market responds to this information. Therefore, future research effort could be directed in addressing these limitations. Finally, this study is not aimed at showing whether managers *intentionally* disclose overly optimistic disclosures to convey information, rather than to mislead stakeholders. The results only indicate that optimism in environmental press releases is associated with higher likelihood of being good environmental performers in the next year.

Subject to these caveats, this study claims that its findings could have interesting implications for both investors and policy-makers. Investors should be aware of the use of language as a signal over future firm performance and rely on it to take better investment decisions. From a regulators perspective, the results could contribute to the longstanding debate on the costs and benefits of a regulation for qualitative disclosures, suggesting that in the absence of a tight regulation it is possible to force managers to be forthcoming by increasing the level of shareholder litigation, which may act as a constraint for opportunistic disclosure choices. Finally, in line with recent research (Rodrigue et al., 2012) they shed light on some additional mechanisms (CRS committee, the presence of “community influentiancials” on the board) that, being substantive rather than symbolic governance practices, could be prescribed by the law in order to improve the accountability of the firm towards a broader community of stakeholders.



## **CONCLUDING REMARKS**

This thesis deals with the role of corporate governance and disclosure in the capital market. Although these topics have been largely investigated by the existing literature, the business environment's complexity, the shortcomings of financial reporting model together with recent reforms and regulation have produced substantial changes in the institutional and information environment, shedding new light on some underinvestigated reporting issues.

This thesis proposes a framework for the analysis of corporate governance and disclosure in the capital market and provides newly empirical evidence helping the development of the knowledge within the research field.

In the first section theoretical and empirical contributions from accounting, finance and corporate governance literature have been reviewed. A framework for the analysis of the relationship between corporate governance, accounting and other disclosure policies has also been developed. Within this framework some research questions not completely addressed by the literature have been pointed out, such as the interrelationship between both internal and external governance mechanisms, and their influence on firm transparency, the interplay between different sources of corporate information, the informativeness and the credibility of soft disclosures.

Moving from these research gaps, the second section has presented two empirical analyses sharing a similar setting and examining interrelated research questions.

The first study has explored the nature of the interaction between firms' voluntary and mandatory risk disclosure to empirically investigate whether they serve as complements or substitutes. In addition, it has analyzed the influence of firm- and country-level incentives on the decision to disclose risk information not mandated by the law. The analysis of a sample of European Oil&Gas companies has pointed out the existence of a non-monotonic relationship between mandatory and voluntary risk disclosure, suggesting that firms, on average, use voluntary disclosure to complement the information in mandatory filings. However, when the level of mandatory disclosure goes beyond a threshold, the positive relationship starts reversing, since the costs of disclosing proprietary risk information overcome its benefits.



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Furthermore, consistent with the prediction of the agency theory, it has also been found that firm-level monitoring provided by the board of directors increases the firm's provision of voluntary information. Conversely, weak evidence supports the substitution hypothesis between external monitoring by the institutions and internal board-based monitoring on voluntary disclosure.

Departing from the increasing importance of narrative and descriptive disclosures inside the reporting package of the firm, the second study focused on the use of discretionary disclosure strategies in corporate narratives to mislead stakeholders rather than providing additional value-relevant information. To this aim, it has been examined the relation between disclosure tone in environmental reporting and future environmental performance to disentangle whether managers' use of optimistic language represents opportunistic discretionary strategy (i.e. impression management), or incremental information tool. Furthermore, using two different theories to explain the board of directors' influence on disclosure strategies, it has been explored whether and to what extent the informativeness of tone varies according to the board of directors' monitoring intensity and stakeholder orientation. The evidence from a sample of US firms belonging to the Oil&Gas industry, suggests that the bias toward positive language in environmental narratives does not reflect purely managerial opportunistic reasons, but rather predicts future environmental performance. This result seems consistent with the high litigation environment constraining managers' unduly optimistic disclosures. In addition, the results have shown that the board of directors significantly affects the informativeness of the language only when it simultaneously provides effective monitoring and successful stakeholder engagement.

The joint contribution of these analyses to the proposed framework is manifold. Firstly, they answer to the recent call in the accounting literature for considering the interdependencies between various factors that shape the corporate information environment, documenting the existence of a direct link between mandatory and voluntary disclosure strategies (Beyer et al., 2010).

Secondly, they add to the debate on whether discretionary strategies in corporate narratives play an informative rather than an opportunistic role (Merkl-Davies &



Brennan, 2007), showing that managers use environmental disclosure tone as an incremental information tool. Moreover, it has been found that the informativeness of the tone does not vary across alternative disclosure media.

Thirdly, these studies contribute to the still germinal field of governance research in accounting that examines the interaction between internal and external corporate governance mechanisms (Armstrong et al., 2010; Carcello et al., 2011), partially supporting the substitution hypothesis between board of directors' and external institutions' monitoring over corporate transparency.

This thesis is also subject to some limitations that suggest a number of other venues for future research. The most important challenge of this research is the endogeneity issue. The results of empirical studies should, indeed, be interpreted with caution, as they do not completely address the endogenous nature of voluntary disclosure, mandatory reporting choices and the characteristics of internal and external governance mechanisms. Therefore, one important extension would be performing additional statistical tests to take into account the endogenous nature of corporate governance and disclosure.

A second limitation of this thesis is the generalizability of the empirical evidence based on the Oil&Gas sector. Although this industry has been worth studying due to the uncertainty and the turbulence of the inherent environment and the high stakeholders' demand for supplementary information (e.g. risk information, social and environmental disclosure), this choice has not allowed to isolate the effect of external incentives that may limit managerial use of self-serving reporting strategies (e.g. litigation risk). Thus, a natural improvement of this work would be to check for the robustness of results across different settings.

Thirdly, although this thesis has focused on the effect of the corporate governance characteristics on disclosure policies, a large body of literature supports the concept that the characteristics of corporate governance system have some effects on the market, by influencing, among others, the firm's performance, its cost of equity and debt financing (for a complete review, see Brown et al., 2011). Further research is needed to explore if the characteristics of the corporate governance system have a



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direct or indirect effect on the market, and whether or not accounting quality and/or other disclosures mediate these effects.

Finally, this thesis analyzes the relationship among different information sources, by focusing on some disclosure venues (mandatory and voluntary annual report disclosure and press releases). However, it should be noted that firms may mitigate information asymmetries through several other channels such as management forecasts, conference calls. In addition, third party information (i.e. information diffused by external analysts) may play a significative role. Therefore, future research on the relationship between governance and disclosure in the capital market should consider the interactions among these information channels, too.

Subject to these caveats, this thesis' evidence have interesting practical implications. Its findings could help investors to interpret managers' disclosure choices and could provide regulators and policy-makers with useful knowledge in order to design future regulations in light of their influence on the firm's disclosure strategies.



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## Appendix A

### ***Panel A: Coding Rules***

(1) The focus is on sections with at least one of the following headings: Operating and Financial Review, Financial Review, Business Review, Business and Financial Review, Operating Review, Board of Directors' Report, Director's Report, Management Report, Report of the Board of Management, Audit Committee Report, Notes to the (Consolidated/Group) Financial Statements, Risks, Risk Management, Risk Factors, Risk Analysis. All other sections of the annual report are excluded from the analysis.

(2) Information is referred to as coding unit. To identify risk information's the following definition of risk is used

*“if the reader is informed of any opportunity or prospect or of any hazard, danger, harm, threat or exposure that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure”* (Linsley and Shrives, 2006).

(3) The risk disclosure is classified as mandatory if it provides information on financial risk is in accordance to the IFRS 7 and shall be classified according to Appendix A - Panel C.

(4) The risk disclosure is classified as voluntary if refers to disclosure on non-financial risk factors and shall be classified according to Appendix A - Panel B.

(5) If the information has more than one possible classification, it will be classified into the category that is most emphasized.

(6) Risk information provided in tables (quantitative and qualitative) should be interpreted as if they were non-tabulated information and classified accordingly.

(7) If a company provides a broader discussion that includes more than one sub-category the value is assigned for each sub-category identified in the table that are related to them.

(8) Disclosure that is repeated shall be recorded as a risk disclosure one time only.

(9) If a company discloses risk information that does not fall into the identified sub-categories, the value is assigned to the category that is more closely related to it.

(10) If a disclosure is too vague in its reference to risk, then it shall not be recorded as risk disclosure.



**Panel B: Categories and types of risk for non-financial risk disclosure**

Category	Type of risk	Definition
<b>COMPLIANCE &amp; CONTROL RISK</b>	ETHICAL MISCONDUCT	Intentional misstatement of financial statements or other management fraud that may adversely affect external stakeholders' decisions
	REGULATORY	Regulations impact competitive position, capacity to conduct business and efficiency of operations.
	LITIGATION RISK	The possibility that legal action will be taken because of an individual's or corporation's actions, inactions, products, services or other events.
	LEGAL	Laws impact capacity to complete transactions, enforce contractual agreements and implement specific strategies and activities.
	TAX	Accumulation and consideration of relevant tax information will affect compliance with tax regulations or the avoidance of avoidable tax costs.
<b>STRATEGIC RISK</b>	INDUSTRY	The attractiveness of an entire industry is affected by demographic, social and ecological factors impacting the customer base and work force, new technologies, new uses of existing technologies, advances in IT and changes in market demand.
	STAKEHOLDER ENGAGEMENT	Engaging with stakeholders, canvassing their views and understanding their needs, is important in order to act as a responsible business, well placed to achieve its goals.
	REPUTATION	Damaged or enhanced reputation will impact customer loyalty, profits and the ability to compete in all markets.
	BRAND NAME EROSION	Erosion of trademark or brand name over time threatens the demand for products or services, whilst their maintenance builds demand.
	THIRD PARTIES DEPENDENCE	Increased dependence on key customers/suppliers could have direct consequences on company's financial development.
	PRICING	Relevant and reliable information is needed to support pricing decisions and avoid prices that customers will not pay or that do not cover costs and risks
	COMPETITION	Action of competitors, new entrants and withdrawals from the market impact the ability to compete, survive and thrive.
	POLITICAL	Political attitudes and actions in a country with significant investment, volume of business or counterparties impact resources and future cash flows
	GEOGRAPHICAL	Operating in regions where kidnapping, piracy and community unrest are commonplace; direct action by host communities that results in disruptions.



# APPENDIX

	CAPITAL AVAILABILITY	Access to capital impacts capacity to grow, execute strategies and generate returns.
	MANAGEMENT OF GROWTH	Management of restructuring and or growth. Ensuring the design and operation of controls is appropriate for its scale and size.
	RESERVES REPLACEMENT	Inability to progress upstream resources in a timely manner could adversely affect the long-term replacement of reserves and negatively impact the business.
	CATASTOPHIC LOSS	Major disasters threaten ability to sustain operations, provide products and services or recover operating costs.
OPERATIONAL RISK	PRODUCT QUALITY	Failure to meet product quality standards could lead to harm to people and the environment and loss of customers
	HUMAN RESOURCES	Competition and availability affect the recruitment of skilled labour, including management, with necessary knowledge, skills, experience and authority to ensure that critical objectives are achieved
	PRODUCT DEVELOPMENT	Successful product development underpins a company's ability to meet or exceed customers' needs and wants consistently over the long-term
	EFFICIENCY	Efficiency of operations determines ability to produce goods or services at or below cost levels of competitors or world class companies.
	CAPACITY	Insufficient capacity threatens ability to meet customer demands whilst excess capacity threatens ability to generate competitive margins.
	PERFORMANCE GAP	Ability to perform at world class level in term of quality as well as cost and time, through operating best practices drives demand for products and services.
	SOURCING	Access to sources of energy, metals, commodities and raw materials is crucial to meeting quality, cost and time targets.
	OBSOLESCENCE, SHRINKAGE	Inventory obsolescence or shrinkage may lead to significant financial losses whilst not purchasing and producing the right goods at the right time leads to reduced cash flows.
	BUSINESS INTERRUPTION	Interrupted supply of raw materials, information technologies, skilled labour or other resources threatens continued operations.
	INFRASTRUCTURE	Hardware, networks, software, people and processes comprising the IT infrastructure need to support the current and future needs of the business in an efficient, cost-effective and well controlled fashion.



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	PRODUCT/SERVICE FAILURE	Prevalence of faulty or non performing products or services will impact costs of customer complaints, warranty claims, field repairs, returns, product liability claims and litigation, and loss of revenues market share and business
<b>ENVIRONMENTAL HEALTH &amp; SAFETY RISK</b>	CLIMATE CHANGE	Climate change and carbon pricing policies could result in higher costs and reduction in future revenue and strategic growth opportunities.
	HEALTH & SAFETY	Safety of working environment for employees will affect compensation liabilities, business reputation and other costs
	ENVIRONMENTAL	Effects of activities on the environment will drive liabilities for bodily injury, property damage, removal costs and punitive damages

Source: Adapted from *Arthur Andersen Business Risk Model*.



***Panel C: Categories and types of risks for financial risk disclosure*****IFRS 7- BASIC REQUIREMENTS**

Nature and extent of risks arising from financial instruments

31) An entity shall disclose information that enables users of its financial statements to evaluate the nature and extent of risks arising from financial instruments to which the entity is exposed at the end of the reporting period.

32) The disclosures required by paragraphs 33–42 focus on the risks that arise from financial instruments and how they have been managed. These risks typically include, but are not limited to, credit risk, liquidity risk and market risk.

**Qualitative disclosures**

33) For each type of risk arising from financial instruments, an entity shall disclose:

(a) the exposures to risk and how they arise;

(b) its objectives, policies and processes for managing the risk and the methods used to measure the risk;

(c) any changes in (a) or (b) from the previous period.

**Quantitative disclosures**

34) For each type of risk arising from financial instruments, an entity shall disclose:

(a) summary quantitative data about its exposure to that risk at the end of the reporting period. This disclosure shall be based on the information provided internally to key management personnel of the entity (as defined in IAS 24 *Related Party Disclosures*), for example the entity's board of directors or chief executive officer.

(b) the disclosures required by paragraphs 36–42, to the extent not provided in (a), unless the risk is not material (see paragraphs 29–31 of IAS 1 for a discussion of materiality).

(c) concentrations of risk if not apparent from (a) and (b).

35) If the quantitative data disclosed as at the end of the reporting period are unrepresentative of an entity's exposure to risk during the period, an entity shall provide further information that is representative.

**Credit risk**

36) An entity shall disclose by class of financial instrument:

(a) the amount that best represents its maximum exposure to credit risk at the end of the reporting period without taking account of any collateral held or other credit enhancements (eg netting agreements that do not qualify for offset in accordance with IAS 32);

(b) in respect of the amount disclosed in (a), a description of collateral held as security and other credit enhancements;

(c) information about the credit quality of financial assets that are neither past due nor impaired; and



(d) the carrying amount of financial assets that would otherwise be past due or impaired whose terms have been renegotiated.

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***Financial assets that are either past due or impaired***

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37) An entity shall disclose by class of financial asset:

(a) an analysis of the age of financial assets that are past due as at the end of the reporting period but not impaired;

(b) an analysis of financial assets that are individually determined to be impaired as at the end of the reporting period, including the factors the entity considered in determining that they are impaired; and

(c) for the amounts disclosed in (a) and (b), a description of collateral held by the entity as security and other credit enhancements and, unless impracticable, an estimate of their fair value.

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***Collateral and other credit enhancements obtained***

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38) When an entity obtains financial or non-financial assets during the period by taking possession of collateral it holds as security or calling on other credit enhancements (eg guarantees), and such assets meet the recognition criteria in other IFRSs, an entity shall disclose:

(a) the nature and carrying amount of the assets obtained; and

(b) when the assets are not readily convertible into cash, its policies for disposing of such assets or for using them in its operations.

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**Liquidity risk**

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39) An entity shall disclose:

(a) a maturity analysis for non-derivative financial liabilities (including issued financial guarantee contracts) that shows the remaining contractual maturities.

(b) a maturity analysis for derivative financial liabilities. The maturity analysis shall include the remaining contractual maturities for those derivative financial liabilities for which contractual maturities are essential for an understanding of the timing of the cash flows (see paragraph B11B).

(c) a description of how it manages the liquidity risk inherent in (a) and (b).

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**Market risk**

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*Sensitivity analysis*

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40) Unless an entity complies with paragraph 41, it shall disclose:

(a) a sensitivity analysis for each type of market risk to which the entity is exposed at the end of the reporting period, showing how profit or loss and equity would have been affected by changes in the relevant risk variable that were reasonably possible at that date;

(b) the methods and assumptions used in preparing the sensitivity analysis; and

(c) changes from the previous period in the methods and assumptions used, and the reasons for such changes.

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41) If an entity prepares a sensitivity analysis, such as value-at-risk, that reflects interdependencies between risk variables (eg interest rates and exchange rates) and uses it to manage financial risks, it may use that sensitivity analysis in place of the analysis specified in paragraph 40. The entity shall also disclose:

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(a) an explanation of the method used in preparing such a sensitivity analysis, and of the main parameters and assumptions underlying the data provided; and

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(b) an explanation of the objective of the method used and of limitations that may result in the information not fully reflecting the fair value of the assets and liabilities involved.

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***Other market risk disclosures***

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42) When the sensitivity analyses disclosed in accordance with paragraph 40 or 41 are

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unrepresentative of a risk inherent in a financial instrument (for example because the year-end

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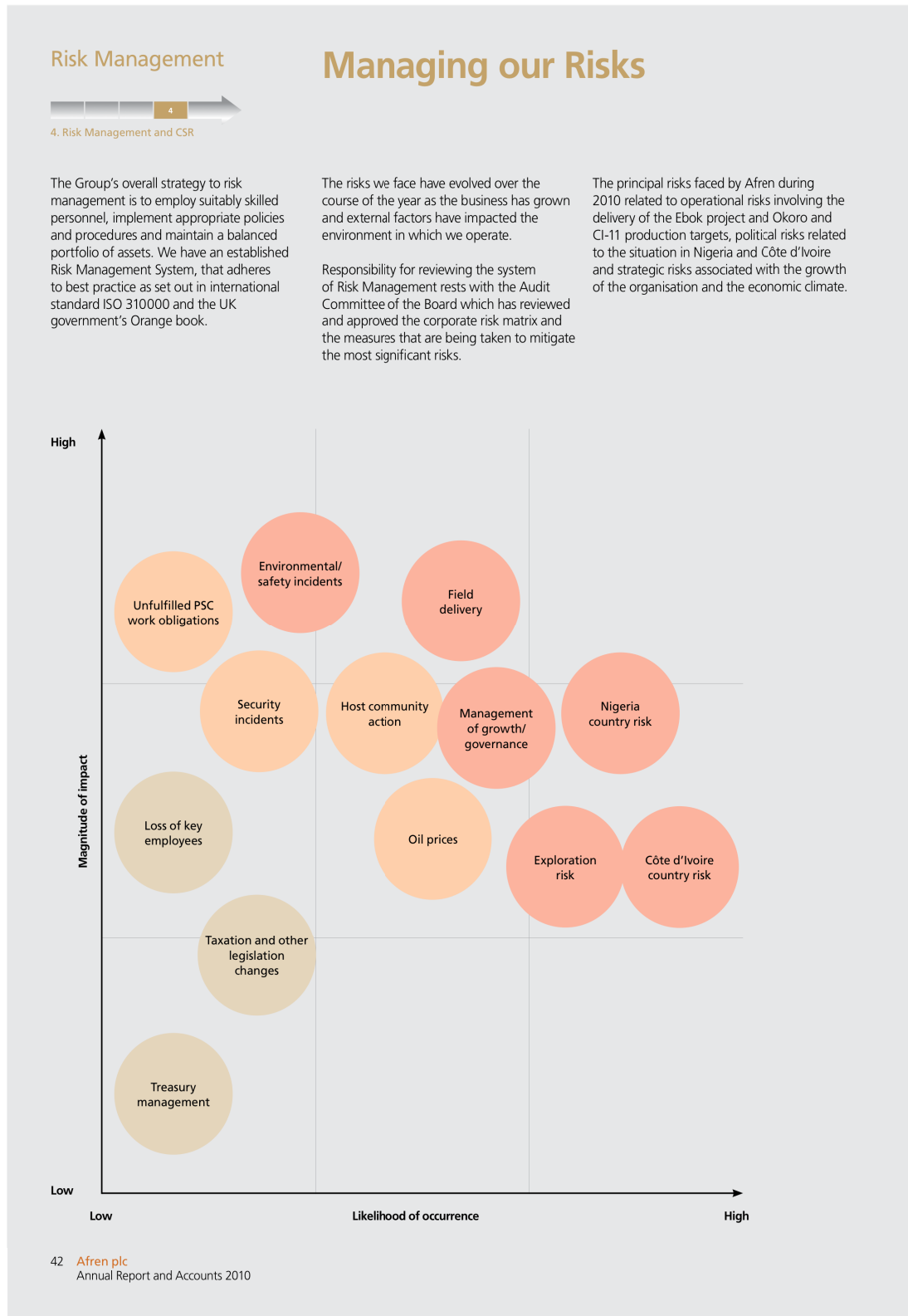
exposure does not reflect the exposure during the year), the entity shall disclose that fact and the reason it believes the sensitivity analyses are unrepresentative

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Source: *IFRS7(2009)*.



## Appendix B

*Panel A: Example of coding for non-financial risk disclosure*



## APPENDIX

Key risk	Detail	Assessment	How do we manage it?
01 Field delivery risk	<ul style="list-style-type: none"> <li>Operating in environments with operational risk which can cause delays, cost overruns, and ultimately lower than expected reserves.</li> </ul>		<ul style="list-style-type: none"> <li>Afren Nigeria review the project delivery programme against plan and take actions and develop new courses of action based on findings on a monthly basis.</li> <li>The finance function monitor costs against budgets to identify potential overruns.</li> <li>Our engineers analyse results from appraisal and development wells and determine the appropriate course of action in terms of drilling programme and facility design.</li> </ul>
02 Exploration risk	<ul style="list-style-type: none"> <li>Exploration activities can be capital intensive and may involve a high degree of risk.</li> </ul>		<ul style="list-style-type: none"> <li>Budgets are produced by an experienced drilling team and regular peer reviews to capture best practice are performed.</li> <li>Risk is managed using a portfolio approach, including the use of techniques such as farm downs.</li> <li>Exploration programme is approved by the Board.</li> </ul>
03 Côte d'Ivoire and Nigeria country risk	<ul style="list-style-type: none"> <li>Political instability in this developing economy could result in the loss of the business.</li> </ul>		<ul style="list-style-type: none"> <li>Ongoing monitoring and close liaison on the ground to monitor the situation from an Afren safety and security basis.</li> <li>Contingency plans in place.</li> </ul>
04 Environmental / safety incidents	<ul style="list-style-type: none"> <li>Major pollution arising from operations and/or significant loss of life due to systems or equipment failure.</li> </ul>		<ul style="list-style-type: none"> <li>We adopt best practice in the industry with on-site, country-level and corporate level policies and procedures.</li> <li>Recognised potential implications of recent Gulf of Mexico events</li> <li>Contingency plans in place.</li> </ul>
05 Management of growth / governance	<ul style="list-style-type: none"> <li>Management of transition from an AIM listed to a Main Market listed company.</li> <li>Ensuring the design and operation of controls is appropriate for its scale and size.</li> </ul>		<ul style="list-style-type: none"> <li>The board keeps internal controls and processes under constant review and takes steps to implement appropriate changes in the organisation.</li> <li>The recruitment of an experienced Group Finance Director who has taken other businesses through the growth curve.</li> <li>We have remuneration and training plans in place to attract and retain key people.</li> </ul>
06 Security incidents	<ul style="list-style-type: none"> <li>Operating in regions where kidnapping, piracy and community unrest are commonplace.</li> </ul>		<ul style="list-style-type: none"> <li>Following the recent incident in Nigeria our procedures to deal with this type of incident have been reviewed and the security arrangements at both Ebok and Okoro facilities have been upgraded.</li> <li>We would anticipate that this type of incident would continue to be a risk and as a consequence our procedures are robust and under constant review.</li> </ul>
07 Host community action	<ul style="list-style-type: none"> <li>Direct action by host communities that results in disruptions to operations.</li> </ul>		<ul style="list-style-type: none"> <li>Pro-active community engagement.</li> <li>Effective community development and employment programmes</li> </ul>
08 Unfulfilled PSC work obligations	<ul style="list-style-type: none"> <li>Loss of production interest or exploration licence due to incomplete fulfilment of PSC obligations.</li> </ul>		<ul style="list-style-type: none"> <li>The operations, finance and legal functions jointly monitor compliance with licence obligations.</li> <li>Maintenance of good open working relationships with local governments in the countries of operation</li> </ul>
09 Oil prices	<ul style="list-style-type: none"> <li>Oil prices have fluctuated significantly over the past three years and given the current environment are expected to continue to fluctuate in the short term.</li> </ul>		<ul style="list-style-type: none"> <li>The policy of the group is to protect its minimum cash flow requirements in the context of a sustained downturn in oil prices.</li> <li>The group strategy to manage oil price risk is to hedge between 20-30% of the production curve by using financial instruments which allow the group to protect the downside risk.</li> </ul>
10 Loss of key employees	<ul style="list-style-type: none"> <li>Loss of knowledge and skills to the group in particular in countries of operation.</li> </ul>		<ul style="list-style-type: none"> <li>Succession planning is considered on a group wide basis, taking into account the development of the executive and senior management.</li> <li>Remuneration policies are designed to incentivise, motivate and retain key employees.</li> </ul>
11 Taxation and other legislation changes	<ul style="list-style-type: none"> <li>Operating in developing countries has additional risk of significant changes in taxation legislation on oil field profits or other legislation changes.</li> </ul>		<ul style="list-style-type: none"> <li>Our financial and legal teams monitor current legislation and proposed changes and incorporate these into our working practices.</li> <li>Maintenance of good open working relationships with local authorities in the countries of operation.</li> </ul>
12 Treasury management	<ul style="list-style-type: none"> <li>The availability of financing to maintain the ongoing operations of the business is key.</li> </ul>		<ul style="list-style-type: none"> <li>In 2011, the group issued a bond for \$500 million, expects strong operating cashflow in 2011, has secured financing for Ebok field development and will continue to monitor its cash requirements carefully against the production curve and cash requirements.</li> </ul>

High Medium Low

Business Review



# APPENDIX

COMPLIANCE & CONTROL RISK	Ethical misconduct	0
	Regulatory	0
	Litigation	0
	Legal	3
	Tax	3
	SUB-TOT CC	6
	MAX CC	15
STRATEGIC RISK	Industry	0
	Stakeholder engagement	0
	Reputation	0
	Brand name erosion	0
	Third parties dependence	0
	Pricing	3
	Competition	0
	Political	3
	Geographical	3
	Capital availability	0
	Management of growth	3
	Reserves replacement	0
	Catastrophic loss	0
	SUB-TOT STR	12
	MAX STR	39
OPERATIONAL RISK	Product Quality	0
	Human Resources	3
	Product Development	0
	Efficiency	3
	Capacity	0
	Performance gap	0
	Sourcing	3
	Obsolescence, shrinkage	0
	Business interruption	0
	Infrastructure	0
	Product/service failure	0
	SUB-TOT OPR	9
	MAX OPR	33
ENVIRONMENTAL, HEALTH & SAFETY RISK	Climate change	0
	Health&Safety	3
	Environmental	3
	SUB-TOT EHS	6
	MAX EHS	9

(Non Financial Risk, Afren, 2010)



## APPENDIX

### *Panel B: Example of coding for financial risk disclosure*

#### Credit risk

The refining sector represents the Group's reference market and it is principally made up of multinational companies operating in the oil sector. Transactions executed are generally settled very quickly and are often guaranteed by primary credit institutions. Sales in the retail and wholesale markets are small on an individual basis; nonetheless, also these sales are usually guaranteed or insured (Risk Analysis, pg. 96)

The information required by paragraphs 36-38 is shown in the tables below.

Book value at 31/12/2010			Credit risk		Breakdown of maturities of financial assets pursuant to ex par. 37 b) IFRS 7					Impairment		
	Total	Of which financial instruments	Maximum exposure to credit risks disregarding guarantee or other similar instruments	Guarantees	Current	Overdue				Total	Recognized during the year	Cumulative
						0-30 gg	31-60 gg	61-90 gg	over 90 gg			
Current assets	1,936,994	1,071,230	1,071,230	184,474	984,840	73,136	7,997	1,865	18,459	1,071,230		
Cash and cash equivalents	80,835	80,835	80,835		80,835					80,835		
Other financial assets held for trading	28,800	28,800	28,800		28,800					28,800		
Trade receivables	868,537	883,604	868,537	285,945	782,147	73,136	7,997	1,865	18,459	883,604		
Provisions for doubtful receivables		(15,067)								(15,067)	(5,009)	(15,067)
Inventories	812,162											
Current tax assets	39,266											
Other assets	107,394	93,058	93,058		93,058					93,058		
Non-current assets	1,956,224	880	880			0	0	0	0	0	0	
Property, plant and equipment	1,473,284											
Intangible assets	414,206											
Equity investments valued at equity	0											
Other equity interests	571											
Deferred tax assets	67,283											
Other financial assets	880	880	880							0		
Total assets	3,893,218	1,072,110	1,072,110		984,840	73,136	7,997	1,865	18,459	1,071,230		

Book value at 31/12/2009			Credit risk		Breakdown of maturities of financial assets pursuant to ex par. 37 b) IFRS 7					Impairment		
	Total	Of which financial instruments	Maximum exposure to credit risks disregarding guarantee or other similar instruments	Guarantees	Current	Overdue				Total	Recognized during the year	Cumulative
						0-30 gg	31-60 gg	61-90 gg	over 90 gg			
Current assets	1,405,678	633,618	633,618	36,218	595,102	23,123	5,827	4,094	14,854	633,618		
Cash and cash equivalents	111,372	111,372	111,372		111,372					111,372		
Other financial assets held for trading	21,301	21,301	21,301		21,301					21,301		
Trade receivables	396,954	406,336	396,954	36,218	358,438	23,123	5,827	4,094	14,854	406,336		
Provisions for doubtful receivables		(9,382)								(9,382)		(9,382)
Inventories	732,077											
Current tax assets	39,983											
Other assets	103,991	103,991	103,991		103,991					103,991		
Non-current assets	2,019,986	0	0		0	0	0	0	0	0		
Property, plant and equipment	1,525,547											
Intangible assets	445,549											
Equity investments valued at equity	0											
Other equity interests	571											
Deferred tax assets	46,932											
Other financial assets	1,387	0	0							0		
Total assets	3,425,664	633,618	633,618		595,102	23,123	5,827	4,094	14,854	633,618		

(Saras Group, 2010)



# APPENDIX

CREDIT RISK		
IFRS 7	DESCRIPTION	
	<b>Qualitative disclosures</b>	
33.a	the exposures to risk and how they arise;	1
33.b	its objectives, policies and processes for managing the risk and methods used to measure the risk	1
33.c	any changes in (a) or (b) from the previous period	1
	<b>Quantitative disclosures (by class of financial instrument)</b>	
36.a	the amount that best represents its maximum exposure to credit risk at the end of the reporting period without taking account of any collateral held or other credit enhancements	1
36.b	in respect of the amount disclosed in (a), a description of collateral held as security and other credit enhancements	1
36.c	information about the credit quality of financial assets that are neither past due nor impaired	0
36.d	the carrying amount of financial assets that would otherwise be past due or impaired whose terms have been renegotiated	0
	<b>Financial assets that are either past due or impaired (by class of financial asset)</b>	
37.a	an analysis of the age of financial assets that are past due as at the end of the reporting period but not impaired	1
37.b	an analysis of financial assets that are individually determined to be impaired as at the end of the reporting period, including the factors the entity considered in determining that they are impaired	1
37.c	for the amounts disclosed in (a) and (b), a description of collateral held by the entity as security and other credit enhancements and, unless impracticable, an estimate of their fair value	0
	<b>Collateral and other credit enhancements obtained (when an entity obtains financial or non-financial assets during the period by taking possession of collateral it holds as security or calling on other credit enhancements, and such assets meet the recognition criteria in other IFRSs)</b>	
38.a	the nature and carrying amount of the assets obtained	1
38.b	when the assets are not readily convertible into cash, its policies for disposing of such assets or for using them in its operations	0
34.c	<b>Concentrations of risk (if not previously disclosed)</b>	
B8.a	a description of how management determines concentrations	
B8.b	a description of the shared characteristic that identifies each concentration (eg counterparty, geographical area, currency or market)	
B8.c	the amount of the risk exposure associated with all financial instruments sharing that characteristic	
35	<b>If the quantitative data disclosed as at the end of the reporting period are unrepresentative of an entity's exposure to risk during the period, an entity shall provide further information that is representative</b>	0

(Credit Risk, Saras Group, 2010)