



**THE ASSOCIATION BETWEEN GOVERNANCE, MEDIA, ECONOMIC FACTORS AND
WEB-BASED DISCLOSURE: SOME CANADIAN EVIDENCE**

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Abstract

The advent of Internet has expanded considerably the reach of corporate disclosure. In this paper, we explore two related questions: (1) What are the scope and patterns of corporate socio-economic disclosure on the Internet? (2) What are the determinants of corporate socio-economic disclosure on the Internet? Socio-economic disclosure relates to corporate actions and initiatives that directly affect society and, ultimately, stockholders' wealth. To assess these two questions, we rely on a three-tiered conceptual framework that weaves together three complementary perspectives: information costs and benefits, governance and public pressure.

We focus on web-based voluntary disclosure among Canada's largest publicly-traded firms between 2001 and 2005: Canada is one of the world's most wired countries and Internet is now widely recognized as the primary source of information for investors. Web disclosure by these firms is rated using a newly-designed grid.

Regarding the first question, results show two diverging trends. On the one hand, web page quality tends to converge over time (between 2001 and 2005) as does information disclosed about Value for Clients, and Human & Intellectual Capital (between 2003 and 2005). On the other hand, we document divergences over time in firms' propensity to provide information on the web about Financial performance (2001-2005) and Corporate governance, Operations efficiency, and Innovation, development & growth (2003-2005). With respect to the second question, consistent with expectations, results show that information costs and benefits faced by capital markets participants, governance and monitoring considerations as well as the need for firms to legitimize their activities all influence web-based disclosure. More specifically, high leverage and free cash flow (a proxy for external financing needs) translate into less web-based disclosure. In contrast, firms facing high systematic risk and firms listed on a US stock exchange provide more extensive socio-economic disclosure than others. Results also show that governance and monitoring issues are associated with socio-economic disclosure. For instance, board independence and board size, and to a lesser extent the frequency of audit committee meetings, are positively related to disclosure while the importance of a CEO's stock option portfolio translates into less disclosure. This latter result suggests that there could be opportunistic behavior by CEOs. Our results also suggest that external public pressure, as measured by media exposure, enhances the role played by independent directors in determining a firm's disclosure transparency.

Key words: Corporate disclosure, corporate governance, voluntary disclosure, web reporting.

**L'incidence des marchés financiers, des mécanismes de gouvernance
et de l'exposition aux médias sur la communication
d'informations socio-économiques sur les sites Internet :
Une étude canadienne**

Résumé

La transparence dans la communication en matière de performance organisationnelle est essentielle au bon fonctionnement des marchés des capitaux, de l'emploi et des biens et services. La complémentarité entre la transparence en matière de communication de la performance organisationnelle et les contraintes des marchés financiers, les mécanismes de gouvernance émanant du conseil d'administration et le degré d'exposition de la firme aux médias est documentée par plusieurs études empiriques. Dans la présente étude, nous tentons de répondre aux deux questions suivantes à partir de l'information socio-économique véhiculée sur les sites Internet des entreprises canadiennes : 1) Quelles sont les tendances dans la communication d'informations socio-économiques sur les sites Internet des entreprises (assiste-t-on à un phénomène d'imitation au fil du temps ou à plus de divergences) ? (2) Quels sont les déterminants de la communication d'informations socio-économiques sur Internet ? Le niveau de communication d'informations socio-économiques sur les sites Internet est codé pour les années 2001-2003-2005 pour les sociétés non financières canadiennes composant l'indice boursier S&P/TSX.

En ce qui concerne la première question, il ressort de nos résultats que nous assistons à un phénomène de convergence au fil du temps par rapport à la qualité du site Internet. Le phénomène de convergence est également observé à plus court terme (entre 2003 et 2005) en ce qui concerne la quantité d'informations communiquées à l'égard des clients et du capital humain et intellectuel. Toutefois, cette tendance à l'imitation n'est pas observée pour les autres composantes de la communication d'informations socio-économiques. Nous observons plutôt une plus grande divergence au fil du temps pour la composante Performance financière (entre 2001 et 2005) et à plus court terme pour les composantes Gouvernance, Efficience des opérations de production et Innovation, développement & croissance.

Par rapport à notre deuxième question, tel que prévu, les résultats indiquent une relation négative entre le niveau d'endettement, le flux de trésorerie d'exploitation net d'investissement en immobilisations et le niveau de communication d'informations socio-économiques alors que la relation est positive pour le risque systématique (bêta) et le fait d'être coté à une bourse américaine. Il ressort aussi des résultats que les mécanismes de gouvernance sont reliés au niveau de communication d'informations socio-économiques. Ainsi, l'indépendance et la taille du conseil d'administration et, dans une moindre mesure, le nombre de réunions du comité de vérification sont positivement reliés au niveau de communication d'informations socio-économiques. De plus, l'ampleur de la rémunération en options du directeur général par rapport à sa rémunération en salaire ou primes est inversement reliée à la communication d'informations socio-économiques. Ainsi, lorsque la rémunération en options représente une forte proportion de la rémunération totale du directeur général, la communication d'informations socio-économiques est davantage susceptible d'être réduite. Il ressort également de nos résultats que la présence au conseil d'une majorité de membres indépendants amène une plus grande communication d'information socio-économique quand l'entreprise fait face à une large couverture de la part des médias. De façon générale, nos résultats montrent une association entre la communication d'informations socio-économiques sur le web et les considérations propres aux marchés financiers, aux mécanismes de gouvernance et au degré d'exposition de la firme aux médias.

Mots-clés: Divulgence volontaire, gouvernance, divulgation par Internet, exposition aux médias.

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INTRODUCTION

Financial performance reporting, through financial statements and management discussion and analysis (MD&A), attracts considerable attention from the financial, regulatory and media communities. Around the world, regulators have actually mandated many new disclosure requirements to enhance corporate transparency and raise public trust. However, beyond financial performance, corporate disclosure encompasses many other dimensions of a firm's activities or actions. For instance, some firms devote considerable attention to disclosure about their environmental performance, their social performance or the effectiveness of their governance practices. Such practices are consistent with the calls for greater disclosure of non-financial information that various individuals and groups have made over the years (e.g. AICPA, 1994; FASB, 2001; Management's Discussion and Analysis of Financial Condition and Results of Operations, SEC, 2003). Professional financial analysts refer to non-financial measures in their analyses and do argue that they use these measures to evaluate a firm's long-term performance (e.g., Dempsey, Gatti, Grinnell and Cats-Baril, 1997; Healy, Hutton and Palepu, 1999). Examples of supplementary voluntary disclosure include reporting on the status of intangibles, customer satisfaction, corporate governance practices, risk management, product development and reliability, human capital, sustainable development, etc.

Until recently, most non-financial information was being disclosed through traditional media vehicles (e.g. annual report print copy) or through intermediaries (e.g., press releases that may be picked up by some media outlet). However, the advent of the World Wide Web (Web) has led firms to reconsider

their disclosure strategies since the Web offers much more flexibility than traditional means in the presentation and in the content of reporting. For example, many firms' web sites offer interactive facilities (e.g., questions and answers) or provide access to video presentations (e.g., management's presentations to analysts). Moreover, since marginal distribution costs are close to zero, the Web allows a firm to disclose far more information than traditional means.

The Web allows firms to communicate directly with their stockholders (current and potential), without the need for intermediaries and irrespective of their location. Such a context implies that the stewardship relation between a firm's management and its stockholders becomes more direct, dynamic and, potentially, interactive. Hence, we expect firms to take advantage of this opportunity and to structure their disclosure of information about various aspects of their activities in a way that is conditioned by how it will ultimately benefit stockholders. More specifically, we explore two complementary research questions. First, what are the scope and patterns of web-based corporate socio-economic disclosure? Second, what are the determinants of socio-economic disclosure? Socio-economic disclosure relates to corporate actions and initiatives that directly affect society and, ultimately, stockholders' wealth. Our focus is on web-based voluntary socio-economic disclosure, which is not specifically mandated by regulatory agencies. While it is true that securities regulators have oversight responsibilities over all of a firm's disclosure activities, their oversight is bound to be less tight for disclosures for which there is no specified form or content to rely upon.

To assess these two questions, we rely on a three-tiered conceptual framework that weaves together three complementary perspectives: information costs and benefits, governance and public pressure. From an information costs and benefits perspective, we argue that organisations provide socio-economic disclosure to cater to their stockholders' needs and interests, a necessity if they are to be able to tap capital markets efficiently in the future. However, an organisation's propensity to provide information to capital markets is conditioned by its governance structure, especially at the board

level. Since the board sets the strategic agenda for an organisation, it is likely to influence socio-economic disclosure as it is a strategic tool for value creation. Finally, beyond capital markets, any organisation evolves within a broader societal context in which it must defend and legitimize its purpose and the value of its activities. Failure to establish a trust relation with society, or its agents (government, regulators), may endanger an organisation's going concern value. Hence, we expect that societal concerns, as expressed through the prism of media coverage, will influence the scope and direction of a firm's socio-economic disclosure, especially at critical junctures.

Our empirical measure of disclosure relies on information quality, not volume or number of words, an approach that is consistent with prior work in financial/non-financial disclosure (e.g., Gibbins, Richardson and Waterhouse, 1990; Association for Investment Management and Research, 1992, 1993 and 2000; Lang and Lundholm, 1993 and 1996; Botosan, 1997; Healy, Hutton and Palepu, 1999). It is our view that disclosure quality, more than its level, ultimately affects a firm's shareholders. Our sample comprises Canada's largest publicly-traded corporations representing close to 80% of the total stock market capitalization of that country's stock markets. These firms' disclosure decisions are likely to affect most Canadian investors. Few countries would provide us with both such large coverage as well as a usable data set. Another advantage of using Canadian data is that, by U.S. standards, our sample comprises relatively small firms, thus expanding the scope of firms under study compared to U.S.-focused studies. Finally, Canada is a "wired" country, with Internet penetration exceeding 80% of all homes.

Trend analyses do show that web page quality tends to converge between 2001 and 2005, with firms releasing information to a similar extent over time. A parallel phenomenon is also observed in the short term (between 2003 and 2005) for disclosure about Value for clients, and Human & Intellectual capital. However, this imitation tendency is not observed for other web-based disclosure components since we document a divergence over time in web disclosure about Financial performance and in the

short term about Corporate governance, Operations efficiency, and Innovation, development & growth. Regarding the determinants of socio-economic disclosure, our results are consistent with our view that the determination of web-based voluntary disclosure espouses a multi-tiered process. Hence, capital markets-related information costs and benefits appear to influence web-based disclosure. More specifically, leverage and free cash flow (a proxy for a firm external financing) translate into less web-based disclosure. In contrast, firms facing high systematic risk and firms listed on a U.S. stock exchange provide more extensive socio-economic disclosure than others. Results also show that governance and monitoring issues are associated with socio-economic disclosure. Hence, board independence and board size, and to a lesser extent the intensity of audit committee monitoring are associated with more extensive disclosure while large CEO stock option portfolios translate into less disclosure. This latter result suggests that voluntary disclosure could be opportunistically affected by CEO stock options ownership, a finding that is consistent with Aboody and Kaznik (2000). Our results also suggest that external public pressure, as measured by media exposure, reinforces the will of external members of the board of directors to enhance a firm's disclosure transparency.

This paper contributes to our knowledge of corporate disclosure in the following ways. First, we provide evidence on the determinants of web-based voluntary socio-economic disclosure, a reality for investors, managers and other market participants. Second, we envision that the determination of socio-economic disclosure through a multi-tiered conceptual perspective that encompasses an assessment of potential capital markets participants' information needs, governance, and media coverage. Third, consistent with current research in both management and financial accounting, we adopt a comprehensive and qualitative view of web-based disclosures comprising both financial and non-financial information. Finally, we expect that insights into the determination and impact of corporate web-based socio-economic disclosure will help standard setters and regulators in the development of new and effective policies.

The remainder of the paper is organized as follows. Section 2 contains a theoretical framework for performance disclosure. The study's method is described in section 3. Results are presented in section 4. Finally, section 5 provides a discussion of results' potential implication.

2. DETERMINANTS OF SOCIO-ECONOMIC DISCLOSURE

The advent of the World Wide Web (Web) has allowed firms to meet in an efficient manner most of the information needs of their business and financial partners while providing flexibility in the shape and the nature of disclosed information. In fact, the Web is now perceived as the best platform for stewardship and disclosure management, for financial as well as non-financial information (Lymer, 1997; Robb, Single and Zarzeski, 2001; Marston and Polei, 2004). Many Web-specific attributes contribute to its perceived superiority as a communication tool compared with other media: dynamic information (updated), real time access to data and information, hypertext links, interactive capabilities (question-answer), relations with investors (with updating), video capabilities, in-house press coverage, downloading of data, etc. Moreover, because it facilitates direct contact between a firm and its stakeholders, firms are able to better control their reporting strategies as they are less dependent on intermediaries like journalists or financial analysts for the diffusion of their message (see Lymer, 1999). Furthermore, information voluntarily disclosed by a firm via its Web site is not currently subjected to any specific regulation, unlike financial statements, proxy statements or MD&A.

We adopt the theoretical perspective that firms determine web-based socio-economic disclosure on the basis of capital markets considerations, which imply an assessment of information costs and benefits, governance, and public pressure as proxied by media exposure.

Socio-Economic Disclosure

Socio-economic disclosure, the focus of this paper, encompasses both financial and non-financial information that is voluntarily provided by firms on their web sites. Hence, we extend prior literature that strictly focuses on financial statement-based disclosure (e.g., Hope, 2003) or on paper-based social disclosure (e.g., Neu et al., 1998). Both economic (e.g., agency theory) and managerial (e.g., goal theory) theories suggest that performance metrics should include not only financial performance measures, but also non-financial measures that reflect different dimensions of managerial actions (Holmstrom, 1979; Banker and Datar, 1989; Ittner and Larcker, 1998; Locke and Latham, 1979; Magnan and St-Onge, 2005). Recent accounting research suggests that non-financial organizational performance measures, such as customer satisfaction and loyalty, as useful indicators of aspects of firm performance. Smith and Wright (2004, p.183) report that product value attributes directly and differentially influence levels of customer loyalty as well as prevailing average selling prices. Furthermore, measures of customer loyalty explain levels of relative revenue growth and profitability, and relatively high customer loyalty engenders a competitive advantage in the PC industry. Said, Hassab, Elbany and Wier (2003) findings support the contention that firms that employ a combination of financial and financial performance measures in their compensation contracts have significantly higher mean levels of returns on assets and higher levels of market returns. Moreover, Banker, Potter and Srinivasan (2000) results indicate that non financial measures of customer satisfaction are significantly associated with future financial performance and contain additional information not reflected in the past financial measures.

Information Costs and Benefits

Since they assume the residual financial risk and are not involved in actual operations, shareholders are most concerned by a firm's disclosure policies and practices. On the basis of such disclosure, shareholders assess the value of a firm and decide to hold their investment or trade. The recent settlement announced by Nortel, which attributes sizable funds to investors who purchased shares in

2001-2003 on the basis of faulty financial disclosure, shows that the legal system recognizes the primary importance of corporate disclosure for stock market investors. Hence, corporate disclosure will likely reflect dimensions of organizational performance that are close to their interests. Such needs encompass both financial and non-financial information as there is now widespread evidence that a firm's actions or initiatives of a non-financial nature are value-relevant for stockholders (e.g., Ittner and Larcker, 1998). Cormier, Gordon and Magnan (2004) do show that managers take into account the interests and concerns from key stakeholders such as stockholders when determining their firm's disclosure regarding environmental performance, a non-financial measure.

However, despite stockholders' information needs, the decision by a firm's management to disclose information about its underlying performance is likely to be influenced by a trade-off between the direct costs to be incurred for providing such disclosure, the benefits to be derived by the firm or its shareholders from such disclosure and costs that may be imposed upon the firm as a result of such disclosure (Scott, 1994). Hence, 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; Milgrom, 1981; Roberts, 1992). In that respect, management's incentive in disclosure decisions is to minimize the firm's cost of capital (Richardson and Welker, 2001). For instance, firms which expansion is dependent upon continuous access to capital markets or firms that are widely followed by investors have incentives to reduce information asymmetry between managers and investors since such actions lower financing costs (Gibbins, Richardson and Waterhouse, 1990; Frankel, McNichols and Wilson, 1995; Clarkson, Kao and Richardson, 1994). In another instance, 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 stock liquidity and to enhance interest by institutional investors (Healy, Hutton and Palepu, 1999).

Governance and Monitoring

However, the analysis that underlies an information costs and benefits perspective on socio-economic disclosure does not explicitly take into account differences in governance mechanisms across firms. Governance encompasses monitoring and incentive practices that ensure that managerial actions are consistent with shareholders' interests. A firm 's governance structure is likely to affect web-based socio-economic disclosure as it is subject to managerial discretion. Within a governance framework, the literature recognizes three major monitors: owners, directors and auditors. Moreover, the key governance-driven incentive that is in the public domain is the executive compensation structure, most notably the extent of stock option grants.

First, ownership structure can determine the level of monitoring and, thereby, the level of disclosure (Eng and Mak, 2003). Usually, the need for external monitoring is reduced in firms with concentrated ownership. More specifically, firms with closely-held ownership are not expected to be responsive to public investors' information costs since the dominant shareholders typically have access to the information they need (Hope, 2003) and do not want or need to share it to other stakeholders such as employees (Roe, 2003).

Second, agency theory recognizes that the oversight, or control, function of the board as the most critical of directors' roles (Fama, 1980). Furthermore, it is generally believed that boards are more effective in their monitoring of company insiders if there is a strong base of independent directors on the board (Fama and Jensen, 1983; Beasley, 1996; Xie et al., 2003). For example, Dechow, Sloan and Sweeney (1996) show that firms with large percentage of non-executive directors are less likely to be subject to enforcement actions by the SEC for accounting policy violation. However, as a monitoring

device, independent directors may complement or substitute other monitoring mechanisms, like disclosure transparency. In fact, there has been conflicting evidence on the association of the degree of board independence and public disclosure. Chen and Jaggi (2000) document a positive relationship between board composition (measured by the percentage of independent non-executive directors on the BOD) and the comprehensiveness of information in mandatory financial disclosures of Hong Kong firms. Karamanou and Vafeas (2005) provide evidence that better firms with higher quality governance characteristics are more likely to issue voluntary earnings forecasts. On the other hand, Eng and Mak (2003) show a negative association between the representation of external directors on the BOD of a sample of Singapore firms and the extent of voluntary disclosures in the Management Discussion and Analysis sections of the annual report. This result suggests a substitute relationship between the representation of externals on the BOD and voluntary disclosure in monitoring management, i.e. in the presence of an independent board, there are less needs for disclosure. However, Cheng and Courtenay (2005) find that the presence of an efficient regulatory environment enhances the strength of the positive association between the proportion of independent directors and the level of disclosure. We think that governance pressures are much more intense and rigorous in Canada so that substitution element would not hold for our sample firms. Canadian governance codes encourage both independence and disclosure. So, instead of substitution effect, we predict a complementary effect.

Third, auditor's independence is put forward as a critical criterion to judge the quality of information released by a firm. Prior research suggests that audit committees possessing certain characteristics are important participants in the process of managing the client-auditor relationship. Audit committees that are independent and active financial monitors have incentives to limit non-audit fees (relative to audit fees) paid to incumbent auditors, and to assure that this information is disclosed to the public, in an effort to enhance auditor independence in either appearance or fact. More specifically, Abbott, Parker, Peters and Raghunandan (2003) show that audit committees comprised solely of independent

directors meeting at least four times annually are significantly and negatively associated with the non-audit fee ratio. This evidence is consistent with audit committee members perceiving a high level of non-audit fees in a negative light and taking actions to decrease the non-audit fee ratio.

Finally, there is evidence that compensation such as stock options can align managers' interests with shareholders' interests. In this context, stock price-based compensation constitutes a contractual mechanism that helps to align managerial disclosure preferences with those of shareholders. 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 to maximize the value of coming stock option grants. Hence, web-based disclosure is likely to be opportunistically affected by the presence of CEO stock options.

Public pressure and Media coverage

In assessing how the disclosure of socio-economic information will affect stockholders, firms have to consider parties beyond competitors and other participants in products' markets. If they perceive some abuse or corporate behaviour that they deem improper, pressure groups and social constituencies may use socio-economic disclosure to lobby regulators or governments to take actions that may be detrimental to the firm's stockholders. Communication technology has changed the role of the media with respect to business. The influence of the media derives from the information they convey about firms (Henriques and Sadowski, 1999). Hence, it can be inferred that there is an implicit social contract between the organization and those who are affected by its operations (Brown and Deegan, 1998). An organization that wants to continue its operations must ensure that it is meeting the terms of the social contract, even if they are evolving over time. Failure by a firm to operate in a manner that is consistent with community, or public, expectations, potentially leads to its own demise (Deegan and Rankin, 1996; Neu, Warsame and Pedwell, 1998).

Conversely, to legitimize their firm's activities, managers must be able to assess and react to public pressures. In other words, they need to assess the nature and scope of the comments expressed by the public regarding the firm's activities. One such outlet is the media. Within a media agenda setting framework, increased media attention on a particular issue or organization leads to increased community concern (Brown and Deegan, 1998). In fact, evidence presented by Ader (1995) highlights that the extent of attention given by the media on pollution issues increases community concerns over such issues. This suggests that media attention, e.g., through press coverage, directly underlies public pressures managers may feel regarding their firm's activities. It is expected that managers, in an effort to legitimize their actions, will react to such increased pressure by increasing the extent of their performance disclosure. In this respect, the Internet can constitute a useful tool.¹

3. METHOD

Sample

The sample comprises 189 observations for web socio-economic disclosure for the year 2001, 167 for 2003 and 155 for 2005. All non-financial firms represented on the Toronto Stock Exchange S&P/TSX 300 Index were initially identified. Data non-availability for some firms (e.g., the need for more than one year of data for some financial information) resulted in a final sample of 189 firms in 2001. The sample reduction from 2001 to 2005 is due to mergers and acquisitions. Socio-economic disclosure was collected from Web sites (web page and HTML) in summer 2001, 2003 and 2005. Multivariate analyses are performed on 2005 web disclosure. Financial data for 2004 was collected from Stock Guide and governance data was collected from 2004 proxy statements. The final sample is 139 firms since, out of the initial sample of 155 firms, there are missing data for board size and board independence (9 firms), stock options (5 firms), and new debt and stock issues (2 firms).²

¹ Richardson and Welker (2001) find a positive relation between social responsibility disclosure and the cost of equity capital. This positive relation is moderated by firm's return on equity with more successful firms being less penalized for social disclosures. One explanation for the results is that there is a consistent bias in social disclosures whereas firms experiencing higher than average social costs (proprietary costs) disclose more information.

² When we add board meetings and audit committee meetings to our model (sensitivity analysis), we lose 23 additional

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

Empirical Approach

To answer our two initial research questions, we perform the following analyses. First, we compare mean standard errors in different components of web-based socio-economic disclosure over the period of 2001 to 2005. This allows us to assess whether or not there are imitation tendencies over time. In other words, do firms emphasize specific aspects of their activities and actions in their disclosure or do they align themselves on competitors? This will allow our analyses to move beyond overall corporate socio-economic disclosure into its sub-components. Second, we explore the determinants of web-based socio-economic disclosure by using the following model:

Web-based Socio-Economic Disclosure_{it} =

observations for a total sample of 116 firms.

f(Information costs and benefits, Governance practices, Media coverage, Control variables)_{it}

Measurement of Socio-Economic Disclosure

Socio-economic disclosure indicators, financial or non-financial, are based on balance scorecard literature and emerging performance measurement practices (e.g. Standard & Poors, 2002 for financial and governance disclosure; Pirchegger and Wagenhofer, 1999, and Marston and Polei, 2004, for investors, governance and social responsibility disclosures; Kaplan et Norton, 1996, Ittner and Larcker, 1998 and Robb, Single and Zarzeski, 2001, for indicators about operations' efficiency, value for client, innovation, development and growth). We measure web-based disclosure using a coding instrument in a way that is similar to Wiseman (1982) and Cormier and Magnan (2003). The grid comprises 111 items, with 8 items measuring Web site capabilities (interactive, video, etc.). The 111 socio-economic disclosure items are grouped into nine categories: Web site capabilities, financial performance, management information systems, corporate governance, customer value, human and intellectual capital, production efficiency, innovation, development and growth, and social responsibility (See appendix 1). The rating is based on a score of one to three, three for an item described in monetary or quantitative terms, two when an item is described specifically and one for an item discussed in general. Web sites were analyzed at one time in the time in Summer 2001, 2003 and 2005.

We focus on voluntary socio-economic disclosure that is available from a firm's Web site in HTML format as it is comprehensive and accessible to all shareholders at low cost. By contrast, 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). The SEDAR web site (www.sedar.com) comprises 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 and, in fact,

most investors still receive them in paper form. The content of all these documents is pre-specified and regulated. Therefore, our disclosure measure is likely to reflect only information that a firm is not required disclosing and that is not readily available in paper form. Moreover, while securities regulators have oversight responsibilities over all of a firm's disclosure activities, their oversight is bound to be less tight for disclosures for which there is no specified form or content to rely upon, which is the case for web disclosure outside of SEDAR.

Assessment tools for Web site capabilities have been developed for certain types of disclosure (for example, Pirchegger and Wagenhofer, 1999; Debreceeny, Gray and Rashman, 2002). Essentially, criteria used in these tools evolve around the following concepts: the quality of the web site content, timeliness, technological options of the Web (access video/audio) and the support offered to users. From this initial canvas, we developed a grid of assessment of corporate socio-economic disclosure on Internet. Four items concern the quality of the Web site in general and seven items measure the Web quality as for socio-economic disclosure.

The use of a coding scale to qualify a firm's socio-economic 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, while other disclosure studies rely on word counts to measure performance disclosure (e.g., Neu *et al.* 1998; Williams and Ho Wern Pei, 1999), a qualitative scale allows for 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 or redundant generalities are not considered strategic performance disclosure. To ensure consistency across firms, two persons reviewed all individual scores independently. All disagreements were subsequently reviewed by one of the co-researchers.³

³ 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

Measurement of socio-economic disclosure determinants

Information costs and benefits

Five variables are used to capture capital markets' information considerations that affect socio-economic disclosure:

- *Leverage*
- *Beta*
- *SEC*
- *New Issues*
- *Free cash flow*

Leverage. It is expected that, for firms able to withstand potential proprietary costs from the disclosure of environmental information benefit from more open disclosure (firms in good financial condition) are likely to outweigh the costs from socio-economic. By widely disseminating information about their environmental management and showing their ability to shoulder environmental obligations, these firms establish their credibility as a reliable and socially responsible partner. Cormier and Magnan (2003) document a negative relationship between Leverage and environmental disclosure. We measure leverage by the ratio of long-term financial debt over equity (Long term financial debt/Equity). A negative association is expected between leverage and a firm's level of socio-economic disclosure.

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 (alpha= 0.713 in 2005, see table 1B). This is slightly higher than Botosan (1997) who finds an alpha of 0.64 for an index including five categories of disclosure in annual reports. 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 Nunnally (1978), a score of

Beta is perceived by a firm's systematic risk or variance of daily stock price as a proxy for information asymmetry between the firm and investors. The higher a firm's volatility or risk, the more difficult it is for investors to precisely assess a firm's value. A positive relationship is expected between Risk and the extent of socio-economic disclosure.

SEC. Sample firms, or their subsidiaries, that are registered with the Securities and Exchange Commission are meant to capture disclosure pressures internationally (Leuz and Verrecchia, 2000). Debreceeny *et al.* (2002) find that in addition to firm's size, listing on US exchange is a specific determinant of Internet financial reporting. Hence, SEC registration is introduced as a binary variable (1; 0 if not) and a positive relation is expected between SEC and socio-economic disclosure.

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 is a measure of actual external financing (Dechow, Sloan and Sweeney, 1996). The variable measures the actual amount of long term financing that was raised through stock or debt offerings scaled by total assets.

Free cash flow. Free cash flow is a second measure of external financing (Dechow, Sloan and Sweeney, 1996). It proxies for the demand for external financing (in negative sense) by measuring a firm's ability to cover its capital expenditures through assets that the company already holds. The higher the free cash flow, the lower the need for external financing will be. We measure the variable as Cash flow from operations in 2004 minus the average of capital expenditures from 2002 to 2004 scaled by total assets.

0.70 is acceptable.

Governance and monitoring

Four variables are introduced to capture the impact of corporate governance as a monitoring factor affecting the decision to disclose socio-economic information on the web.

Concentrated ownership. Concentrated ownership is measured as a dichotomous variable taking a value of one (1) when an investor, or a related group of investors, owns more than 10% of a firm's outstanding voting shares, and zero (0) otherwise. A negative relationship is expected between concentrated ownership and socio-economic disclosure.

Board independence.

We expect board independence, measured as the proportion of outside directors to be associated with voluntary disclosure. Another aspect of the board independence is the separation of the roles of Chair and Chief Executive Officer. Our variable will take the value of zero (0) when the majority of directors are not independent, one (1) when a majority of directors are independent, and three (3) when the majority of directors are independent and when the function of CEO and Chair of the board is separated. We expect a positive relationship between this variable and socio-economic disclosure.

Board size. Beasley (1996) finds a positive relationship between board size and the likelihood of financial statement fraud while Abbott et al. (2000) find no relationship. Moreover, Chtourou, Bédard and Courteau (2004) find that board size is associated with less earnings management but only for income decreasing accruals. The size of the board of directors is measured by the number of its members. We expect a positive relationship between this variable and socio-economic 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 socio-economic reporting is unclear, no directional predictions are made.

Media coverage as indication of public pressure

Government and local communities' concerns may lead to actions that greatly affect a firm's value (e.g., additional regulations, enquiries, reputation loss). As an illustration, one has only to think back about the enactment of the Sarbanes-Oxley Act, which was in reaction to the Enron and Worldcom scandals but which affected all publicly-traded firms in the United States. It is now documented that the application of the Act led to firms to incur substantial additional costs (The Economist). In such a context, by enhancing transparency, corporate disclosure may help attenuate community concerns and reduce the likelihood of interference or intervention by government or regulators. While it is difficult to directly measure communities' concerns, prior work does suggest that media exposure is an appropriate proxy (Deegan and Rankin, 1996). A firm's media exposure is computed by taking the average of number of articles for the period 2000 through 2004, as contained in the ABI Disclosure database. The reason for this choice is because disclosure this year (2004) may be affected by the amount and types of articles that have been published about a firm in the recent past. We expect that as media exposure increases, the firm will increase its socio-economic disclosure. A positive relation is expected between Public Pressures and web-based disclosure.

Control Variables

Three variables are introduced as control variables in the analysis:

- Firm size (Firm Size);
- Employees;
- Time horizon.

Firm Size. Prior evidence is consistent in highlighting a positive relation between the extent of corporate disclosure and firm size (Scott 1994; Cormier and Magnan 1999; Neu *et al.* 1998, Leuz and Verrecchia, 2000; Debreceeny *et al.*, 2002; Cormier and Magnan, 2003). Firm size, measured as $\ln(\text{Assets})$, is introduced as a control variable, with a positive relation being expected between firm size and the extent of socio-economic disclosure.

Employees. A firm's role and impact in society can be inferred from its financial size (see above) or from the magnitude of its labour force; the two measures not always being consistent (e.g., a wholesaler will typically have a large financial turnover but few employees compared to a manufacturer of similar financial size). Hence, we complement Firm size with the *Number of Employees* within a firm and by an indicator variable that captures their *skill* level (High=1, 0 otherwise). A larger number of employees as well as high skill levels enhance their potential visibility and the firm's dependence upon them, thus providing the firm with an incentive to be more transparent in its socio-economic disclosure.

Time Horizon. Product market concerns mostly revolve around the time horizon that underlies transactions between the firm and its suppliers and customers. On the one hand, under most conditions, publicly revealing information about activities or actions is likely to hurt a firm, as competitors are able to pick up hints and signals about potential weaknesses or opportunities to exploit. Hence, considering only competitors, less disclosure is likely to be better from a stockholders' perspective. On the other hand, if a firm has engaged into long-term partnerships with its customers (long term contracts with service, capital goods with warranties), these customers are likely to need information about a firm before they commit resources to a transaction. Under these particular conditions, additional disclosure will facilitate a firm's commercial operations and, ultimately, benefit stockholders. Hence, we argue that firms that engage into long-term relationships

with their customers are likely to provide more web-based socio-economic disclosure than firms where such long-term commitments do not exist. Such a view is consistent with Bowen, Ducharme and Shores (1995) who show that managers from a durable goods manufacturer may want to reassure current and potential customers regarding the firm's financial condition. Sample firms are classified into four groups according to the type of relationship they have with customers. The first group of firms have short-term repeated transactions with clients (e.g. grocery stores). The second group maintain long-term relationships with their clients (e.g. cable and entertainment) or engage into long-term contracts with them (e.g. durable goods with warranties).

This variable is coded 1 or 0 according to their industry membership and one dummy variable is used (n-1): (1) short-term relations with customers and (0) long-term relationships with customers. We expect short-term relationship with customers to be associated with less disclosure and the opposite for long-term relations with customers.

Summary of Variables Measurement

Independent variables (2004)	Measure
Leverage	Long term debt / Total assets
Beta	Systematic risk (beta) in 2004.
SEC:	SEC registration (binary variable 1; 0 if not).
Board independence	(0) if a majority of directors are not independent; (1) if a majority of directors are independent; (3) 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.
Concentrated ownership:	Dummy variable taking a value of one (1) when an investor, or a related group of investors, owns more than 10% of a firm's outstanding voting shares, and zero (0) otherwise.
CEO stock options	CEO in-the-money option value / CEO salary + bonus
Media Exposure:	Average number of articles in international publications that are surveyed by ABI Inform for the period 2000 through 2004.
Firm Size:	Ln(Total Assets) as of year-end 2000.
High skill employees:	An indicator variable that captures their skill level (High=1, 0 otherwise). Essentially firms from industrial products and communication and media.

Repeat customer relations:	(1) if Firms having short-term repeated transactions with clients (e.g. consumer products, merchandizing).
Number of employees:	Number of Employees within a firm.
New financing	Long-term debt borrowing plus stock issued in 2004 scaled by total assets.
Free cash flow	Cash flow from operations minus mean capital expenditures over the last three years scaled by total assets.

4. RESULTS

Descriptive statistics

Table 1a provides some descriptive statistics about sample firms' financial variables and the level of media exposure. Sample firms are relatively large and exposed to media (average of 3.55 articles per year over the last 5 years). More than half of sample firms have a concentrated ownership, with a similar proportion being publicly-traded in the United States. CEO stock option value in-the-money represents almost twice their salary and bonus.

[Insert Table 1]

As illustrated in Table 1b, total socio-economic disclosure varies from a mean score of 87.68 in 2001 to 92.17 in 2005, a marginal increase. Among the eight disclosure components, we observe increase in Web-Quality and in Social responsibility disclosure and the opposite concerning Customer value, and Innovation, Development & Growth.

Web-based disclosure convergence/divergence

Results reported in table 2 show that the quality of the web tends to converge over time since mean standard error changes from 0.054 in 2001 to 0.012 in 2005. We also observe to a lesser extent convergence over time in web disclosure to clients and disclosure about Human & Intellectual

capital. Here, convergence is more recent, i.e. since 2003. However, this tendency toward conformity is not observed for other web-based disclosure components since we document a divergence over time in web disclosure about Financial performance and in the short term about Corporate governance, Operations efficiency, and Innovation, development & growth. It is likely that economic variables (e.g. financial performance) that may represent coercive forces affect marginally imitation behaviour.

[Insert Table 2]

Multivariate results: Determinants of web-based disclosure

Table 3 provides evidence regarding the determination of socio-economic disclosure. The third column shows results from a cross-sectional OLS regression between overall socio-economic disclosure (dependent variable) and variables proxying for stock market considerations, media coverage as well as control variables. The following eight columns provide results for different facets of socio-economic disclosure. Analyses are based on 139 observations for 2005 socio-economic disclosure. Information for governance variables was collected for 2004.

Focusing on the regression for overall web-based socio-economic disclosure scaled by industry median (first column), its explanatory power is 45.3% ($p < 0.000$). Diagnostic procedures (VIF and normality tests) do not reveal multicollinearity or normality problems. The use of the Belsh-Kuhley procedure allows for the identification of three outliers (absolute value of standardized Dfits > 1.0).⁴ Among variables proxying for Capital markets considerations, as expected, results show that firms with higher leverage (-0.534; $p < 0.001$) and those with less needs for external financing as proxied by free cash flow (-0.031; $p < 0.100$) disclose less information than others. In contrast, as expected, firms

4. DFITS is the scaled difference between the predicted responses from the model estimated from all the data and the predicted responses from the model estimated without the i -th observation. Outlying observations are excluded for all

facing high environmental uncertainty as expressed by systematic risk (beta) (0.117; $p < 0.050$) and firms listed in a US stock exchange (0.294; $p < 0.001$) provide more extensive socio-economic disclosure than others. Furthermore, results show that governance and monitoring issues are associated with socio-economic disclosure. Hence, board independence (0.100 $p < 0.050$) and board size (0.036; $p < 0.001$) are positively related to disclosure while a concentrated ownership (-0.055; $p < 0.100$) and the magnitude of CEO's stock option value are negatively associated with disclosure (-0.003; $p < 0.001$). These results would suggest that efficient governance lead 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 CEO stock option is consistent with Aboody and Kaznik (2000) findings. Among control variables, we find a positive relationship between firm's size (0.119; $p < 0.001$) and socio-economic disclosure. Overall, there is support for governance and monitoring impact on voluntary disclosure as well as capital markets considerations.

To get better insights into the web-based disclosure process, we now break down total disclosure into its eight components. Table 3's other columns provide evidence regarding the determination of different disclosure components. 36.6% for Human & Intellectual capital can be explained by the regression model, followed by 27.8% for Innovation, development & growth disclosure, 29.5% of Social responsibility, and 19.5% for Corporate governance. Essentially, firms maintaining a high-quality web site are large, with repeat transaction customers and effective board of directors. Furthermore, we note that firms with a concentrated ownership are reluctant to disclose financial information their web page, so as information on corporate governance, Innovation, development & Growth. Finally, firms facing a large media coverage tend to decrease their disclose about Governance, Value for clients, and Innovation, development & Growth while they tend to increase their level of disclosure about Social responsibility and Human and Intellectual capital, i.e. more

regressions' results reported in this paper.

social oriented disclosure. We would have expected a positive relationship between media exposure and all disclosure components.

[Insert table 3]

The media and the business press tend to attach primary importance to the functioning of the board of directors as the most central internal governance mechanism. The board of directors is expected to assume an effective oversight function. The board is charged with oversight of management on behalf of shareholders and its structure has to underpin this mission. The public rhetoric around the role and functioning of independent directors may have created an “expectations gap” (Reay, 1994; Hooghiemstra and van Manen, 2004), i.e. the existence of a gap between what independent directors can reasonably be expected to accomplish and what they are expected to do by the external business environment.⁵

This expectations gap puts pressure on independent directors if these expectations are effectively “voiced”. One could refer to these pressures as external accountability pressures (with increased external transparency as the most straightforward (although indirect) means to discharge these accountability pressures). External (independent) members have their reputation as professional referees at stake (Fama and Jensen, 1983 and will be more sensitive to reputational risk (Aguilera, 2005) threats than inside directors. Reputational risk rests highly on media coverage. To assess the impact of external public pressure on the role played by external members of the board, we add an interaction term Board independence*Media exposure to the regression. Results (not tabulated) show

⁵ Among factors contributing to the expectations gap, we can mention: ambiguous and often conflicting (e.g. strategy setting versus somewhat detached monitoring) roles of independent directors; the extent to which the non-executive directors are really independent (some non-executive directors are in some way affiliated (e.g. former management, business or family ties); recent claims that the monitoring ability of the board is hampered by "cozy" and possibly difficult to observe relationships between directors (Larcker et al., 2004); shareholder concerns are not the only aspect of interest to directors; information asymmetry between inside and outside directors; limited practical ability to monitor and control (lack of expertise or business knowledge, time constraints, prestige over substance).

that the coefficient for the interaction term is positive and significant (0.016; $p < 0.052$) while the coefficient for the variable Board independence becomes negative and not significant (-0.021; $p < 0.705$). The coefficient for the variable Media exposure is negative and significant (-0.013; $p < 0.024$). This result suggests that external public pressure, as measured by media exposure, has a positive impact on the role played by external members of the board of directors concerning a firm's disclosure transparency.

Furthermore, we split the variable Board independence in two different variables: independent members (1/0) and CEO not Chair of the Board (1/0). Our results suggest that an external board has a positive impact on disclosure only when the CEO is not the Chair of the board and only in the presence of public media coverage. Hence, the coefficient for the variable CEO not Chair*Media exposure is positive and significant (0.022; $p < 0.010$) while the coefficient for the variables CEO not Chair (0.054; $p < 0.493$), Independent members (-0.036; $p < 0.749$), and Independent members*Media exposure (0.018; $p < 0.749$) are not significant. This finding would suggest that Board members' independence is only effective when the CEO is also independent, supporting Hermalin and Weisbach's argument that board independence is affected by a negotiation between the CEO and outside directors.

Prior research document that the proportion of independent directors may be endogenously determined. Peasnell, Pope and Young (2005) find that the proportion of independent board members is associated with block ownership, firm size and leverage. In addition, on the one hand, the importance of news exposure in determining socio-economic disclosure indicates that firms need to limit the risk of unfavourable exposure. On the other hand, this risk is primarily determined by the relative perceived risk of its activities (type of clients), as well as its social visibility (number and type of employees) and international (stock listings) visibility. Since we posit that a firm's communication strategy affects socio-economic disclosure, media exposure, and board independence

simultaneously, we first assess whether or not endogeneity exists between these variables using the Hausman test. Using this procedure, we reject the null hypothesis of no endogeneity with respect to socio-economic disclosure and board independence ($t = -2.630$; $p < 0.010$), and between Media exposure and board independence ($t = 5.119$; $p < 0.000$). To assess whether our results could be biased by the presence of endogeneity, the following structural equations model is adopted using a 3SLQ approach:

Board independence_{it} =

$f(\text{Concentrated ownership, Leverage, Beta, Free cash flow, Media exposure, Lag Socio-economic disclosure, Size})_{it}$

Media exposure_{it} =

$f(\text{Number of employees, SEC, Repeat customer relations, High skill employees})_{it}$

Socio-economic disclosure_{it} =

$f(\text{Leverage, Beta, SEC, New financing, Free cash flow, Board independence, Board size, Audit committee size, Concentrated ownership, CEO stock options, Media exposure, Size, High skill employees, Repeat customer relations})_{it}$

The board independence regression model (results not tabulated) has an explanatory power of 17.8% (F statistic p value < 0.000). The coefficients are statistically significant, i.e. Free cash flow (-0.524; $p < 0.055$ one-tailed) and Lag Socio-economic disclosure (0.655; $p < 0.060$ one-tailed).⁶ The Media exposure regression model has an explanatory power of 16.7% (F statistic p value < 0.000). Three out of four coefficients are significant, i.e. Number of employees (0.0139; $p < 0.000$), SEC (4.335; $p < 0.002$) and High skill employees (4.784; $p < 0.008$). Concerning the Socio-economic regression model, the explanatory power is 32.2% (F statistic p value < 0.000). Results remain similar to those estimated with an OLS regression (table 3) except for two variables. The coefficients for Beta and

Concentrated ownership become not significant. These findings suggest that our results are not substantially affected by endogenous bias.

Other sensitivity analyses

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, 1999, 2003). As a first sensitivity analysis, we add profitability to the regression model. Profitability is measured as net income divided by assets. The coefficient is not significant.

One way to measure the effectiveness of a board committee is to look at the frequency of its meetings. As a second sensitivity analysis, we add board of directors meetings as well as audit committee's meetings to our model. Concerning audit committee, best practices suggest three or four meetings per year (KPMG, 1999). We expect the disclosure of the frequency of board meetings and audit committee's meetings will be positively related with socio-economic disclosure. We observe that twenty-three out of our sample firms did not disclose this information.⁷ Results for the reduced sample are presented in table 4. We document a positive association between board meetings and web-quality (0.003 $p < 0.050$) as well as Financial performance disclosure (0.096; $p < 0.000$) and a negative association with disclosure about operations efficiency (-0.041; $p < 0.050$). In addition, audit committee meetings are associated with more disclosure about Innovation, Development & Growth (0.213; $p < 0.001$) and to a lesser extent to more total disclosure (0.18; $p < 0.100$), and disclosure about Governance (0.040; $p < 0.100$).

⁶ We use the web-based disclosure in year 2003 as a determinant of Board independence in 2004.

⁷ We document in average 9.60 board meetings and 6.30 audit committee meetings for 2004.

5. CONCLUSION

In this paper, we explore two related research questions. First, what is the scope and patterns of web-based socio-economic disclosure? Second, what are the determinants of web-based socio-economic disclosure? Our investigation is within the context of Canada's leading publicly-listed firms, a choice that is warranted by this country's extensive reliance on the Web as a communications tool. We adopt a multi-tiered conceptual framework that relies on three complementary perspectives: capital markets-driven information costs and benefits, governance and monitoring, public pressure as proxied by media coverage.

With respect to the first question, results show that web page quality tend to converge over time. This phenomenon is also observed in the short term for disclosure about Value for clients, and Human & Intellectual capital. However, this conformity tendency is not observed for other web-based disclosure components since we document a divergence over time in web disclosure about Financial performance and in the short term about Corporate governance, Operations efficiency, and Innovation, development & growth.

Regarding the second question, results show that web-based socio-economic disclosure is driven by capital market, governance and monitoring as well as public pressure influence web-based disclosure. Hence, leverage and free cash flow (a proxy for a firm's external financing) are negatively related to web-based disclosure while in contrast, firms facing high systematic risk and firms listed in a US stock exchange provide more extensive socio-economic disclosure than others. Results also show that governance and monitoring issues are associated with socio-economic disclosure. Hence, board independence and board size, and to a lesser extent audit committee meetings are positively related to disclosure while the importance of CEO's stock option value is negatively associated with disclosure. This latter result suggests that voluntary disclosure could be opportunistically affected by the extent

of CEO stock option, consistent with Aboody and Kaznik (2000). Our results also suggest that external public pressure, as measured by media exposure, has a positive impact on the role played by external members of the board of directors concerning a firm's disclosure transparency.

Overall, these findings reinforce the view that corporate decision-making regarding disclosure is the outcome of multiple interfaces between different stakeholders. Moreover, it would appear that a board's role in disclosure matters is conditional upon its external orientation and the extent to which a firm is subjected to public pressures.

Our results are subject to some limitations that may hinder their interpretation. For instance, we argue that corporate disclosure of web-based socio-economic information is essentially driven by capital market consideration, governance practices and media coverage. Alternative explanations may be put forward to explain the same relations. For instance, a willingness to engage into symbolic or impression management may underlie the observed relationships our determinants' variables and socio-economic disclosure (e.g., Neu et al., 1998). Our selection of proxy variables may also be subject to some criticism. However, their use in prior disclosure research as well as their significance in most cases in this study do provide us with some comfort as to their reliability.

An objective for further research should be to implement a strategic watch to further investigate the importance of temporal trends and industry membership in Web disclosure. An argument can be made that public pressures may evolve over time which would explain shifts by firms in their socio-economic disclosure strategy. In addition, the use and impact of web-based disclosure on a firm's key stakeholders could be investigated. For instance, what is the reliance of financial analysts on information conveyed through the web ? Finally, the relative adoption and use of the Web as a reporting platform could be compared across various countries, with different socio-political

environments, using multi-theoretical lens such as economic incentives, public pressures and institutional theory.

Table 1

Panel A
Descriptive statistics
Independent variables

N: 189	2004			
	Minimum	Maximum	Mean	Standard deviation
Repeat customer relations	0.00	1.00	0.45	0.49
Long term customer relations	0.00	1.00	0.10	0.30
Concentrated ownership	0.00	1.00	0.59	0.49
Leverage (long term debt / Total assets)	0.00	0.78	0.21	0.16
Beta	0.00	0.71	0.68	0.49
Media Exposure	0.00	80.94	4.70	9.71
Number of employees	12	119 000	8 873	16 071
High skill employees (1 or 0)	0.00	1.00	0.18	0.38
Firm Size (Assets in million \$)	7.58	54 335.00	4 268.64	7 016.00
SEC	0.00	1.00	0.53	0.50
Board independence (0,1,2)	0.00	2.00	0.91	0.51
Board size	4.00	18.00	9.99	2.76
Audit committee size	2.00	9.00	3.98	1.10
CEO stock options	0.00	229.04	1.79	21.70
New financing	0.00	0.70	0.09	0.12
Free cash flow	-1.51	0.30	0.02	0.15

Table 1**Panel B**

Descriptive statistics
Socio-economic disclosure by component

	2001		2003		2005	
	Mean score	Cronbach alpha	Mean score	Cronbach alpha	Mean score	Cronbach alpha
Web-Quality	13.13	0.647	14.80	0.649	17.47	0.661
Financial performance	7.69	0.845	8.03	0.865	6.18	0.869
Corporate Governance	14.38	0.759	17.14	0.709	17.93	0.830
Customer Value	20.15	0.813	17.35	0.794	14.86	0.703
Human / Intellectual Capital	7.49	0.827	9.27	0.823	9.88	0.761
Production Efficiency	9.55	0.736	9.44	0.623	7.32	0.648
Innovation / Development and Growth	5.92	0.808	3.15	0.819	2.41	0.735
Social Responsibility	9.35	0.776	12.59	0.765	16.05	0.704
Total score	87.68	0.711	91.84	0.644	92.17	0.713
N	189		167		155	

Table 2
Test of convergence in Corporate socio-Economic disclosure
Mean standard error / Levene's test for equality of variances (p value)

	2001	2003	2005	2005
		Levene's test 2003/2001	Levene's test 2005/2003	Levene's test 2005/2001
Web-Quality	0.054	0.015	0.012	
		145.51 (0.000)	17.38 (0.000)	171.36 (0.000)
Financial performance	0.065	0.142	0.169	
		61.26 (0.000)	0.28 (0.598)	49.19 (0.000)
Corporate Governance	0.055	0.049	0.061	
		4.14 (0.043)	3.49 (0.063)	0.01 (0.920)
Customer Value	0.062	0.079	0.043	
		0.879 (0.349)	16.85 (0.000)	14.08 (0.000)
Human / Intellectual Capital	0.119	0.395	0.080	
		14.68 (0.000)	21.29 (0.000)	11.40 (0.000)
Production Efficiency	0.126	0.059	0.084	
		25.58 (0.000)	9.24 (0.003)	8.75 (0.003)
Innovation / Development & Growth	0.335	0.163	0.310	
		3.90 (0.049)	13.99 (0.000)	0.563 (0.454)
Social Responsibility	0.129	0.226	0.158	
		4.20 (0.041)	0.91 (0.341)	2.10 (0.148)
Total score	0.033	0.034	0.032	
		0.015 (0.902)	1.30 (0.255)	1.02 (0.313)

Table 3

OLS Regressions of the Determinants Socio-Economic Disclosure

Dependent variable: Disclosure score over industry median (2005)

Explanatory variables (2004)	Total score	Web-Quality	Financial performance	Corporate Governance	Customer value	Human, intellectual capital	Production Efficiency	Innovation/development & growth	Social Responsibility
Intercept	-2.063***	0.306	3.663	**-.0385	0.224	***-6.348	-1.629	2.945	***-9.357
Capital markets									
Leverage	- ***-0.534	-0.053	**-.1.985	-0.181	-0.158	***-1.302	-0.469	*-2.108	**-.2.683
Beta	+ **0.117	-0.006	-0.255	0.069	**0.198	**0.372	***0.654	***2.560	0.087
SEC	+ ***0.294	0.011	*0.510	***0.363	***0.211	***0.327	*0.256	*0.796	***1.124
New financing	+ -0.209	0.003	0.590	0.230	**-.0.772	-0.552	-0.953	0.223	-1.001
Free cash flow	- *-0.031	*-0.081	1.204	*-0.117	0.204	*-0.353	-0.151	0.642	0.209
Governance/Monitoring									
Board independence	+ **0.100	-0.020	**0.650	**0.209	-0.105	0.027	-0.189	0.129	***0.652
Board size	+ ***0.036	***0.011	***0.172	*0.031	-0.010	***0.074	*0.049	***0.347	0.025
Audit committee size	+ 0.013	-0.004	***-0.467	-0.011	*0.064	0.047	0.058	*-0.407	0.209
Concentrated ownership	- *-0.055	***-0.062	*-0.243	***-0.247	**0.174	-0.001	0.102	***-1.879	0.325
CEO stock options	? ***-0.003	-0.001	-0.003	-0.002	-0.001	0.001	***-0.010	**0.019	**-.0.012
Visibility									
Media exposure	+ -0.001	**-.0.003	-0.025	**-.0.016	**-.0.011	*0.009	-0.001	***-0.114	*0.027
Control variables									
Size	+ ***0.119	***0.029	-0.090	***0.187	0.023	***0.293	0.091	-0.148	***0.430
High skill employees	+ 0.019	0.028	-0.471	-0.013	*0.126	*0.308	0.174	0.253	-0.485
Repeat customer relations	+ 0.050	*0.025	0.306	**0.185	0.023	0.006	-0.245	0.329	0.272
Adjusted R ²	45.3%	12.2%	6.0%	19.5%	13.5%	36.6%	11.6%	27.8%	29.5%
F statistic	9.12	2.34	1.62	3.34	2.42	6.48	2.29	4.66	5.03
P value	(0.000)	(0.007)	(0.085)	(0.000)	(0.005)	(0.000)	(0.009)	(0.000)	(0.000)
N=139									

*: p < 0.10; **: p < 0.05; ***: p < 0.01. One-tailed if there is a predicted sign and in the right direction, two-tailed otherwise.

Table 4

OLS Regressions of the Determinants Socio-Economic Disclosure (Reduced sample)

Dependent variable: Disclosure score over industry median (2005)

Explanatory variables (2004)	Total score	Web-Quality	Financial performance	Corporate Governance	Customer value	Human, intellectual capital	Production Efficiency	Innovation/ development & growth	Social Responsibility
Intercept	***-2.363	***0.411	4.851	*-2.618	0.935	***-7.123	-2.093	1.713	-11.240
Capital markets									
Leverage	- ***-0.664	0.006	*-1.808	0.186	0.260	***-2.209	*-0.806	**_-3.144	***-4.698
Beta	+ 0.081	0.015	0.150	0.101	0.014	**0.482	0.082	*0.767	0.160
SEC	+ ***0.288	0.018	*0.592	***0.398	**0.126	**0.359	*0.329	0.379	***1.306
New financing	+ -0.104	0.065	0.142	-0.063	**_-0.918	-0.420	-0.655	0.229	1.561
Free cash flow	- *-0.477	-0.101	1.485	-0.200	-0.266	-0.269	-0.356	*-0.534	-0.371
Governance/ Monitoring									
Board independence	+ ***0.126	-0.006	***0.796	**0.262	***-0.154	0.028	-0.138	0.181	***0.849
Board size	+ ***0.031	**0.008	**0.196	0.034	*-0.025	**0.084	*0.049	***0.282	*0.125
Audit committee size	+ -0.003	**_-0.024	***_-0.620	-0.068	*0.046	0.056	0.072	*0.414	0.014
Board meetings	+ -0.006	**0.003	***0.096	-0.012	-0.009	-0.023	**_-0.041	-0.028	-0.063
Audit committee meetings	+ *0.018	-0.001	0.011	*0.040	0.011	-0.006	0.001	**0.213	0.006
Concentrated ownership	- -0.051	***_-0.072	-0.036	***_-0.341	***0.206	-0.118	0.022	***_-1.612	0.127
CEO stock options	? ***_-0.003	-0.001	-0.004	*-0.003	0.001	0.002	***_-0.008	***0.024	*-0.013
Visibility									
Media exposure	+ -0.004	*-0.004	-0.022	-0.006	-0.006	*0.013	-0.002	***_-0.011	*0.014
Control variables									
Size	+ ***0.140	***0.079	-0.192	**0.151	0.007	***0.340	*0.142	0.094	***0.564
High skill employees	+ -0.064	0.004	**_-1.360	-0.150	*0.155	*0.332	*0.420	**1.337	-0.057
Repeat customer relations	+ *0.073	***0.082	*0.523	**0.286	0.010	0.043	*-0.310	-0.223	0.126
Adjusted R ²	48.7%	24.7%	11.2%	23.4%	16.4%	40.6%	9.9%	25.8%	26.7%
F statistic	7.21	3.21	1.88	3.10	1.99	5.79	1.76	3.48	3.62
P value	(0.000)	(0.000)	(0.032)	(0.000)	(0.027)	(0.000)	(0.048)	(0.000)	(0.000)
N=133									

*: p < 0.10; **: p < 0.05; ***: p < 0.01. One-tailed if there is a predicted sign and in the right direction, two-tailed otherwise.

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Appendix
Socio-economic disclosure grid
Coding scores

Up-to-date (less than 1 month: 3; 1 to 2 months: 2; 3 months: 1)

Internal links (levels of internal links)

External links (number)

Refers to documents for additional information (0 or 1)

Information usually on the web (versus paper copy) (0 or 1)

User friendly: high 3, average 2, low 1

Interactive components (0 or 3)

Video-audio access (0 or 3)

Total web-quality

Liquidity

Indebtedness

Interest coverage

Total solvency

Net operating income

Gross margin

REA or REO

EPS (diluted)

Stock price or stock return

EVA

Total profitability

Total financial performance

Management information systems [activity based cost management – ABC / ABM / balanced scorecard / key indicator scorecard / decision support system – DSS / executive information system]

Other

Total management information systems

Leadership

Mission

Strategic planning

Risk management

Globalization

Total strategic management

Competence of managers

Managers' compensation

Total managers

Competence Board

Independence Board

Compensation (stocks/options)

Other committees

Total directors

Competence Audit committee

Independence Audit committee

Relations with external auditors

Relations with internal auditors

Total Audit committees

Ownership structure

Other

Total ownership

Total corporate governance

Product description
 Quality / up-to-date technology
 Reliability: errors / returns
 Price
 Delivery time
 Awards
Total product
 Customer profile / market segment / market share / number of customers
 Pre-sales support: • information / counsel / orders follow-up
 After-sales service / insurance
 Customer satisfaction / complaints management
 Customer loyalty
 Awards
Total Customers
 Service Internet (1 of order, 2 if service, 3 if both)
 E-business sales
 E-business productivity [Cost efficiency / speed]
 Impact (award, number of users or visitors)
Total e-business
Total customer value
 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
 Career opportunities
 Award
 Fringe benefits
Total motivation/work climate
 Employees satisfaction, survey
 Employee turnover
 Other
Total satisfaction
Total human/intellectual capital
 Investment (\$)
 Reengineering / downsizing
 Process improvement methods (ex. Kaizen)
 ISO 9000, total quality management – TQM
 Others (benchmarking, JIT, etc.)
Total operations rationalization
 Production cost
 Production capacity
 Waste
 Inventory / run out rate
 Quality of equipment and technology
 Flexibility
 Process description (1,2,3)
 Others
Total productivity-cost
 Production time
 Unplanned downtime
Total productivity-speed / cycle time
 Partnerships
 Acquisitions

Total strategic alliances

Total production efficiency

Sales – new products

Market share – new products

Awards

Total new products

Investments in R&D

Description of products in development

Product testing

Awards

Others - R&D

Total R&D

Increase in sales / market shares

Increase in investments

Total growth

Total innovation, development et growth

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

Total social responsibility

Total socio-economic performance