



**Attributes of Social and Human Capital Disclosure and  
Information Asymmetry between Managers and Investors**

Denis Cormier\*  
ESG UQÀM

Walter Aerts  
University of Antwerp, Belgium

Marie-Josée Ledoux  
ESG UQÀM

Michel Magnan  
John Molson School of Business, Concordia University

April 2008

\*Corresponding author.  
P.O. Box 8888, down town station  
Montréal, Québec, Canada H3C 2P8

The authors acknowledge the financial support of l'Autorité des marchés financiers (Québec), Social Sciences and Humanities Research Council of Canada, PriceWaterhouseCoopers, KPMG, and Institute of Internal auditors (Montreal Chapter).

## **Attributes of Social and Human Capital Disclosure and Information Asymmetry between Managers and Investors**

### **Abstract**

In this study, we extend the existing literature on voluntary disclosure by investigating the impact of the nature (indicative, qualitative and quantitative) and extent of disclosure reflecting Social capital and Human capital on share price volatility. We posit that disclosure strategy affects simultaneously share price volatility and disclosure. Results from simultaneous equation regressions suggest that quantitative (“hard”) disclosure reduces share price volatility for Social capital disclosure as well as Human capital disclosure while indicative (“soft”) is marginally associated with a reduction in share price volatility for Human capital disclosure. As expected, firm size attenuates the impact of information attributes on share price volatility. Furthermore, it does appear that firms take into account ultimate costs and benefits to shareholders when determining the nature and extent of their disclosure. Finally, our results suggest that efficient good governance leads to more transparency in quantitative human capital disclosure while the extent of CEO stock options leads to less transparency in Social capital disclosure, either soft or hard disclosure.

Key words: Information asymmetry, voluntary disclosure, corporate governance, human capital disclosure, social capital disclosure.

### **La nature de l’information sociale publiée et le niveau d’asymétrie d’information entre les dirigeants d’entreprises et les investisseurs**

#### **Résumé**

La présente étude porte sur l’incidence de la nature (indicative, qualitative ou quantitative) et de l’ampleur de la communication d’informations sociales sur la volatilité des titres boursiers. Fondés sur un modèle d’équations simultanées, nos résultats montrent que l’information sociale de nature quantitative (vérifiable) réduit la volatilité des titres boursiers. Tel qu’anticipé, la taille de la firme atténue cette relation. En outre, les coûts et bénéfices pour la firme (coûts d’information et coûts exclusifs) sont des déterminants clés du niveau de communication sociale par les entreprises. Par ailleurs, une saine gouvernance mène à une plus grande transparence dans la communication d’informations sociales quantitatives, en particulier l’information sur le capital humain. Enfin, la présence d’options sur actions mène à moins de transparence dans la communication d’informations sociales.

Mots-clés : asymétrie d’information, communication volontaire, gouvernance, communication d’informations sociales.

## **INTRODUCTION**

The aim of this paper is to assess how the nature (indicative, qualitative, quantitative) and the extent of a firm's social disclosure affect information asymmetry between managers and investors. Our measure of social disclosure relates to a firm's social capital (SC) and human capital (HC). Both human capital and social capital are now perceived to be key drivers underlying firm value in our knowledge-based society (Pennings, Lee and van Witteloostuijn, 1998). Human capital relates to the level of expertise and experience of a firm's employees (Blair and Kochan, 2000). Social capital relates to networks, social norms and other relationships, either within or outside the firm, that allow it to operate and thrive (Cohen and Prusak, 2001). We assert and test that the determination of SC and HC disclosure and information asymmetry are closely intertwined processes. We argue that the more the information conveyed by firms is specific, the more likely it translates into reduced information asymmetry. More specifically, our research design takes into account the simultaneous effects of a firm's disclosure strategy on: 1) the determinants of the nature and the extent of social capital and human capital disclosure and, 2) the impact of the nature and the extent of social capital and human capital disclosure on information asymmetry.

This paper extends Aerts, Cormier and Magnan (2007) who perform a comparative study of corporate disclosure practices between Europe and North America. However, we focus on one specific contracting and governance regime, i.e., Canada, considering the nature and extent of social and human capital disclosure and firm-level governance features.

Aerts, Cormier and Magnan (2007) assert that the determination of corporate disclosure, as well as how financial analysts rely on such disclosure for their forecasting work, is affected by a firm's country-specific institutional regime.

We rely on a conceptual framework that weaves together two complementary perspectives: information costs and benefits, and governance mechanisms. From an information costs and benefits perspective, we argue that organizations provide disclosure to cater to their shareholders' needs and interests and, hence, reduce information asymmetry between them and management, a necessity if they are to be able to tap capital markets efficiently in the future. However, an organization's propensity to provide information to capital markets is conditioned by its governance mechanisms. Information asymmetry between management and investors is proxied by a firm's share price volatility. With respect to disclosure, we focus on web-based disclosure. The Web has led firms to adapt their disclosure strategies since it offers much more flexibility than traditional external reporting means. Internet is widely seen as the best platform for the disclosure management and stewardship of financial and non-financial information (Robb, Single and Zarzeski, 2001; Marston and Polei, 2004). Moreover, there is essentially no marginal distribution cost if additional information is released.

Our results from simultaneous equations suggest that quantitative verifiable ("hard") disclosure is associated with less share price volatility for Social capital disclosure as well as for Human capital disclosure. However, indicative unverifiable ("soft") disclosure is marginally associated with a reduction in share price volatility for Human capital

disclosure. As expected, firm size attenuates the impact of disclosure on share price volatility.

Furthermore, consistent with the nature of their disclosure, it does appear that firms take into account ultimate costs and benefits to shareholders when determining the extent of their disclosure. Variables that proxy for information costs are generally associated with quantitative disclosure. We also document that efficient governance leads to more transparency in quantitative human capital disclosure while the extent of CEO share options leads to less transparency in social capital disclosure, either soft or hard disclosure.

Our contribution to prior research is to go beyond total disclosure and assess the informational properties of different disclosure elements according to their attribute, i.e., indicative, qualitative or quantitative. More specifically, in measuring a firm's overall disclosure score, prior research relies on measurement scales that differentiate between information attributes, thus implicitly assuming that those different information attributes carry differential information value. Typically, quantitative and monetary information are more heavily weighted than indicative or other qualitative information, suggesting that quantitative and monetary disclosure carry more information value than more qualitative information types (e.g., Al-Tuwaijri, Christensen and Hughes, 2004; Cho and Patten, 2007; Aerts, Cormier and Magnan, 2008). However, that assumption has never been formally tested. Hence, in this paper, we substantiate the differential effect of information attributes in their effect on share price volatility. To the best of our knowledge, this study

is the first to investigate the impact of the nature of disclosure, and particularly social capital and human capital, on information asymmetry, as measured by share price volatility.

The remainder of the paper is organized as follows. Section 2 contains a theoretical background and research hypotheses. The study's methodology is described in section 3. Results are presented in section 4. Finally, section 5 provides a discussion of results' potential implication.

## **2. THEORETICAL BACKGROUND AND RESEARCH HYPOTHESES**

### **2.1 Information costs and benefits and disclosure**

The board of directors and top management are accountable toward the firm's shareholders. Hence, the firm must provide shareholders with value-relevant information that impounds cost-benefit trade-off assessments. By reassuring a firm's investors about various aspects of its operations or performance, expanded disclosure leads to a reduction in information asymmetry between managers and investors and, ultimately, to a reduction in information costs to be incurred by investors (e.g., Kim and Verrecchia 1994). This, in turn, brings benefits to a firm by allowing it to lower its cost of capital, to raise its valuation multiples, to increase share liquidity and to enhance interest by institutional investors (Healy, Hutton and Palepu, 1999).

### ***2.1.1 Information costs***

Grossman (1981) and Milgrom (1981) assert that there is an information gap between investors and managers. If a firm's managers do not provide credible information, investors can choose to collect and analyze data from alternative information sources at their own cost. However, from society's perspective, non-disclosure may be deemed inefficient as it leads many investors to simultaneously incur costs for the collection of the same information (Rubinstein 2001). Hence, under certain conditions, a firm may decide to voluntarily disclose information if doing so is less costly than having investors and other market participants incur information costs themselves (Atiase, 1985; Lang and Lundholm, 1993). Firms with a higher level of perceived risk have also an incentive to provide additional disclosure. The scope of Healy and Palepu's (2001) review of the literature illustrates the perceived importance of information asymmetry and, hence, of information costs, as determinants for corporate disclosure.

### ***2.1.2. Litigation/proprietary costs***

By contrast, disclosure can be costly to the firm if outside parties use the information in ways that are harmful to its interests (e.g., competitors, pressure groups). However, by incurring costs that result from disclosure of proprietary information, a firm enhances the credibility of the information being released and improves its reputation as a quality discloser (Skinner, 1994). Such ability to incur costs from the release of proprietary information is determined by a firm's financial condition. Hence, in choosing a disclosure strategy, managers have to trade off the benefits from expanded disclosure against the costs of disclosing potentially damaging information. Prior evidence in financial

reporting does suggest that information costs are a critical determinant of corporate financial disclosure decisions.

A firm's decision to disclose information to investors is influenced by concern that such disclosures can damage their competitive position in product markets (Healy and Palepu, 2001). Some proprietary costs appear when a third party whose interests are not compatible with those of the firm can use the disclosed information. Thus, the capacity of the business to support these costs will determine the size of information disclosed. Unlike information cost hypothesis, proprietary cost hypothesis assumes there are no conflicts of interest between managers and shareholders.

Managers typically do not reveal all value-relevant information. A likely reason is that bringing private information into the public domain exposes the firm to actions by third parties that potentially reduce its future cash flows (Dye 1985). Suppliers, customers or debtholders may use proprietary information to review their contractual relationships with the firm, with possible negative monetary implications. Competitors may rely on information released by a firm to gain a competitive edge. Since they result from the disclosure of proprietary information, such costs are deemed proprietary (Verrecchia 1983; Scott 1994). By incurring proprietary costs, a firm enhances the credibility of the information being released and, hence, the value-creation potential of its reporting strategy (Skinner 1994). For instance, there is evidence that better quality voluntary disclosure potentially leads to a reduction in a firm's cost of capital (Botosan 1997; Sengupta 1998). Before a firm can benefit from information disclosure, it must build up a

reputation among stakeholders to be a credible discloser (Healy, Hutton and Palepu, 1999). In other words, for disclosure to have value, a firm must initially incur some costs, most likely by disclosing proprietary information that may be used by some stakeholders in reducing firm value (Verrecchia, 1990).

Quantitative disclosure may be viewed by managers as having proprietary value compared to qualitative disclosure since proprietary costs to be incurred from disclosure are likely to be higher for “hard” disclosure than “soft” disclosure since the firm may be perceived to reveal more credible and precise information to external parties (Cho and Patten, 2007).

## **2.2. Hypotheses**

Firms with high share price volatility have incentives to reduce information asymmetry between managers and investors since such actions lower financing (Gibbins, Richardson and Waterhouse, 1990; Frankel, McNichols and Wilson, 1995; Clarkson, Kao and Richardson, 1994). By reassuring a firm’s investors regarding various aspects of its operations or performance, expanded disclosure leads to a reduction in information asymmetry between managers and investors and, ultimately, to a reduction in information *costs* incurred by investors (e.g., Kim and Verrecchia 1994).

In the literature, several approaches to assess a firm's information asymmetry have been proposed. Francis, Khurana and Pereira (2005), Leuz and Verrecchia (2000), Healy Hutton and Palepu (1999) and Welker (1995) show that the extent of information

asymmetry – proxied by bid-ask spread, share price volatility or share liquidity – is negatively associated with disclosure quality.

With respect to social disclosure, Richardson and Welker (2001) find, contrary to expectations, that more disclosure translates into higher cost of capital. One potential explanation for this finding is that they do not control for endogeneity between disclosure and firm attributes. Cormier, Ledoux and Magnan (2008) show that a firm's web-based disclosure strategy affects earnings valuation multiples, but in a differential way according to the nature of the information being disclosed. More specifically, disclosure about Human capital and to a lesser extent social capital is associated with a larger earnings multiple, i.e. a lower cost of capital, but this is not the case for disclosure related to Value for clients or Corporate governance.

The distinction of verifiable and non-verifiable information has fundamental implications for information asymmetry. For example, firms shamed into disclosure by negative media coverage may tend to give out more “soft”, hard-to-verify environmental information, known as “green washing,” such as stating they have an environmental policy, rather than hard information, such as benchmarking their performance to industry averages (Clarkson, Li, Richardson and Vasrini, 2008). Such information is likely to have a low impact, if any, on the reduction of uncertainty for stock market participants. Furthermore, we can argue that “hard” disclosure is more difficult to mimic by a firm's competitors than “soft” disclosure, thus enhancing its credibility for market participants. As noted by Ernst & Young survey of social disclosure (1977, p. 454), “quantification of disclosure

improves its quality by specifying the effort of a company in a particular area of social responsibility”.

In the current study, we expect a lower relationship between soft disclosure (indicative or qualitative - unverifiable disclosure) and share price volatility than for hard (quantitative - verifiable) disclosure. This gives rise to our first hypothesis:

*H1) The association between share price volatility and the extent of disclosure will be higher for quantitative/verifiable disclosure than for indicative and qualitative/unverifiable disclosure.*

Prior research documents that information asymmetry is lower for large firms compared with small firms (Leuz and Verrecchia, 2000). Size controls for a firm’s information environment. The number of investors in large firms is significantly higher than in small firms. Therefore, the amount of liquidity trading should be significantly higher for large firms than for small firms. Cheng, Gopinath and Krishnamurti (2002) show that an increase in trading activity of large firms leads to improvement in liquidity while an increase in small firms' trading activity leads to deterioration in liquidity. The authors document that while more frequent trading is associated with an improvement in liquidity, as proxied by the bid-ask spread, for large market capitalization stocks, the converse is true for small stocks.

Therefore, we can expect disclosure to have a lower impact on share price volatility for large firms since investors have access to more information. Usually, large firms are highly followed by analysts. The effect of disclosure on properties of analysts forecast dispersion and accuracy is significantly different for small firms versus large firms, the disclosure effect being greater for firms followed by a smaller number of analysts, i.e. smaller firms (Botosan, 1997). Hence, our second hypothesis:

*H2) The association between share price volatility and the extent of disclosure will be lower for large firms than for small firms.*

### **3. METHOD**

#### **3.1. Sample**

The sample comprises 155 observations of web disclosure for the year 2005. All non-financial firms represented on the Toronto Stock Exchange S&P/TSX Index were initially identified in 2002<sup>1</sup>. For the current research, web-based disclosure was collected from Web sites (web page and HTML) in summer 2005. The same coding grid has been used by Cormier, Ledoux and Magnan (2008) for a Canadian sample and Aerts, Cormier and Magnan (2007) in a Europe versus North America comparative study.

Financial data for 2004 was collected from Stock Guide and governance data was

---

<sup>1</sup> We initially collected web disclosure in summer 2002 (Cormier, Ledoux and Magnan, 2008). The 2002 sample comprised 189 observations for web-based performance disclosure. Mergers and acquisitions and delisted firms reduced our sample to 167 firms in 2003 and 155 in 2005.

collected from 2004 proxy statements. The final sample comprises 131 firms since, out of the initial sample of 155 firms, there are missing data for board size and board independence (2 firms), stock options (12 firms), and share volatility (12 firms). Sample firms operate in the following industries: Metals and mines; Gold and precious metals; Oil and gas; Paper and forest products; Consumer products; Industrial products; Real estate; Utilities; Communication and media; Merchandising.

### 3.2. Empirical model

This study attempts to provide an integrated analysis of firms' web-based disclosure strategy. We posit that this strategy affects simultaneously share price volatility and disclosure. It is thus important to actually control for the presence of endogeneity between our critical variables. To control for endogeneity, a simultaneous equations model is used.

The following structural equations model summarizes the approach to be adopted in the empirical analysis:

Share price volatility<sub>it</sub> =

$$f(\beta_0 + \beta_1 \text{Size} + \beta_2 \text{Systematic risk} + \beta_3 \text{Free float} + \beta_4 \text{Disclosure} + \beta_5 \text{Disclosure} * \text{Size})_{it}$$

Disclosure<sub>it</sub> =

$$f(\beta_0 + \beta_1 \text{New Financing} + \beta_2 \text{Free float} + \beta_3 \text{Analyst following} + \beta_4 \text{Leverage} +$$

$$\beta_5 \text{Profitability} + \beta_6 \text{US listing} + \beta_7 \text{Size} + \beta_8 \text{Board independence} + \beta_9 \text{Board size} + \beta_{10} \text{Audit committee size} + \beta_{11} \text{CEO stock options})_{it-1}$$

Within our model, we integrate the three disclosure levels simultaneously. By doing so, we implicitly control for the relative effect of the different information attributes on share price volatility. Moreover, to control for endogeneity between disclosure levels, the three disclosure levels are estimated separately. Since we use the same type of determinant regressions for the different information attributes, we rely to seemingly unrelated 3SLS regressions. The seemingly unrelated regression, also known as Zellner's method, estimates the parameters of the system, accounting for heteroskedasticity, and contemporaneous correlation in the errors across equations. The simultaneous approach allows constraints on coefficients to be placed across equations and to employ techniques that account for correlation in the residuals across equations.

### **3.3. Measurement of web-base disclosure**

Performance disclosure indicators, financial or non-financial, are based on balance scorecard literature and emerging performance measurement practices (e.g. for financial and governance disclosure [Standard & Poors, 2002]; for investors, governance and social responsibility disclosures [Pirchegger and Wagenhofer, 1999; Marston and Polei, 2004]; for indicators about operations' efficiency, value for client, innovation, development and growth [Ittner and Larker, 1998; Kaplan and Norton, 1996; Robb, single and Zarzeski, 2001]). We measure web-based disclosure using a coding instrument in a

way that is similar to Wiseman (1982), Cormier and Magnan (2003), Aerts, Cormier and Magnan (2007) and Cormier, Ledoux and Magnan (2008).

The grid comprises 33 items. The 33 disclosure items are grouped into two categories: human capital, and social capital. In a manner consistent with prior literature, human capital items relate to activities, actions or outcomes that reflect employees' expertise and experience (Pennings, Lee and Van Witteloostuijn, 1998). Social capital "refers to features of social organization, such as networks, norms and social trust that facilitate coordination and co-operation for mutual advantage. Social advantage is the foundation on which a firm renews its license to operate" (Industry Canada, 2008). Accordingly, Social capital items relate to interactions between the firm and its surrounding society (e.g., alliances, clients) and within the firm itself (i.e. with employees) (e.g. Dess and Shaw, 2001; Pastoriza, Arino and Ricart, 2008).

The web content is split among qualitative elements (indicative, descriptive) and monetary or quantitative elements. Each element is scored 1, and an item may include many elements. Our disclosure measure comprises only information that is on a firm's Web site and provided in an HTML format and specifically excludes mandated corporate documents which were linked to the web site (e.g., audited financial statements in PDF). Web sites were analyzed and coded online, with the structure of the web site being kept on a CR-Rom for future reference and validation. To ensure consistency across firms, two persons reviewed all individual scores independently. All disagreements were

subsequently reviewed by one of the co-researchers.<sup>2</sup>

We focus on voluntary disclosure on a firm's Web site, as it is comprehensive and accessible to everyone at low cost. Our disclosure measure comprises only information that is on a firm's Web site and does not encompass paper-based disclosure. In a Canadian context, mandated disclosure is being filed on SEDAR (a system of electronic data archiving and retrieval that is maintained by securities regulators). SEDAR includes all documents which disclosure is mandated by securities regulators: financial statements, annual reports, proxy statements, MD&A and press releases (which typically concern material changes). However, all these documents are also available on paper form. The content of all these documents is pre-specified and regulated. Therefore, our disclosure measure is likely to reflect mostly information that a firm is voluntary.

The use of a coding scale to qualify a firm's disclosure is appropriate for the following reasons. First, it allows for an integration of different types of information into a single figure that is comparable across firms in terms of relevance. Second, a qualitative scale allows the researcher's judgment to be impounded in rating the value or quality of the disclosure made by a firm. While this process is more subjective, it ensures that irrelevant

---

<sup>2</sup> A coding manual documenting coding instructions as well as standardized coding worksheets were prepared before hand. Each coder then applied the following coding sequence: (1) independent identification of the occurrence of items relative to the different coding categories; (2) independent coding of the items according to quality level of content and (3) timed reconciliation on a subset of company reports. The coders were intensively trained in applying coding instructions and in using the coding worksheets. They were unaware of the research hypotheses. Initial differences in identifying grid items accounted for on average 7% of the maximum number of items identified. Of the information quality level coding, less than 10% had to be discussed for reconciliation. Disagreement between coders mostly happened at the beginning of the coding process (essentially the first 40 sample firms). A researcher reconciled coding disagreements exceeding 5% of the highest total score between the two coders. Smaller disagreements were resolved by the two coders themselves. Overall, we think that this coding process provides a reliable measure of web-based disclosure. Internal consistency estimates (Cronbach's alpha on score components) show that the variance is quite systematic (see table 2).

or redundant generalities are not considered strategic disclosure.

### **3.4. Explanatory Variables Measurement**

#### ***3.4.1. Determinants of share price volatility***

Prior studies on the determinants of information asymmetry component of cost of capital suggest numerous determinants other than voluntary disclosure (Leuz and Verrecchia, 2000). Based on that literature, we use firm size, systematic risk, free float and analyst following as determinants of share price volatility.

*Size.* Several studies (e.g. Botosan and Plumlee, 2005; Hail, 2002; Gebhardt, Lee and Swaminathan, 2001; Sengupta, 1998; and Botosan, 1997) find that larger firms benefit from a lower information asymmetry and therefore a lower cost of capital. Therefore, firm size controls at least partially for the firm's information environment (Leuz and Verrecchia, 2000). We thus expect share price volatility to be negatively associated with firm size.

*Systematic risk.* The higher a firm's systematic risk, the more difficult it is for investors to precisely assess a firm's value and the more likely they are expected to incur information costs to assess its risk drivers. Prior research shows that investors charge a higher cost of equity for firms with higher systematic risk (e.g. Leuz and Verrecchia, 2000; Hail and Leuz, 2006; Botosan and Plumlee, 2005; Mikhail, Walther and Willis,

2004; Gebhardt, Lee and Swaminathan, 2001; and Botosan, 1997). A positive relation is expected between systematic risk and share price volatility.

*Free float.* We use free float as an inverse proxy for the presence of insiders since control blocks have generally greater superior access to private information (Leuz and Verrecchia, 2000). Hence, we expect a negative association between free float and share price volatility.

### ***3.4.2. Determinants of web-based disclosure***

Verrecchia (1983) argues that whether a firm will voluntarily disclose corporate information is a function of the proprietary costs associated with the disclosure. Unless there is perceived benefit that outweighs the proprietary cost, firms will not disclose. We could argue that quantitative disclosures are likely to be viewed by management as having higher proprietary value (they will reveal more to competitors, for example) than qualitative disclosures, and as such, will be less preferred as a disclosure tool than other types of disclosure, except when the contracting incentives (e.g. new financing) or governance pressures are high enough to induce the disclosure of information potentially more litigious (quantitative versus qualitative disclosure).

***Proxies for information costs.*** Three variables are used to capture investors' information needs and, information costs with respect to a firm's web-based disclosure: New Financing; Free float; and Analyst following.

*New financing.* Lang and Lundholm (1993) document a positive relationship between the need for financing and voluntary disclosure (as measured by financial analysts' disclosure scores). Issues of long-term debt and equity are a measure of actual external financing (Dechow, Sloan and Sweeney, 1996). The variable measures the actual amount of long term financing raised through share or debt offerings scaled by total assets. We expect a positive relationship between the variable *New financing* and web-based quantitative disclosure.

*Free float.* Ownership structure can determine the level of monitoring and, thereby, the extent of disclosure (Eng and Mak, 2003). Firms with widely-held ownership are expected to be responsive to public investors' information costs since no dominant shareholders typically have access to the information they need (Hope, 2003) and do want or need to share it with other stakeholders such as employees (Roe, 2003). Yhim, Karim and Ruthledge document that the proportion of outside ownership is significantly associated with high-level forecast precision. A positive relation is expected between Concentrated Ownership and web-based quantitative disclosure.

*Analyst following.* Lang and Lundholm (1996) and Healy, Hutton and Palepu (1999) find a positive relation between analyst following and the quality of a firm's disclosure. Hence, we expect a positive relation between analyst following and the extent of web-based, i.e. qualitative and quantitative (Khanna, Palepu and Srinivasan, 2004).

*Proxies for litigation/proprietary costs.* A priori, the magnitude of potential costs a firm faces because of disclosure is difficult to assess since it requires the identification of all parties that may use information to the firm's detriment. However, a firm's financial condition does provide a measure of its willingness to release proprietary information since only firms that are financially sound may be able to trade off the benefits from additional disclosure with the costs of revealing potentially damaging information. In contrast, firms in poor financial condition may be unable to withstand the initial negative consequences that are needed to gain any benefits from more extensive disclosure. Four variables proxy for a firm's ability to support proprietary costs: Profitability; Leverage; US listing; and Firm size.

*Profitability.* Many studies document a positive association between a firm's level of disclosure and its financial performance (Mills and Gardner, 1984; Cochran and Wood, 1984; McGuire, Sundgren and Schneeweis, 1988; Cormier and Magnan, 2003). A positive relationship is expected between profitability, as measured by return on assets, and quantitative disclosure.

*Leverage.* Firms in poor financial condition may not be able to withstand the initial negative consequences that are needed to gain any benefits from more extensive disclosure. Thus, consistent with prior findings (McGuire, Sundgren and Schneeweis, 1988; Cormier and Magnan, 2003), it is expected that there is a negative relationship between a firm's leverage as measured by Long term financial debt/Total assets and quantitative disclosure.

*Firm Size.* Prior evidence is consistent in showing a positive relation between the extent of corporate disclosure and firm size (Scott, 1994; Cormier and Magnan, 1999; Neu, Warsame and Pedwell, 1998). Firm size proxies also other factors, such as the extent of monitoring by analysts. Under these conditions, firm size, measured as  $\ln(\text{Assets})$ , is introduced with an expectation of a positive relation with web-based quantitative disclosure.

*Governance monitoring.* Prior studies show that a firm's governance influences the quality of its voluntary disclosure (Eng and Mak, 2003). More specifically, the intensity of monitoring by a board has a direct influence on managerial discretion and typically requires firms to engage into more extensive organizational performance measurement and reporting (Fama, 1980).

Such monitoring by the board can be implemented through various means and attributes. For instance, an independent board is more likely to be effective in assessing managerial decisions and performance than a board that comprises only insiders (Fama and Jensen, 1983; Beasley, 1996; Xie, Davidson and DaDalt, 2003). With respect to voluntary disclosure, Chen and Jaggi (2000) document that a board that comprises mostly independent non-executive directors is more likely to be associated with comprehensive financial disclosure. Another example is provided by Karamanou and Vafeas (2005) who show that firms with better governance are more likely to issue voluntary earnings

forecasts. However, Cheng and Courtenay (2005) find that the relation between governance and disclosure is enhanced if there is an efficient regulatory environment.

Furthermore, there is evidence that stock options can align manager interests with shareholder interests. However, contracting costs may lead to incomplete contracts and agency conflicts. Aboody and Kaznik (2000) show that managers with stock-based compensation mislead shareholders by accelerating bad news and by influencing the timing of good news and bad news. Hence, web-based disclosure is likely to be opportunistically affected by the presence of CEO stock options.

Four variables are introduced to capture the impact of corporate governance as a monitoring factor affecting web-based disclosure.

*Board independence.* We expect board independence, measured as the proportion of outside directors, to be associated with voluntary disclosure. Another aspect of board independence is the separation of the roles of Chair and Chief Executive Officer. Our variable takes the value of zero (0) when the majority of directors are not independent, one (1) when the majority of directors are independent and two (2) when the majority of directors are independent, and the function of CEO and Chair of the board is separate. We expect a positive relationship between this variable and quantitative disclosure.

*Board size and Audit committee size.* Beasley (1996) finds a positive relationship between board size and the likelihood of financial statement fraud while Abbott, Park and Parker

(2000) find no relationship. Moreover, Bédard, Chtourou and Courteau (2004) find that board size is associated with less earnings management but only for income decreasing accruals. Moreover, we put forward the view that audit committee effectiveness is a critical determinant of voluntary web-based disclosure. In Canada, audit committees must comprise at least three independent members. We can argue that three is a small number for the audit committee to play effectively its monitoring role and that adding a few more members could be beneficial in that regard. Hence, we expect board size and audit committee size to be positively associated with web-based quantitative disclosure.

*Stock options.* The importance of contracting costs may lead to incomplete contracts and agency conflicts. The more agency conflicts between managers and shareholders are important, the more managers with stock-based compensation will manage web-based disclosure to maximize the value of their stock options. We expect the voluntary nature of web-based disclosure to be opportunistically affected by the presence of CEO stock options. Since the actual impact of stock options on reporting is unclear, no directional predictions are made.

### 3.5. Variable measurement

<b>Independent variables</b>	<b>Measure</b>
<i>Information costs</i>	
Systematic risk	Beta in 2004
New financing	Long-term debt borrowing plus stock issued in 2004 scaled by total assets.
Free float	The percentage of shares that are not closely held (total shares outstanding minus control blocks of 10% or more).
Analyst following	Number of analysts following a firm in 2004.
<i>Litigation/Proprietary costs</i>	
Leverage	Long term debt / Total assets
Profitability	Return on assets
US listing	SEC registration (binary variable 1; 0 if not).
Firm size	Ln(Total Assets) as of year-end 2004
<i>Governance/Monitoring</i>	
Board independence	(0) if a majority of directors are not independent; (1) if a majority of directors are independent; (2) if a majority of directors are independent and if the function of CEO and Chair of the board is separated.
Board size	Number of directors on the board.
Audit committee size	Number of audit committee members.
CEO stock options	Value of in-the-money exercisable stock options / salaries + bonus

## 4. RESULTS

### 4.1. Descriptive statistics

Table 1 provides some descriptive statistics about sample firms' independent variables.

Sample firms are relatively large and exposed to media (average of 5.061 articles in 2004). About 60% of sample firms have a concentrated ownership, with more than 50% being publicly-traded in the United States. 12% of sample firms have recently relied on capital markets for additional financing. CEO value of in-the-money exercisable stock options represents almost twice their salary and bonus. Our sample firms have

independent directors in a proportion of 36% while CEO board chair duality in 20%.

The correlation matrix does not show high level of correlation between independent variables. Only three variables are correlated at more than 50% (Board size and Audit committee size at 56%, Firm size and Board size at 53%).

[Insert table 1]

As illustrated in Table 2, on average “soft” disclosure is larger than “hard “ disclosure, both for social capital disclosure (16.05 items for indicative, 3.72 for qualitative and 1.83 for quantitative) and human capital disclosure (3.83 items for indicative, 2.02 items for qualitative and 0.68 item for quantitative). Internal consistency estimates (Cronbach's alpha on score components) show that the variance is quite systematic (alpha = 0.65 for human capital disclosure and 0.74 for social capital disclosure). This is comparable to Botosan (1997) who finds an alpha of 0.64 for an index including five categories of disclosure in annual reports.<sup>3</sup>

[Insert table 2]

#### **4.2. Multivariate analyses**

Since we posit that a firm’s information dynamics affect disclosure and share price volatility simultaneously, we first assess whether or not endogeneity exists between these

---

<sup>3</sup> Cronbach's alpha estimates the proportion of variance in the test scores that can be attributed to true score variance. It can range from 0 (if no variance is consistent) to 1.00 (if all variance is consistent). According to Nunnaly (1978), a score of 0.70 is acceptable.

variables using a Hausman test. Using this procedure, we reject the null hypothesis of no endogeneity with respect to Share price volatility and Social capital disclosure (Indicative: Lambda  $z = 1.79$ ;  $p < 0.074$ , Qualitative: Lambda  $z = 2.64$ ;  $p < 0.008$ , quantitative: Lambda  $z = 3.07$ ;  $p < 0.002$ ), and Share price volatility and Human Capital disclosure (Indicative: Lambda  $z = 2.74$ ;  $p < 0.006$ , Qualitative: Lambda  $z = 2.77$ ;  $p < 0.006$ , quantitative: Lambda  $z = 2.44$ ;  $p < 0.015$ ).

Table 3 reports results of a three-stage estimation model regarding the simultaneous test of share price volatility, SC indicative disclosure, SC qualitative disclosure, and SC quantitative disclosure. Consistent with hypothesis 1, the association between share price volatility and the extent of SC disclosure is only present for quantitative disclosure ( $-5.069$ ;  $p < 0.010$ ). As expected (hypothesis 2), this association is reduced by firm size ( $0.225$ ;  $p < 0.010$ ). Furthermore, Chi2 test for coefficient difference comforts our results since the sum of coefficients for Disclosure Quantitative and Disclosure Quantitative\*Size is statistically close to zero ( $b_6 - b_9 = 0$ ;  $.4.86$ ;  $p < 0.027$ ), i.e., for large firms, both coefficients have about the same weight, one the positive direction and the other in the negative direction. Therefore, for large firms, there is no significant relationship between SC quantitative disclosure and share price volatility.

Concerning the determinants of SC disclosure, we observe that litigation/proprietary costs (Leverage, Foreign listing and Firm size) and corporate governance (Audit committee size) are associated with disclosure, i.e. indicative, qualitative or quantitative. The magnitude of the CEO's stock option value is negatively associated with all SC

disclosure. These results suggest that efficient governance leads to more transparency while the extent of CEO stock options lead to less transparency. The fact that voluntary disclosure could be opportunistically affected by the extent of the CEO stock option is consistent with findings by Aboody and Kaznik (2000).

[Insert table 3]

Table 4 reports results of a three-stage estimation model regarding the simultaneous test of share price volatility, HC indicative disclosure, HC qualitative disclosure, and HC quantitative disclosure. Consistent with hypothesis 1, the association between share price volatility and the extent of HC disclosure is present for quantitative disclosure (-3.343;  $p < 0.05$ ). As expected (hypothesis 2), this association is reduced by firm size (0.155;  $p < 0.05$ ). Furthermore, Chi2 test for coefficient difference comforts our results since the sum of coefficients for Disclosure Quantitative and Disclosure Quantitative\*Size is statistically close to zero ( $b_6 - b_9 = 0; .2.93; p < 0.087$ ), i.e., for large firms, there is no significant relationship between HC quantitative disclosure and share price volatility. Our results also show an association between indicative “soft” disclosure and share price volatility. Moreover, Chi2 test for coefficient difference comforts our results since the sum of coefficients for Disclosure-Indicative and Disclosure-Indicative\*Size is marginally statistically close to zero ( $b_4 - b_7 = 0; .2.01; p < 0.155$ ), i.e., for large firms, there is no significant relationship between HC indicative disclosure and share price volatility. One explanation for the association between “soft” HIC disclosure and share price volatility could be that some indicative disclosure component could be seen as

relevant by market participants. In our sample, more than half firms disclosed at least one indicative information concerning employee competence.

Concerning the determinants of HC disclosure, we observe that litigation/proprietary costs (Leverage, Foreign listing and Firm size) as well as corporate governance (Board independence) seem to condition quantitative disclosure (“hard”). The magnitude of the CEO’s stock option value is negatively associated with qualitative HC disclosure.

[Insert table 4]

Both social capital and human capital are closely related since, without social capital, it may be difficult for a firm to attract and develop its human capital. Inversely, without human capital, it will be quite a challenge for a firm to build social capital as employees’ commitment and efforts will be lacking. Hence, as an additional analysis, we assess the relation between combined social and human capital disclosure and information asymmetry. Table 5 shows 3SLS regression results for combined social and human capital disclosure. Consistent with our hypotheses, results suggest that, overall, only quantitative disclosure reduces share price volatility.

[Insert table 5]

In order to test whether our results could be affected by multicollinearity between interaction terms and main effect coefficients, we estimate an OLS regression on sub-

sample first based on size. We consider small firms those included in the first 25% percentile (natural log of assets smaller or equal to 20.375). Results presented in table 6 support those presented in table 3 and 4. These results give support for our two research hypotheses.

[Insert table 6]

## **CONCLUSION**

In this paper, we build on prior literature on voluntary disclosure by investigating the impact of the nature and the extent of web-based disclosure on share price volatility. We adopt a conceptual framework that weaves together two complementary perspectives: Capital market(s)-driven information costs and benefits, and governance mechanisms.

Through simultaneous equations, our results suggest that quantitative (“hard”) disclosure reduces share price volatility for Social capital disclosure as well as Human capital disclosure while indicative (“soft”) is marginally associated with a reduction in share price volatility for Human capital disclosure. As expected, firm size reduces the impact of disclosure on share price volatility. These findings suggest that most Social capital disclosure is not valued by stock market participants. In fact, in our sample, on average, firms are disclosing close to ten times more “soft” information (indicative and qualitative nature) than “hard” information.

Furthermore, it appears that firms take into account ultimate costs and benefits to shareholders when determining the nature and extent of their disclosure. Our findings are consistent with our view that the determination of web-based voluntary disclosure espouses a multi-tiered process. Information costs are generally associated with quantitative disclosure. We document that information costs and benefits as well as an efficient governance leads to more transparency in quantitative human capital disclosure while the extent of CEO stock options leads to less transparency in social capital disclosure, either soft or hard disclosure. The fact that voluntary disclosure could be opportunistically affected by the extent of the CEO stock option is consistent with findings by Aboody and Kaznik (2000).

The results of this study should be interpreted with caution at least for two reasons. First, 3SLS is sensitive to the choice and validity of the instruments (Barhart and Rosenstein, 1998). To mitigate specification error, we base the choice of instruments for the disclosure model on information economics theory, as well as on prior empirical studies. However, it does not completely eliminate the potential for model misspecification and bias of the coefficients that would result from such misspecification. A second potential limitation is the paper's focus on HTML disclosure, which excludes hyperlinked documents in PDF. However, these documents (e.g., quarterly or annual financial statements, press releases, annual reports, sustainability reports or proxy statements) are typically also published in paper form (re. Aerts, Cormier and Magnan, 2007, show that most of them are also paper-based with a web version in PDF). In light of this evidence, we decided to exclude PDF documents that are linked to web sites from our study.

Our results reinforce the view that future research on voluntary disclosure should take into account the nature of disclosure and not only its extent. Our findings also suggest that corporate disclosure is the outcome of multiple interfaces between different stakeholders. We conclude that a firm's disclosure about Social capital and Human capital is not solely driven by economic costs and benefits considerations but is also influenced by the effectiveness of its internal governance mechanisms.

**Table 1a**  
**Descriptive statistics**  
**Financial and governance variables**

	Mean	Std dev.	Minimum	Maximum
<b>Information asymmetry</b>				
Share price volatility (std dev. of percentage change in daily stock prices for year 2005)	2.233	1.494	0.818	10.385
<b>Information costs</b>				
Systematic risk	0.682	0.489	0	2.71
New financing	0.086	0.119	0	0.70
Free float	0.776	0.225	0.098	0.999
Analyst following	6.829	5.888	0	35
<b>Litigation/Proprietary costs</b>				
Leverage	0.220	0.214	0	2.00
Profitability	0.035	0.131	-1.07	0.56
US listing	0.511	0.501	0	1
Firm size (Total Assets in million Can \$)	4 844	7 226	26	40 076
<b>Governance/Monitoring</b>				
Board independence	0.909	0.515	0	2
Board size	9.987	2.755	4	18
Audit committee size	3.980	1.103	2	9
CEO stock options	1.786	21.715	0	229

**Table 1b**  
**Correlation matrix**  
**Financial and governance variables**

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
<b>1</b> Share price volatility	1												
<b>2</b> Systematic risk	*0.278	1											
<b>3</b> New financing	*0.152	0.046	1										
<b>4</b> Free float	0.113	*0.168	0.118	1									
<b>5</b> Analyst following	*-0.155	*0.327	*-0.177	0.068	1								
<b>6</b> Leverage	*-0.204	-0.167	*0.158	*-0.197	*-0.209	1							
<b>7</b> Profitability	*-0.262	-0.046	*-0.133	-0.034	0.084	-0.009	1						
<b>8</b> US listing	0.109	0.242	*0.175	*0.166	0.092	0.104	-0.042	1					
<b>9</b> Firm size	*-0.494	-0.017	-0.095	*-0.149	*0.207	*0.381	*0.146	0.114	1				
<b>10</b> Board independence	-0.042	-0.007	-0.096	-0.064	-0.034	*-0.178	-0.121	*-0.194	-0.065	1			
<b>11</b> Board size	*-0.379	*-0.169	0.015	-0.154	0.073	0.193	0.119	-0.107	*0.530	0.078	1		
<b>12</b> Audit committee size	*-0.317	-0.120	0.099	0.015	-0.052	0.129	0.134	-0.041	*0.409	0.123	*0.567	1	
<b>13</b> CEO stock options	0.024	*0.221	-0.055	0.037	*0.287	-0.123	0.041	*0.139	0.096	-0.006	-0.078	-0.002	1

**Table 2**  
**Web-based disclosure**  
**Mean (median) scores by component**

	2005			Cronbach Alpha
	Indicative content	Qualitative content	Quantitative content	
Social capital	16.05 (10.00)	3.72 (2.00)	1.83 (1.00)	0.74
Human Capital	3.83 (2.00)	2.02 (2.00)	0.68 (1.00)	0.65
<b>Total score</b>	<b>19.88</b> <b>(14.00)</b>	<b>5.74</b> <b>(4.00)</b>	<b>2.51</b> <b>(2.00)</b>	

N: 155

**Table 3**  
**Three stage regression model**  
**Social Capital Disclosure**

N: 131		Share price volatility	Disclosure Indicative	Disclosure Qualitative	Disclosure Quantitative
<b>Share price volatility</b>					
	-	$\beta_1$	***-0.668		
Firm size	-	$\beta_1$	***-0.668		
Systematic risk	+	$\beta_2$	***0.583		
Free float	-	$\beta_3$	0.222		
Disclosure Indicative	-	$\beta_4$	0.614		
Disclosure Qualitative	-	$\beta_5$	-1.434		
Disclosure Quantitative	-	$\beta_6$	***-5.069		
Disclosure Indicative*Size	+	$\beta_7$	-0.026		
Disclosure Qualitative*Size	+	$\beta_8$	0.064		
Disclosure Quantitative*Size	+	$\beta_9$	**0.225		
<b>Disclosure</b>					
<b>Information costs</b>					
New financing	+		-6.525	-0.606	-1.633
Free float	+		3.774	**2.548	-0.376
Analyst following	+		**0.326	-0.018	0.007
<b>Litigation/Proprietary costs</b>					
Leverage	-		***-17.468	*-2.658	***-2.734
Profitability	+		-2.260	-0.834	0.563
Foreign listing	+		***7.667	***2.256	**0.544
Firm size	+		***5.127	***1.239	***0.541
<b>Governance monitoring</b>					
Board independence	+		1.226	0.210	-0.022
Board size	+		0.301	*0.178	0.052
Audit committee size	+		**2.269	**0.651	**0.302
CEO stock options	+/-		***-0.138	*-0.023	**-0.014
Adjusted R <sup>2</sup>			40.3%	45.9%	43.5%
Chi2			88.6	111.0	100.8
P value			0.000	0.000	0.000
Test $\beta_6 - \beta_9 = 0$ Chi2-test			4.86(0.027)		

Coefficients for intercept and industry dummies not reported

**Table 4**  
**Three stage regression model**  
**Human Capital Disclosure**

N: 131		Share price volatility	Disclosure Indicative	Disclosure Qualitative	Disclosure Quantitative
<b>Share price volatility</b>					
Firm size	-	$\beta_1$	***-0.645		
Systematic risk	+	$\beta_2$	***0.566		
Free float	-	$\beta_3$	0.307		
Disclosure Indicative	-	$\beta_4$	*-0.615		
Disclosure Qualitative	-	$\beta_5$	0.018		
Disclosure Quantitative	-	$\beta_6$	**-3.433		
Disclosure Indicative*Size	+	$\beta_7$	*0.028		
Disclosure Qualitative*Size	+	$\beta_8$	-0.001		
Disclosure Quantitative*Size	+	$\beta_9$	**0.155		
<b>Disclosure</b>					
<b>Information costs</b>					
New financing	+		-3.497	1.012	0.257
Free float	+		-1.745	*1.087	0.213
Analyst following	+		**0.098	*0.048	0.007
<b>Litigation/Proprietary costs</b>					
Leverage	-		-1.134	-1.484	**-0.984
Profitability	+		-0.263	-1.293	-0.134
Foreign listing	+		**1.282	**0.779	**0.227
Firm size	+		***0.801	***0.615	***0.154
<b>Governance monitoring</b>					
Board independence	+		-0.258	0.295	***0.364
Board size	+		**0.252	*0.112	0.026
Audit committee size	+		0.048	-0.092	-0.002
CEO stock options	+/-		-0.006	*-0.010	0.001
Adjusted R <sup>2</sup>			36.6%	24.6%	25.6%
Chi2			75.7	42.8	45.2
P value			0.000	0.000	0.000
Test $\beta_4 - \beta_6 = 0$ Chi2-test			1.36(0.243)		
Test $\beta_4 - \beta_7 = 0$ Chi2-test			2.01(0.155)		
Test $\beta_6 - \beta_9 = 0$ Chi2-test			2.93(0.087)		

Coefficients for intercept and industry dummies not reported

**Table 5**  
**Three stage regression model**  
**Combined Human and Social Capital Disclosure**

N: 131		Share price volatility	Disclosure Indicative	Disclosure Qualitative	Disclosure Quantitative
<b>Share price volatility</b>					
	-	$\beta_1$	***-0.673		
	+	$\beta_2$	***0.593		
	-	$\beta_3$	0.239		
	-	$\beta_4$	-0.038		
	-	$\beta_5$	0.016		
	-	$\beta_6$	**-2.081		
	+	$\beta_7$	0.002		
	+	$\beta_8$	-0.001		
	+	$\beta_9$	**0.093		
<b>Disclosure</b>					
<b>Information costs</b>					
	+		-10.129	0.396	-1.389
	+		2.036	**3.636	-0.162
	+		**0.441	0.032	0.016
<b>Litigation/Proprietary costs</b>					
	-		***-18.391	**-4.125	***-3.691
	+		-1.699	-2.056	0.537
	+		***8.886	***3.028	**0.761
	+		***5.871	***1.849	***0.687
<b>Governance monitoring</b>					
	+		0.926	0.502	0.337
	+		0.555	**0.291	0.078
	+		**2.411	*0.566	**0.311
	+/-		***-0.146	**-0.033	*-0.014
			39.1%	48.9%	46.9%
			84.8	126.5	115.8
			0.000	0.000	0.000
			2.92(0.089)		67.7
					0.000

Coefficients for intercept and industry dummies not reported

**Table 6**  
**Ordinary Least Square regression model – with Robust Estimators**  
**Small versus large firms**

			Combined Disclosure		Social Capital		Human Capital	
			Small firms	Large firms	Small firms	Large firms	Small firms	Large firms
<b>Share price volatility</b>								
Firm size	$b_1$	-	***-1.289	** -0.124	***-1.304	***-0.146	***-1.439	***-0.131
Systematic risk	$b_2$	+	0.594	***0.842	-0.464	***0.819	-0.651	***0.906
Free float	$b_3$	-	0.909	0.125	0.749	0.089	1.434	0.012
Disclosure	$b_4$	-	0.005	-0.005	-0.005	-0.003	-0.028	-0.023
Indicative								
Disclosure	$b_5$	-	0.090	-0.010	0.088	-0.008	0.115	-0.040
Qualitative								
Disclosure	$b_6$	-	** -0.663	0.012	* -0.563	-0.007	** -1.181	0.065
Quantitative								
Adjusted R <sup>2</sup>			44.6%	22.8%	41.8%	22.3%	42.1%	23.7%
F statistic			5.00(0.001)	10.8(0.001)	5.65(0.001)	13.2(0.000)	4.53(0.002)	10.8(0.000)
N: 143			33	110	33	110	33	110

(Small firms if in the first 25% percentile natural log of assets, large firms otherwise)

## REFERENCES

- Abbott, L.J., Park, Y. and Parker, S. (2000) The Effect of Audit Committee Activity and Independence on Corporate Fraud, *Managerial Finance*, 26(11), 55-67.
- Abbott, L.J., Parker, S. Peters, F.F. and Raghunandan, K. (2003) The Association between Audit Committee Characteristics and Audit Fees, *Auditing: A Journal of Practice and Theory* (September), 17-32.
- Aboody, D. and Kasznik, R. (2000) CEO Stock Option Awards and Voluntary Corporate Disclosure, *Journal of Accounting and Economics*, 29, 73-100.
- Aerts, W., Cormier, D., Gordon, I. and Magnan, M. (2006) Performance Disclosure on the Web: An Exploration of the Impact of Managers' Perceptions of Stakeholder Concerns, *The International Journal of Digital Accounting Research*, 6(12), 159-192.
- Aerts, W., Cormier, D. and Magnan, M. (2007) The Association between Web-Based Corporate Performance Disclosure and Financial Analyst Behaviour under Different Governance Regimes, *Corporate Governance – An International Review*, 15(6), 1301-1328.
- Aerts, W., Cormier, D. and Magnan, M. (2008) Corporate Environmental Disclosure, Financial Markets and the Media: An International Perspective, *Ecological Economics*, 64, 643-659.
- Aguilera, R. (2005) Corporate Governance and Director Accountability: An Institutional Comparative Perspective, *British Journal of Management*, 16(1), 39-53.
- Al-Tuwaijri, S., Christensen, T.E. and Hughes II, K.E. (2004) The Relations Among Environmental Disclosure, Environmental Performance, and Economic Performance: A Simultaneous Equations Approach, *Accounting, Organizations and Society* 29: 447-471.
- Atiase, R. (1985) Predisclosure Information, Firm Capitalization, and Security Price Behavior around Earnings Announcements, *Journal of Accounting Research*, 23 (Spring), 21-36.
- Barnhart, S.W. and Rosenstein, S. (1998) Board Composition, Managerial Ownership and Firm Performance: An Empirical Analysis, *The Financial Review*, 33(4), 1-16.
- Bhushan, R. (1989) Firm Characteristics and Analyst Following, *Journal of Accounting and Economics*, 11(2), 255-274.
- Blair, M.M. and Kochan, T.A. (2000). *The New Relationship: Human Capital in the American Corporation*. Washington, DC: Brookings Institution Press.
- Botosan, C.A. (1997) Disclosure Level and the Cost of Equity Capital, *The Accounting Review*, 72(3), 323-350.
- Botosan, C. and Plumlee, M. (2005) Assessing Alternative Proxies for the Expected Risk Premium, *The Accounting Review*, 80 (1), 21-53.
- Beasley, M.S. (1996) An Empirical Analysis of the Relation between the Board of Director Composition and Financial Statement Fraud, *The Accounting Review*, 71(4), 433-465.
- Bricker, R., Grant, J., Fogarty, T. and Previts, G. (1999) Determinants of Corporate Communications, *Journal of Corporate Communications*, 1, 1-34.
- Brown, N. and Deegan, C. (1998) The Public Disclosure of Environmental Performance Information--A Dual Test of Media Agenda Setting Theory and Legitimacy Theory, *Accounting and Business Research*, 29(1) (Winter), 21-41.

- Bédard J., Chtourou, S. and Courteau, L. (2004) The Effect of Audit Committee Expertise, Independence and Activity on Aggressive Earnings Management, *Auditing: A journal of Practice and Theory*, 23 (September), 13-35.
- Bushman, R. and Smith, A. (2003) Transparency, Financial Accounting Information, and Corporate Governance, *Economic Policy Review*, 9(1), 65-87.
- Chen, C.J.P. and Jaggi, B. (2000) Association between Independent Non-Executive Directors, Family Control and Financial Disclosures in Hong Kong, *Journal of Accounting and Public Policy*, 19, 285–310.
- Cheng, E. and Courtenay, S. (2005) *Board Composition, Regulatory Regime and disclosure*, Illinois International Summer Accounting Conference, Japan.
- Cheng, P.Y.K., Gopinath, S. and Krishnamurti, C. (2002) *Does Frequent Trading Always Improve Liquidity?*, Working paper, ssrn.abstract=314384.
- Clarkson, P., Kao, J.L. and Richardson, G.D. (1994) The Voluntary Inclusion of Forecasts in the MD&A Section of Annual Reports, *Contemporary Accounting Research*, 11 (Fall), 423-450.
- Clarkson, P., Li, Y., Richardson, G.D. and Vasrini, F.P. (2008) Revisiting the Relation between Environmental Performance and Environmental Disclosure: An Empirical Analysis, *Accounting, Organizations & Society*, forthcoming.
- Cohen, D. and Prusak, L. (2001) *In Good Company – How Social Capital Makes Organizations Work*. Boston, MA: Harvard Business School Press.
- Cormier, D., Ledoux, M.J. and Magnan, M. (2008) The Use of Web Sites as a Disclosure Platform for Corporate Performance, *International Journal of Accounting Information Systems*, Forthcoming.
- Cormier, D. and Magnan, M. (1999) Corporate Environmental Disclosure Strategies: Determinants, Costs and Benefits, *Journal of Accounting, Auditing and Finance*, 14(3), 429-451.
- Cormier, D. and Magnan, M. (2003) Environmental Reporting Management: A European Perspective, *Journal of Accounting and Public Policy*, 22, 43-62.
- Cochran, P. and Wood, R. (1984) Corporate Social Responsibility and Financial Performance, *Academy of Management Journal*, 42-56.
- Dechow, P.M., Sloan, R.G. and Sweeney, A.P. (1996) Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC, *Contemporary Accounting Research*, 13(1), 1-36.
- Deegan, C. and Rankin, M. (1996) A Study of the Environmental Disclosure Practices of Australian Corporations, *Accounting and Business Research*, 26(3) (Summer), 187-199.
- Dess, G.G. and Shaw, J.D. (2001) Voluntary Turnover, Social Capital, and Organizational Performance. *Academy of Management Review* 26(3), 446-456.
- Dye, R. (1985) Disclosure of Nonproprietary Information, *Journal of Accounting Research*, 23 (Spring), 123-145.
- Eng L.L. and Mak, Y.T. (2003) Corporate Governance and Voluntary Disclosure, *Journal of Accounting and Public Policy*, 22, 325-345
- Ernst & Ernst (1977) Social Responsibility disclosure: 1977 Survey of Fortune 500 Reports. Cleveland, OH.
- Fama, E.F. (1980) Agency Problems and the Theory of the Firm, *Journal of Political Economy*, 88(2), 288-307.

- Fama, E.F. and Jensen, M.C. (1983) The Separation of Ownership and Control, *The Journal of Law and Economics*, 26, (June), 301-325.
- Francis, J., Khurana, I. and Pereira, R. (2005) Disclosure Incentives and Effects on Cost of Capital, *The Accounting Review*, 80 (4), 1125-1162.
- Frankel, R., McNichols, M. and Wilson, G.P. (1995) Discretionary Disclosure and External Financing, *The Accounting Review*, 70 (1), 135-150.
- Gebhardt, W., Lee, C. and Swaminathan, B. (2001) Toward an Implied Cost of Capital, *Journal of Accounting Research*, 39 (1): 135-176.
- Gibbins, M., Richardson, A. and Waterhouse, J. (1990) The Management of Corporate Financial Disclosures: Opportunism, Ritualism, Policies, and Processes, *Journal of Accounting Research*, 28 (Spring), 121-143.
- Grossman, S. (1981) The Role of Warranties and Private Disclosure about Product Quality, *Journal of Law and Economics*, 24, 461-483.
- Hail, L. (2002) The Impact of Voluntary Corporate Disclosures on the Ex Ante Cost of Capital for Swiss Firms, *European Accounting Review*, 11 (4), 741-772.
- Hail, L. and Leuz, C. (2006) International Differences in the Cost of Equity Capital: Do Legal Institutions and Securities Regulation Matter, *Journal of Accounting Research*, 44 (3), 485-531.
- Healy, P., Hutton, A.P. and Palepu, K.G. (1999) Stock Performance and Intermediation Changes Surrounding Sustained Increases in Disclosure, *Contemporary Accounting Research*, 16(3), 485-520.
- Healy, P.M. and Palepu, K.G. (2001) Information Asymmetry, Corporate Disclosure, and Capital Markets: A Review of Empirical Disclosure Literature, *Journal of Accounting and Economics*, 31(1/3), 405-440.
- Henriques, I. and Sadorski, P. (1996) The Determinants of an Environmentally Responsive Firm: An Empirical Approach, *Journal of Environmental Economics and Management*, 30(3), 381-395.
- Hope, O.K. (2003) Disclosure Practices, Enforcement of Accounting Standards and Analysts' Forecasts Accuracy: An International Study, *Journal of Accounting Research*, 41(2), 273-272.
- Industry Canada (2008) Corporate Social Responsibility: The Importance of Stakeholder Engagement. Ottawa: Canada. ([www.ic.gc.ca](http://www.ic.gc.ca))
- Ittner, C. and Larcker, D. (1998) Are Non-Financial Measures Leading Indicators of Financial Performance? An analysis of Customer Satisfaction, *Journal of Accounting Research*, 36 supplement, 1-35.
- Karamanou, I. and Vafeas, N. (2005) The Association between Corporate Boards, Audit Committees, and Management Earnings Forecasts: An Empirical Analysis, *Journal of Accounting Research*, 43(3), 453-485.
- Kaplan, R.S. and Norton, D.P. (1996) *The Balanced Scorecard: Translating Strategy into Actions*, MA: Harvard Business School Press.
- Kim, O. and Verrecchia, R. (1994) Market Liquidity and Volume around Earnings Announcements, *Journal of Accounting and Economics*, 17(1), 41-68.
- Lang, M. H., Lins, K. V. and Miller, D. P. (2003) ADRs, Analysts, and Accuracy: Does Cross Listing in the United States Improve a Firm's Information Environment and Increase Market Value?, *Journal of Accounting Research*, 41(2), 317-345.

- Lang, M. and Lundholm, R. (1993) Cross-Sectional Determinants of Analyst Ratings of Corporate Disclosures, *Journal of Accounting Research*, 31(2), 246-271.
- Lang, M. and Lundholm, R. (1996) Corporate Disclosure Policy and Analyst Behavior, *The Accounting Review*, 71, 467-492.
- Leuz, C. (2003) IAS Versus U.S.GAAP: Information Asymmetry-Based Evidence from Germany's New Market, *Journal of Accounting Research* 41(3), 445-472.
- Leuz, C. and Verrecchia, R. (2000) The Economic Consequences of Increased Disclosure, *Journal of Accounting Research*, 38 (supplement), 91-124.
- Marston, C.L. and Polei, A. (2004) Corporate Reporting on the Internet by German Companies, *International Journal of Accounting Information Systems*, 5(3), 285-311.
- McGuire, J., Sundgren, A. and Schneeweis, T. (1988) Corporate Social Responsibility and Firm Financial Performance, *Academy of Management Journal*, (December), 854-872.
- Mikhail, M., Walther, B. and Willis, R. (2004) Earnings Surprises and the Cost of Equity Capital, *Journal of Accounting, Auditing and Finance*, 19(4), 491-513.
- Milgrom, P.R. (1981) Good News and Bad News: Representation Theorems and Applications, *Bell Journal of Economics*, (Fall), 380-391.
- Mills, D. and Gardner, M. (1984), Financial Profiles and the Disclosure of Expenditures for Socially Responsible Purposes, *Journal of Business Research*, (December), 407-424.
- Neu, D., Warsame, H. and Pedwell, K. (1998) Managing Public Impressions: Environmental Disclosures in Annual Reports, *Accounting, Organizations and Society*, 23(3), 265-282.
- Nunnally, J. (1978) *Psychometric Theory*, McGraw Hill, end Edition, New York.
- Pastoriza, D., Arino, M.A. and Ricart, J.E. (2008) Ethical Managerial Behaviour as an Antecedent of Organizational Social Capital. *Journal of Business Ethics* 78, 329-341.
- Pennings, J.M., Lee, K. and Van Witteloostuijn, K. (1998) Human Capital, Social Capital and Firm Dissolution. *Academy of Management Journal* 41(4), 425-440.
- Pirchegger, B. and Wagenhofer, A. (1999) Financial Information on the Internet: A Survey of Homepages of Austrian Companies, *The European Accounting Review*, 8(2), 383-395.
- Richardson, A. and Welker, M. (2001) Social Disclosure, Financial Disclosure and the Cost of Equity Capital, *Accounting, Organizations and Society*, 26 (7), 597-616.
- Roe, M.J. (2003) *Political Determinants of Corporate Governance*, Oxford University Press: New York.
- Robb, S.W.G., Single, L.E. and Zarzeski, M.T. (2001) Nonfinancial Disclosures across Anglo-American Countries, *Journal of International Accounting, Auditing and Taxation*, 10, 71-83.
- Rubinstein, M. (2001) Rational Markets: Yes or No? The Affirmative Case, *Financial Analyst Journal*, Jan/Feb, 41-59.
- Scott, T. (1994) Incentives and Disincentives for Financial Disclosure: Voluntary Disclosure of Defined Benefit Pension Plan Information by French Firms, *The Accounting Review*, 69(1), 26-43.
- Sengupta, P. (1998) Corporate Disclosure Quality and the Cost of Debt, *The Accounting Review*, 73(4), 459-474.

- Skinner, D. (1994) Why Firms Voluntarily Disclose Bad News. *Journal of Accounting Research*, 32 (Spring), 38-60.
- Standard & Poors (2002) *Transparency and Disclosure: Overview of Methodology and Study Results – United States*, New York.
- Verrecchia, R. (1983) Discretionary Disclosure. *Journal of Accounting and Economics*, 5, 179-194.
- Verrecchia, R.E. (1990) Information Quality and Discretionary Disclosure, *Journal of Accounting and Economics*, 12, 365-380.
- Welker, M. (1995) Disclosure Policy, Information Asymmetry and Liquidity in Equity Markets, *Contemporary Accounting Research*, 11(3), 801-828.
- Wiseman, J. (1982) An Evaluation of Environmental Disclosures Made in Corporate Annual Reports, *Accounting, Organizations and Society*, 7(4), 53-64.
- Yhim, H.P, Karim, K.E. and Rutledge, R.W. (2003) The Association between Disclosure Level and Information Quality: Voluntary Management Earnings Forecasts, *Applied Financial Economics*, 13(9), 677-692.
- Xie, B., Davidson, W. and DaDalt, P. (2003) Earnings Management and Corporate Governance: The Role of the Board and the Audit Committee, *Journal of Corporate Finance*, 9(3), 295-316.

Appendix  
**Disclosure grid**

**Social capital disclosure**

Purchases of goods and services  
Employment opportunities  
Job creation]  
Equity programs  
Human capital development  
Regional development  
Gifts and sponsorships  
Accidents at work  
Health and safety programs  
Product-related-incidents  
Products in development and environment  
Product safety  
Business ethics  
Strategic alliances  
Community involvement  
Social activities  
Other

**Human capital disclosure**

Hiring / new employees  
Qualification / expertise  
Training  
Description of job requirements 1, 2, 3  
**Total competence**  
Employee empowerment / involvement  
Capacity to suggest and to implement changes  
Teamwork  
Performance assessment  
Performance based compensation  
Earnings-based compensation  
Carrier opportunities  
Award  
Fringe benefits  
**Total motivation/work climate**  
Employees satisfaction, survey  
Employee turnover  
Other  
**Total satisfaction**