RISK DISCLOSURE AND FIRM RISK: EVIDENCE FROM CANADIAN FIRMS

Michel Coulmont [*], Sylvie Berthelot [**], Caroline Talbot [**]

* *Corresponding author*, School of Management, Université de Sherbrooke, Canada
Contact details: Université de Sherbrooke, 2500 Bld. Université, Sherbrooke, Québec, J1K 2R1, Canada
** School of Management, Université de Sherbrooke, Canada

OPEN ACCESS

How to cite this paper: Coulmont, M., Berthelot, S., & Talbot, C. (2020). Risk disclosure and firm risk: Evidence from Canadian firms. *Risk Governance and Control: Financial Markets & Institutions, 10*(1), 52-60.
http://doi.org/10.22495/rgcv10i1p4

ISSN Online: 2077-4303
ISSN Print: 2077-429X

Received: 23.01.2020
Accepted: 05.03.2020

JEL Classification: M48, M40, G32
DOI: 10.22495/rgcv10i1p4

Abstract

In recent decades, financial and accounting regulators have turned the spotlight on risk management and disclosure. Like securities regulators in the United States, the United Kingdom and several other countries, Canadian Securities Administrators have set out requirements for the disclosure and discussion of risks in the MD&A section of annual reports. Responding positively to these new guidelines, organisations now report many risks in their MD&A. These disclosure requirements are intended to provide information about a company's material risks to help stakeholders understand and evaluate interrelated risks, the risks' impact and the company's risk management strategies (Khandelwal, Kumar, Verma, & Pratap Singh, 2019). However, since the nature of the risks disclosed derives wholly from organisational decisions, the content of these disclosures can be considered voluntary. For this reason, some critics argue that risk disclosures are by and large boilerplate in nature (Bao & Datta, 2014; Hope, Hu, & Lu, 2016). From this perspective, this study aims to examine whether there is a relationship between the risks firms disclose in their annual reports and their systematic risk. The regression analyses were carried out on the risks disclosed by a sample of 200 Canadian companies included in the 2016 Toronto Stock Exchange S&P/TSX Composite Index. These analyses revealed a positive and significant relationship between the risks disclosed and the firms' systematic risk. Our results support the regulatory approaches respecting this type of information adopted by a number of countries. Accordingly, disclosing the risks that companies face should help small investors understand and appreciate them.

Keywords: Risk Disclosure, Firm Risk, Reporting, Regulation

Authors' individual contribution: Conceptualization – S.B and M.C.; Methodology – M.C. and S.B.; Validation – C.T.; Formal Analysis – M.C. and S.B.; Investigation – S.B. and M.C.; Writing – S.B.

1. INTRODUCTION

Since the financial scandals in the early 2000s, interest in risk disclosure in financial reports has significantly increased. A number of countries have issued discussion documents and guidelines about risk management and/or risk reporting under the auspices of diverse professional associations (the Canadian Institute of Chartered Accountants (CICA), 1998; the Institute of Chartered Accountants in England and Wales (ICAEW), 1997, 1999, 2002; The Institute of Risk Management (IRM), The Association of Insurance and Risk Managers (AIRMIC), and The National Forum for Risk Management in the Public Sector (ALARM), 2002; Lindsay, 2006). In Canada, the Canadian Securities Administrators, including the Ontario Securities Commission (OSC, 2003), followed suit in 2003, adopting National Instrument 51-102 on continuous disclosure obligations requiring public companies to disclose information on risks that can materially affect their future performance in their Management Discussion and Analysis (MD&A). In mandating this disclosure for all firms, the OCS suggests that risk factor disclosures are useful and informative and that investors benefit from this information, as concluded by Rajgopal (1999) and Linsmeier, Thornton, Venkatachalam, and Welker (2002).

In fact, such disclosures are considered a means to enable investors to see firms through management's eyes.

Parallel to these developments, in 2004 the Canadian Performance Reporting Board (CPRB), mandated by the Board of Directors of the Canadian Institute of Chartered Accountants to issue guidance documents on key issues in performance measurement and reporting, published MD&A guidelines (CPRB, 2004). The object of these guidelines is to assist senior management and board members in preparing and presenting a management report that will ensure that present and future investors, particularly individual investors, receive the necessary and pertinent information to make investment decisions (CPRB, 2004).

A more recent CPRB publication (2009) specified that "the risk section of the MD&A disclosure framework recommends disclosure of the principal risks for the entity as a whole and each of the core businesses" (p. 13). It also recommended the following disclosures:

- the principal risks and uncertainties facing the entity and its core businesses, including significant segments, as appropriate;
- the strategies employed for managing these risks, including the relationship of executive compensation arrangements to risk mitigation;
- the potential specific impact of these risks on results and capabilities, including capital resources and liquidity.

Even though these are only recommended practices, they are of considerable value to firms in terms of guidance and preparation. Finally, the CPRB defines risk as "exposure to negative consequences ("downside") and the possibility that positive consequences ("opportunities") will be missed" (CPRB, 2009, p. 46)".

Beta, which measures asset risk compared to the market, is one of the most common market risk measures used by practitioners. As defined by the NASDAQ ("Beta", n.d.) and according to the Capital Asset Pricing Model (CAPM) (Sharpe, 1964), beta represents a type of risk, such as systematic risk, that cannot be diversified. In comparison, accountants can use multiple determinants to evaluate a firm's risk, including the level of leverage, earnings variability and the liquidity available for day-to-day cash flows, to mention only a few. As previously indicated, mandatory risk disclosures in MD&A and Annual Information Forms (AIFs) are a relatively new way for investors to evaluate a firm's risk.

Few studies have analysed whether there is a link between the risk disclosure in financial reports and a firm's systematic risk, also known as beta. This paper will, therefore, focus on determining whether this relationship exists, more specifically in large Canadian firms. In other words, we wish to evaluate whether the risk disclosures are representative of a firm's beta using a multiple regression analysis. If both market and risk disclosures correspond, investors will be able to rely on these accounting disclosures as an accurate indicator of a company's systematic risk.

Drawing from a sample of 200 companies listed on the Toronto Stock Exchange S&P/TSX Composite Index in 2016, the study results suggest a positive relationship between the risk disclosure in financial reports and a firm's systematic risk in large Canadian firms. The study also suggests a positive correlation between non-controllable risk disclosure, such as government regulations and income tax regime, royalties, environmental regulations and climate change, seasonality, alternatives, etc., and a firm's systematic risk.

The study findings could eventually provide guidance for the development of future regulations. In fact, such a link would confirm the relevance of financial reports in capital markets and their role in reporting a firm's risk profile as well as its earnings. Accordingly, firms' efforts to disclose their risks would be compensated by the communication of relevant information to investors, more specifically small investors who are not as likely to access other data on financial markets.

The rest of the paper is organised as follows. This first section presents an overview of applicable theory and prior research on risk disclosure regulations. The next section describes the sample and discusses the research method, followed by the descriptive results and those of the multiple linear regression analysis, as well as an exploration of the key outcomes. The conclusion summarizes the findings and contributions, examines the study's limitations and discusses potential future research avenues.

2. LITERATURE REVIEW

Financial markets are plagued with inefficiencies caused by information asymmetry. One in particular, which is an incentive for disclosing risks through financial reports, is the problem of adverse selection between managers and investors. This type of asymmetry occurs when investors have access to less or simply different information about a company's activities and financial results than managers (Kirabaeva, 2011; Jagannathan, Schwartz, Spizman, & Young, 2011). Regulating risk disclosure helps minimize this adverse selection by requiring managers to indicate firms' day-to-day risks in their annual reports (Dhanya, 2016). Another adverse selection problem may arise between professional investors, such as fund managers, and nonprofessional investors. Professional investors are better equipped and may have a better understanding of the systematic risk and subsequent firm evaluations. To quote Coram (2010), "regulatory changes and calls for enhanced disclosure have, in part, been made to protect this particular group [nonprofessional investors] of financial statement users" (p. 266.).

In their research, Jarvela, Kozyra, and Potter (2009) used the preliminary definition of Beaver, Kettler, and Scholes (1970) to define beta as the extent to which security and market returns move together. They also pointed out the following: "The magnitude of this number reflects the magnitude of the securities movement, with a beta of one meaning the stock's returns rise and decline at the same rate as the market's returns. The sign of the beta is the direction of the movement. A positive beta means that securities' returns are the same direction as the market's and a negative would suggest an inverse relationship between the firm and the market's return" (Jarvela et al., 2009, p. 2).

The CAPM model (Sharpe, 1964) from which the beta of security can be calculated assumes that all investors are rational and risk-averse and that all information is instantly available. As we know, this is not the case in actual capital markets. Regulators and standard setters have since put forward obligations to allow investors access to information that is as comprehensive as possible. Financial disclosures like risk disclosures are crucial to minimize this asymmetry.

Despite the significance of risk disclosures to financial and accounting regulators, only a few studies examine how users of financial reports concretely take account risk into account. Koonce (2014) pointed out that FRR No. 48 (SEC, 1997) requires companies to disclose both qualitative and quantitative market risk information for downside risks arising from unpredictable changes in interest rates, foreign currency rates, commodity prices and equity prices. Linsmeier et al. (2002) demonstrated that investors glean valuable information from market risk disclosures, which reduces the sensitivity of trading volumes to fluctuations in financial variables like interest rates and commodity prices. This may well be the case since the shareholders are more aware of these types of risks. Similarly, commodity price risk disclosures in oil and gas companies provide useful information for evaluating stock return sensitivity to oil and gas price movements (Rajgopal, 1999; Thornton & Welker, 2004). Finally, in their Canadian content analysis, Lajili and Zéghal (2005) found that the most frequently disclosed categories are financial risk and commodity market risk, even though they are not a specific obligation.

Lajili and Zéghal (2005) also noted that the oil and gas industry had the largest number of disclosing firms and an industry disclosure rate of 87.5%. However, it should be pointed out that this study was performed on a sample of companies using their 1999 financial reports, i.e. at a time when risk disclosure was not yet mandatory. Therefore, these voluntary risk disclosures, made before the regulations came into effect, appear to confirm that oil and gas firms wished to give their investors more information to enable them to better evaluate firm risks.

Koonce, McAnally and Mercer (2005) found that financial report users glean and interpret information from mandated risk disclosures. They demonstrated that risks generating a higher potential loss may significantly affect perceived risk. Also, Lajili and Zéghal (2005) concluded that an emphasis on downside risks was noted in the content analysis and that potential upside effects and value-creating opportunities were lacking from current disclosures. A follow-on 2005 study by Koonce, Lipe and McAnally showed that when only the downside associated with a potential market risk exposure is described, financial statement users apparently understand that any potential upside opportunities are relatively small. This conclusion suggests that a company that discloses numerous risks may be perceived to be just as risky as one that discloses fewer risks.

In addition, Lajili and Zéghal (2005) concluded that risk information disclosed by Canadian companies is almost exclusively qualitative in nature. Campbell, Chen, Dhaliwal, Lu, and Steele (2014) reached a similar conclusion, indicating that firms are not required but only encouraged to quantify the impact of risk disclosed on future financial reports. Their conclusion is in contrast to the *MD&A: Guidance on preparation and disclosure* published by the CPRB (2009), which points out the usefulness of providing quantitative information allowing investors to evaluate the potential variability of results, depending on the outcome of the disclosed risks. This quantitative information would automatically enable investors to better evaluate the risks to which the company is exposed.

Jorgensen and Kirschenheiter (2003) found that under a voluntary risk disclosure regime firms have higher share prices if their managers disclose the firms' risk than if they do not. Imposing mandatory risk disclosure requirements reduces a firm's share price compared to share price in a discretionary disclosure regime. Therefore, forcing firms to communicate risks that they would not disclose voluntarily obliges them to incur additional disclosure costs that reduce their value and consequently increase their risk. This conclusion may be compared to the finding of Lajili and Zéghal (2005) that the voluntary nature of most risks disclosed by the companies sampled, which lack valuable and quantitative insights, could be an intentional decision on management's part given that the competitive pressure and proprietary disclosure costs associated with such information could be significant. The literature, therefore, seems to be inconclusive as to whether risk disclosure under a voluntary regime is better than under a mandatory regime.

Prior research on risk disclosures since the new regulations came into effect is sparse, particularly as concerns the Canadian market. Even fewer studies have examined the link between risk disclosure in financial reports and firm risk. This being said, the most significant study investigating this relationship was conducted by Beaver et al. (1970), who evaluated the link between accounting determined and market-determined risk. Their results suggest that accounting risk measures are incorporated into a firm's market risk measures. Ultimately, selecting a firm based on accounting risk measures is almost identical to selecting a firm based on its market risk measure. More specifically, Beaver et al. (1970) found a correlation between beta and leverage and earnings variability, as well as a high negative correlation between beta and dividend payout ratio. Similar conclusions may also be drawn as to the accounting risk measure of risk disclosures, which is the purpose of this present study.

In their study re-examining the link between market and accounting determined risk measures, Jarvela et al. (2009) found that the results of the study of Beaver et al. (1970) are still applicable in markets today, apart from certain exceptions. They concluded by reiterating the importance of accounting disclosures in helping capital markets understand organisations' risk profiles.

The following research question thus arises: Are risk disclosures in MD&A related to a firm's systematic risk, β, for Canadian oil and gas companies?

3. RESEARCH METHODOLOGY

To determine the link between firms' risk disclosure in financial reports and firms' market risk, we based our model on that employed by Abdelghany (2005)[1] and Salama, Anderson, and Toms (2011)[2]. In this model, the dependant variable is systematic risk captured by estimating a firm's β risk (BETA) over a one-year period. In other words, the firm's β risk was estimated by regressing the daily stock return on the daily market return of the S&P TSX Composite Index over one year:

$$R_{it} = \propto_i + \beta_i R_{mt} + \varepsilon_i \quad (1)$$

where, R_{it} is the return on shares of firm i for one fiscal year; α_i is the intercept term; β_i is the systematic risk of firm i (BETA); R_{mt} is the S&P TSX Composite market return for one fiscal year; and ε_i is the error term.

Following the example of Salama et al. (2011), a number of basic corporate traits that can impact the risk of individual firms were included and controlled in the analysis. These variables are firm size ($SIZE_i$), the dividend payout ratio ($POUT_i$), the liquidity ratio ($LIQU_i$), the debt ratio ($DEBT_i$), the asset growth ($GROW_i$), the return on equity (ROE_i), and the industry in which the firm operates (IND_i). More specifically, the model used to examine the link between a firm's risk disclosure and its risk as perceived by shareholders is as follows:

$$BETA_i = \beta_0 + \beta_1 RISK_i + \beta_2 SIZE_i + \beta_3 POUT_i + \beta_4 LIQU_i + \beta_5 DEBT_i + \beta_6 GROW_i + \beta_7 ROE_i + \beta_{8-12} IND_i + \varepsilon_i \quad (2)$$

where, $BETA_i$ is the firm's systematic risk; $RISK_i$ is the number of risks disclosed by the company in its annual report; $SIZE_i$ is the total assets of the firm; $POUT_i$ is the dividend payout ratio (dividends per share/net earnings per share); $LIQU_i$ is the liquidity ratio (total current assets/total current liabilities); $DEBT_i$ is the debt ratio (total debt/total equity); $GROW_i$ is the asset growth ([*total assets at end of year t - total assets at end of year t - 1*]/*total assets at end of year t - 1*); ROE_i is the return on equity; $INDENER_i$ is a dummy variable equal to 1 if firm sector is energy and 0 otherwise; $INDMAT_i$ is a dummy variable equal to 1 if firm sector is materials and 0 otherwise; $INDFIN_i$ is a dummy variable equal to 1 if firm sector is financial and 0 otherwise; $INDIND_i$ is a dummy variable equal to 1 if firm sector is industrials and 0 otherwise; $INDCD_i$ is a dummy variable equal to 1 if firm sector is consumer discretionary and 0 otherwise and ε_i is the error term. The data used comes from 2015 and/or 2016 depending on the year end of the company.

In addition, some risks disclosed by the company in its annual report represent factors or events that are difficult to control, such as government regulations and income tax regime, royalties, environmental regulations and climate change, seasonality, alternatives and changing demands for petroleum products, Aboriginal claims and so on. Thus, the equation 2 becomes:

$$BETA_i = \beta_0 + \beta_1 NC\text{-}RISK_i + \beta_2 SIZE_i + \beta_3 POUT_i + \beta_4 LIQU_i + \beta_5 DEBT_i + \beta_6 GROW_i + \beta_7 ROE_i + \beta_{8-12} IND_i + \varepsilon_i \quad (3)$$

where, $NC\text{-}RISK_i$ is the number of non-controllable risks disclosed by the company in its annual report.

Finally, to evaluate whether there is a relevant relationship between financial risks such as exchange rates, interest rates and credit risks, and a firm's beta risk, as concluded by Lajili and Zéghal (2005), the study proposes a final regression. For this analysis, the equation 2 becomes:

$$BETA_i = \beta_0 + \beta_1 FIN\text{-}RISK_i + \beta_2 SIZE_i + \beta_3 POUT_i + \beta_4 LIQU_i + \beta_5 DEBT_i + \beta_6 GROW_i + \beta_7 ROE_i + \beta_{8-12} IND_i + \varepsilon_i \quad (4)$$

where, $FIN\text{-}RISK_i$ is the number of financial risks disclosed by the company in its annual report.

An alternative approach could have analysed the relationships between $BETA_i$ between the year *t - 1* and *t* ($\Delta BETA_{i,t}$) and the variations of the other explicative variables for the same year, including risk disclosure variations ($\Delta RISK_{i,t}$; $\Delta NC\text{-}RISK_{i,t}$; $\Delta FIN\text{-}RISK_{i,t}$). However, this approach was not retained because of the considerable work involved in collecting data to encode the risk disclosures. In addition, missing data for the year *t - 1* would have reduced the sample size. Note that the risk disclosures change little from year to year. In general, the risks incurred and identified by companies, such as exchange rate/hedging/foreign currency risk, government regulations and income tax regime risk, market risk, credit risk, and so on, are also unlikely to change significantly from one year to the next.

3.1. Sample and data collection

Sample firms were derived from the 2016 Toronto Stock Exchange S&P/TSX Composite Index, and are those that closed their financial statements between June 30, 2015, and Marc 31, 2016. Obtaining a sizeable sample of firms that make data about risk disclosures available in their annual reports was the objective. Firm information such as financial and accounting data from annual reports was extracted from the Research Insight Database. All the data needed for the analyses were available for a final sample of 200 firms. The risk disclosures derive from the Annual Information Forms (AIF) on the Canadian Securities Administrators website[3]. This is the official site for accessing most public securities documents and information that issuers file with Canada's 13 provincial and territorial securities regulatory bodies (Canadian Securities Administrators). It should be noted that AIF reports were preferable for this study as most of the sections respecting risk factors in MD&A referred readers to the company's most recent AIF for additional risks.

[1] Abdelghany (2005) examined the relationships between the systematic risk (BETA) and the accounting risk measures (based on accounting data). To mitigate the variability of his risk accounting measures, he used a five-year time period. He did not include a control variable in his cross-sectional regression models.

[2] Salama et al. (2011) examined the relationship between the systematic risk (BETA) and the community and environmental responsibility ranking. Within their cross-sectional regression models, they included several accounting measures as control variables. These accounting measures focused on annual data.

[3] www.sedar.com

Table 1 shows firm distribution according to the industry sector. The energy (26.5%) and materials sectors (21.5%) are over-represented in the sample, followed by the financial (12.5%), industrials (9.5%) and consumer discretionary sectors (9.0%).

Table 1. Descriptive sectors

Sector	*Number*	*% of sample*
Energy	53	26.50%
Materials	43	21.50%
Financial	25	12.50%
Industrials	19	9.50%
Consumer discretionary	18	9.00%
Information technology	11	5.50%
Utilities	10	5.00%
Communication services	8	4.00%
Consumer staples	8	4.00%
Health care	3	1.50%
Real estate	2	1.00%
Total	200	100.00%

4. RESULTS

4.1. Descriptive and content results

In the words of the CPRB report (2008), "risk disclosures are seen by investors as an important element of MD&A" (p. 11). In fact, risk disclosures enable them to relate their quality and transparency to the quality of firms' management and corporate governance practices.

Table 2 presents the distribution of risk disclosures across the studied sample. Thirty-nine different risk disclosures have been identified. It quickly became evident that "exchange rates/hedging/foreign currency risk" and "government regulations and income tax regime" risks are disclosed almost 100% of the time and that four other risks are presented 90% of the time or more in the sampled firms' AIFs, leading to the conclusion that companies disclose several risks to their investors.

Table 2. Description of risk disclosures (n = 200)

Risks	*Number*	*%*
Exchange rates/hedging/foreign currency risk	199	99.5%
Government regulations and income tax regime risk	199	99.5%
Exploitation and development/operations risk	192	96.0%
Substantial capital expenses/funding/financing risk	189	94.5%
Market risk	183	91.5%
Credit risk	182	91.0%
Competition risk	179	89.5%
Legal proceeding risk	179	89.5%
Bank credit facility/liquidity risk	178	89.0%
Global economy risk	177	88.5%
Interest rates risk	175	87.5%
Reliance on key personnel/labour factors risk	173	86.5%
Development/acquisition of new properties/opportunities/projects risk	170	85.0%
Environmental concerns/climate change/weather risk	169	84.5%
Asset retirement obligation/decommissioning costs/environmental accidents risk	165	82.5%
Commodity prices risk	164	82.0%
New technologies/software maintenance/intellectual properties/information technology risk	151	75.5%
Failure to realize anticipated benefits of acquisitions and dispositions risk	147	73.5%
Production and sales volumes risk	129	64.5%
Insurance risk	121	60.5%
Breach of confidentiality/interruption or failure/safety and security risk	117	58.5%
Geo political risks/terrorist risks/anti-corruption risk	110	55.0%
Operational dependence/key suppliers and customers risk	108	54.0%

More specifically, the results show the disclosure percentages for exploitation and development risk, substantial capital expenses risk, market risk and credit risk to be 96%, 94.5%, 91.5% and 91% respectively. As well, commodity risk is included in 82% of the AIFs sampled. This supports, in part, Lajili and Zéghals' conclusions (2005) about the three categories Canadian firms frequently disclose, i.e. commodity risk, financial risk and market risk. The risks related to the breach of confidentiality/interruption and failure/safety and security, geopolitics, terrorism and corruption and the risks related to operational dependence (key suppliers and customers) are the least frequently reported by companies.

Table 3 presents the descriptive statistics of the companies included in the sample. As expected, these firms are relatively large, with average total assets of close to $39 billion (median = 3.8). The average systematic risk is 1.1 (median = 0.96). The average risk disclosures are 23 (median = 23) and 18.9 (median = 20) for non-controlled risk disclosures. These firms have a mean dividend payout of 39.2% (median = 3.86%), a mean liquidity ratio of 2.6 (median = 1.4), a mean debt ratio of 2.9 (median = 1.1), a mean asset growth of 19.5% (median = 9.5%), and, lastly, a mean return on equity of -1.41% (median = 4.03%).

Table 3. Descriptive statistics (n = 200)

	Mean	*SD*	*Median*	*Min.*	*Max.*
$BETA_i$	1.094	0.710	0.963	0.01	3.55
$RISK_i$	23.040	5.091	23.000	8.00	34.00
$NC\text{-}RISK_i$	18.890	6.952	20.000	1.00	33.00
$SIZE_i$ (1)	39.197	144.213	3.861	0.10	11.04
$POUT_i$	-0.050	2.384	0.137	-20.00	8.00
$LIQU_i$	2.582	4.262	1.442	0.02	39.97
$DEBT_i$	2.903	5.395	1.122	0.05	29.66
$GROW_i$	0.195	0.427	0.095	-0.46	3.54
ROE_i	-1.408	26.860	4.029	-169.69	82.50

Notes: (1) in billions of CAD$.

$BETA_i$ is the systematic risk of the firm during year; $RISK_i$ is a measure of risk disclosed by the firm; $NC\text{-}RISK_i$ is a measure of non-controlled risk disclosed by the firm; $SIZE_i$ is the total assets of firm i at the end of year; $POUT_i$ is the dividend payout ratio of year (dividends per share/net earnings per share); $LIQU_i$ is the liquidity ratio of year (total current assets/total current liabilities); $DEBT_i$ is the debt ratio (total debt/total equity) at the end of year; $GROW_i$ is the asset growth ([total assets at end of year t - total assets at end of year t - 1]/total assets at end of year t - 1); ROE_i is the return on equity at end of year.

Several interesting facts were observed during the coding of the risk disclosures. It was noted that the risk factor sections of the AIFs of a number of companies are virtually identical. This finding contrasts with the Institute of Chartered Accountants in England and Wales' statement that "companies within the same industry, facing similar risk, will often choose different risk management actions because different managements have different risk strategies, objectives and tolerances" (ICAEW, 2002, p. 5). In fact, the Institute warns investors to be aware of these potential differences. Yet the noticeable similarities in our sample indicate otherwise. It was also noted that the risk disclosures included in the AIFs were mainly qualitative in nature. In fact, the risk factor section addressed only the major risks and uncertainties the entity and its core businesses incur. Strategies implemented to manage these risks were occasionally disclosed. However, the CPRB disclosure recommendation, "the potential specific impact of these risks on results and capabilities, including capital resources and liquidity", set out in *MD&A: Guidance on preparation and disclosure* (CPRB, 2009, p. 46) is often disregarded. The guidance also discusses the utility of quantitative information for investors in that it allows them to evaluate the potential variability of results. This finding is consistent with that of Lajili and Zéghal (2005) respecting the qualitative nature of risk disclosures discussed earlier in this study. They believe that the generalised nature of the disclosure could indicate unwillingness on the firm's part to disclose in-depth information to the public for fear of being at a competitive disadvantage, even though such information may be available internally. This could potentially impact the usability of the risk disclosures as a means of evaluating firm risk.

4.2. Main results

The purpose of this study was to determine whether there is a relationship between the risk disclosed and a firm's systematic risk. The results demonstrate a link between both variables, as detailed in the present section.

Table 4 presents the Pearson correlation coefficients between the variables included in the regression analyses. Actually, the correlations between all the variables in this study are remarkably low. The variable risk ($RISK_i$) and non-controlled risk ($NC\text{-}RISK_i$) disclosed are not used in the same regression analyses. The highest coefficient is a negative correlation of -0.601 between systematic risk ($RISK_i$) and the return on equity ratio (ROE_i), suggesting that systematic risk is negatively related to the return on equity ratio. The Pearson correlation coefficients between systematic risk ($RISK_i$) and risk disclosed ($RISK_i$) and non-controlled risk disclosed ($NC\text{-}RISK_i$) are respectively 0.474 and 0.497 and significant at $p \leq 0.01$.

Table 4. Pearson correlation coefficients (n = 200)

	$BETA_i$		$RISK_i$		$NC\text{-}RISK_i$		$SIZE_i$		$POUT_i$		$LIQU_i$		$DEBT_i$		$GROW_i$	ROE_i
$BETA_i$	-															
$RISK_i$	.474	**	-													
$NC\text{-}RISK_i$	.497	**	.722	**	-											
$SIZE_i$	- .229	**	- .085		- .366	**	-									
$POUT_i$	- .099		- .060		- .100		.046		-							
$LIQU_i$	.034		- .002		- .025		.041		.050		-					
$DEBT_i$	- .295	**	- .170	*	- .438	**	.603	**	- .065		.066		-			
$GROW_i$	- .123		.065		.095		- .031		- .039		.105		- .067	*	-	
ROE_i	- .601	**	- .311	**	- .322	**	.124		.860		.020		.169		.076	-

*Notes: ** $p \leq 0.01$, * $p \leq 0.05$.*

$BETA_i$ is the systematic risk of the firm during year; $RISK_i$ is a measure of risk disclosed by the firm; $NC\text{-}RISK_i$ is a measure of non-controlled risk disclosed by the firm; $SIZE_i$ is the total assets of firm i at the end of year; $POUT_i$ is the dividend payout ratio of year (dividends per share/net earnings per share); $LIQU_i$ is the liquidity ratio of year (total current assets/total current liabilities); $DEBT_i$ is the debt ratio (total debt/total equity) at the end of year; $GROW_i$ is the asset growth ([total assets at end of year t - total assets at end of year t - 1]/total assets at end of year t - 1); ROE_i is the return on equity at end of year.

Table 5 sets out the results respecting the relationship between the risk disclosure in AIFs and the firms' beta risk. Three models were preferred for this analysis. It should be noted that the multicollinearity for all three models was not seen as problematic. In fact, the variance inflation factor (VIF) obtained through the collinearity diagnostic was determined to be between 1 and 2. These VIFs are well below the prescribed threshold of 10 proposed by Hair, Black, Babin, and Anderson (2009).

The risk variable from model 1 represents the total number of risks disclosed per firm. These variables seemed appropriate for analysis considering the emphasis of the literature review on thorough risk disclosure behaviour. This model explains 62.7% (adjusted R^2) of the variance of the firm's β risk ($BETA_i$). The coefficient of the $RISK_i$ variable is positive (0.019) and significant (p-value ≤ 0.05). Interestingly, the 2009 CPRB publication mentioned that better risk disclosure can lead to a lower risk premium by investors. It should also be noted that the correlations found by Beaver et al. (1970) are not significant in our sample. Their findings indicated a positive relationship between beta and leverage and earnings variability, as well as a high negative correlation between beta and dividend payout ratio. In contrast, our results show a negative and significant (p-value ≤ 0.01) relationship between the β risk ($BETA_i$) and ROE_i variables. These major differences may be due to the accounting determined risk, such as the risk disclosures, and the industry analysed. The coefficients of the variable associated with the energy sector ($INDENER_i$) and materials sector ($INDMAT_i$) are also positive and significant (p-value ≤ 0.01).

Table 5. Results of the regression analysis, dependant variable: $BETA_i$ (n = 200)

Independents variables	*Model 1*		*Model 2*		*Model 3*	
$RISK_i$	0.019	**				
$NC\text{-}RISK_i$			0.015	**		
$FIN\text{-}RISK_i$					0.025	
$SIZE_i$	0.000		0.000		0.000	
$POUT_i$	-0.016		-0.014		-0.017	
$LIQU_i$	-0.002		-0.002		-0.002	
$DEBT_i$	-0.003		-0.001		-0.003	
$GROW_i$	-0.043		-0.044		-0.016	
ROE_i	-0.009	***	-0.009	***	-0.009	***
$INDENER_i$	0.860	***	0.874	***	0.959	***
$INDMAT_i$	0.346	***	0.344	***	0.396	***
$INDFIN_i$	0.066		0.102		0.051	
$INDIND_i$	0.162		0.138		0.173	
$INDCD_i$	-0.023		-0.022		-0.010	
Intercept	0.361	**	0.500	***	0.681	***
R	0.806		0.805		0.798	
R^2adj	0.627		0.626		0.613	
F	28.886	***	28.780	***	27.260	***

*Notes: *** $p \leq 0.01$, ** $p \leq 0.05$, (two-tailed test).*

$BETA_i$ is the systematic risk of the firm during year; $RISK_i$ is a measure of risk disclosed by the firm; $NC\text{-}RISK_i$ is a measure of non-controlled risk disclosed by the firm; $FIN\text{-}RISK_i$ is a measure of financial risk disclosed by the firm; $SIZE_i$ is the total assets of firm i at the end of year; $POUT_i$ is the dividend payout ratio of year (dividends per share/net earnings per share); $LIQU_i$ is the liquidity ratio of year (total current assets/total current liabilities); $DEBT_i$ is the debt ratio (total debt/total equity) at the end of year; $GROW_i$ is the asset growth ([total assets at end of year n - total assets at end of year t - 1]/total assets at end of year t - 1); ROE_i is the return on equity at end of year. $INDENER_i$ is a dummy variable equal to 1 if firm sector is energy and 0 otherwise; $INDMAT_i$ is a dummy variable equal to 1 if firm sector is material and 0 otherwise; $INDFIN_i$ is a dummy variable equal to 1 if firm sector is financial and 0 otherwise; $INDIND_i$ is a dummy variable equal to 1 if firm sector is industrials and 0 otherwise; $INDCD_i$ is a dummy variable equal to 1 if firm sector is consumer discretionary and 0 otherwise.

Furthermore, the $NC\text{-}RISK_i$ variable in model 2 represents factors or events that are difficult to control, such as government regulations and income tax regime, royalties, environmental regulations and climate change, seasonality, alternatives and changing demands for petroleum products, aboriginal claims, and so on. It seemed appropriate to analyse these variables since they are not necessarily risks that the company can control and their inclusion in a company's AIF would most likely help investors understand the environment in which the company operates. For example, these types of risks could help investors evaluate a firm's β risk. This model explains 62.6% of the variance of the firm's β risk and shows a $NC\text{-}RISK_i$ coefficient of 0.015, which is significant (p-value $\leq$ 0.05). These results confirm the relevance of companies' disclosing uncontrollable risk in their AIFs. The relationship between the β risk ($BETA_i$) and all other variables in this second model is similar to the previous model.

The last model presented in Table 5 represents financial risks ($FIN\text{-}RISK_i$) such as exchange rates, interest rates and credit risks. This model was chosen to evaluate whether there is a relevant relationship between the common disclosure of these risks and a firm's beta risk, as concluded by Lajili and Zéghal (2005) and previously noted in this study. It explains 61.3% of the total variance of the firms' β risk. However, this information ($FIN\text{-}RISK_i$) may be value relevant even though it does not seem to be significantly related to the firms' β risk.

5. DISCUSSION

Analysis of all three models together enables further deductions. The variations in the adjusted R^2 between the models are subsequent to the variations in the $RISK_i$ variable measure. This assumption is substantiated by the fact that this specific variable is the only one that changes from one model to the next. As well, both "$RISK_i$" and "$NC\text{-}RISK_i$" variables in models 1 and 2 have a significant coefficient. These observations thus suggest that the risk disclosure is related to the firm's β risk. These results support, at least in part, the voluntary approach to risk reporting. According to Elshandidy and Neri (2015), one of the main features of the voluntary approach (as is the case in Canadian practice) is that each firm can identify all its risks individually and accurately rather than provide a list of mandated risk types to be disclosed. The results of this study show that firms voluntarily disclose sufficiently specific information about their risks to differentiate them from other firms and to reflect their systematic risk.

6. CONCLUSION

Since the 1990s, financial and accounting regulators have devoted a significant amount of attention to risk and risk management disclosures. Specifically, in Canada as in several other countries, regulatory authorities, in this case, Canadian Securities Administrators, have required organisations to disclose their risks, initially in their annual reports and now in their AIFs. In response to these regulations, the CPBR published documents such as *Building a better MD&A* in 2008 (CPRB, 2008) and *MD&A: Guidance on preparation and disclosure* in 2009 (CPRB, 2009). The objective of this study was to examine the relationship between risk disclosure in financial reports in response to these requirements and a firm's beta risk.

The study results provide empirical evidence that firms' risk disclosures are related to their beta risk. The study also revealed certain characteristics of the content of the risk disclosures made by companies. First, we noted that several financial risks are disclosed by the majority of the firms. Second, the risk factor sections of as many as 200 companies' AIFs were often similar, although

they included enough specific risks to differentiate and reflect the systematic risk. Lastly, we found that these disclosures are highly qualitative in nature.

This study's key contribution is that it shows a relationship between risk disclosures and firms' beta risk. This relationship validates the involvement of financial and accounting regulators in regulating this type of disclosure. As these disclosures are tied to firms' beta risk, small investors can use them to assess a firm's risk. Thus, the efforts companies make and the expenditures they incur to release this information are also validated by these observations.

This study has certain limitations. The analyses are based on a sample comprised of large Canadian companies only. Caution should be exercised in extrapolating the results to other small companies since firm characteristics may differ from one firm size to another. The codification of the risks was done manually. It should be kept in mind that this may have had an impact on the categorization of risks although the categories of risks were developed from those stated by the companies.

Future research could examine whether these results apply to other countries, e.g. under the SEC for US companies. It would also be interesting to examine the evolution over time of this type of disclosure. Does the informational content improve over time? Are disclosures affected by the macro and microeconomic policy changes taking place over time? Finally, it might also be interesting to consider whether the market takes this type of disclosure into account.

REFERENCES

1. Abdelghany, K. E. (2005). Disclosure of market risk or accounting measures of risk: An empirical study. *Managerial Auditing Journal, 20*(8), 867-875. https://doi.org/10.1108/02686900510619692
2. Bao, Y., & Datta, A. (2014). Simultaneously discovering and quantifying risk types from textual risk disclosures. *Management Science, 60*(6), 1371-1391. https://doi.org/10.1287/mnsc.2014.1930
3. Beaver, W. H., Kettler, P., & Scholes, M. (1970). The association between market determined and accounting determined risk measures. *The Accounting Review, 45*(4), 654-682.
4. Beta. (n.d.). In *NASDAQ glossary of stock market terms.* Retrieved from http://www.nasdaq.com/investing/glossary/b/beta/
5. Boritz, J. E. (1990). *Approaches to dealing with risk and uncertainty*. Toronto, Canada: Canadian Institute of Chartered Accountants.
6. Campbell, J. L., Chen, H., Dhaliwal, D. S., Lu, H.-M., & Steele, L. B. (2014). The information content of mandatory risk factor disclosures in corporate filings. *Review of Accounting Studies, 19*(1), 396-455. https://doi.org/10.1007/s11142-013-9258-3
7. Canadian Institute of Chartered Accountants. (1998). *Learning about risk: Choices, connections and competencies.* Toronto, Canada: CICA.
8. Canadian Performance Reporting Board. (2004). *Management discussion and analysis report. CICA standards and guidance collection.* Toronto, Canada: CICA.
9. Canadian Performance Reporting Board. (2008). *Building a better MD&A.* Toronto, Canada: CICA. Retrieved from https://www.cpacanada.ca/-/media/site/business-and-accounting-resources/docs/building-better-mda-risk-disclosure-march-2008.pdf?la=en&hash=898FA27A5FBCA0D204A20CB79F14F13472848064
10. Canadian Performance Reporting Board. (2009). *Management's discussion and analysis: Guidance on preparation and disclosure.* Toronto, Canada: CICA. Retrieved from https://www.cpacanada.ca/en/business-and-accounting-resources/financial-and-non-financial-reporting/mdanda-and-other-financial-reporting/publications/guidance-for-mda-preparation-and-disclosure
11. Coram, P. J. (2010). The effect of investor sophistication on the influence of nonfinancial performance indicators on investors' judgements. *Accounting and Finance, 50*(2), 263-280. https://doi.org/10.1111/j.1467-629X.2009.00328.x
12. Dhanya, A. (2016). Governance through disclosing risk – Impact on cost of equity. *Journal of Contemporary Research in Management, 11*(4), 25-40. Retrieved from https://www.psgjcrm.com/journals/index.php/jcrm/article/view/519/322
13. Du, S., & Vieira, E. T. Jr. (2012). Striving for legitimacy through corporate social responsibility: Insights from oil companies. *Journal of Business Ethics, 110*(4), 413-427. http://doi.org/10.1007/s10551-012-1490-4
14. Du, S., Bhattacharya, C. B., & Sen, S. (2011). Corporation social responsibility and competitive advantage: Overcoming the trust barrier. *Management Science, 57*(9), 1528-1545. http://doi.org/10.1287/mnsc.1110.1403
15. Elshandidy, T., & Neri, L. (2015). Corporate governance, risk disclosure practices, and market liquidity: Comparative evidence from UK and Italy. *Corporate Governance: An International Review, 23*(4), 331-356. https://doi.org/10.1111/corg.12095
16. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ, the USA: Prentice Hall.
17. Hope, O.-K., Hu, D., & Lu, H. (2016). The benefits of specific risk-factor disclosures. *Review of Accounting Studies, 21*(4), 1005-1045. https://doi.org/10.1007/s11142-016-9371-1
18. Institute of Chartered Accountants in England and Wales. (1997). *Financial reporting of risks: Proposal for a statement of business risk.* London, UK: ICAEW.
19. Institute of Chartered Accountants in England and Wales. (1999). *No surprises: The case for better risk reporting.* London, UK: ICAEW.
20. Institute of Chartered Accountants in England and Wales. (2002). *No surprises: Working for better risk reporting.* Retrieved from ICAEW website: https://www.icaew.com/-/media/corporate/files/technical/research-and-academics/publications-and-projects/financial-reporting-publications/briefing-06-02-no-surprises.ashx
21. Jagannathan, M., Schwartz, S., Spizman, J., & Young, R. (2011). Accounting, finance and adverse selection: Illustrations and applications. *Journal of Accounting Literature, 30*, 69-101. Retrieved from https://cpb-us-w2.wpmucdn.com/u.osu.edu/dist/8/36875/files/2016/12/JSSY-adverse-selection-1rv72w2.pdf
22. Jarvela, M., Kozyra, J., & Potter, C. (2009). The relationship between market and accounting determined risk measures: Reviewing and updating the Beaver, Kettler, Scholes (1970) study. *College Teaching Methods and Styles Journal, 5*(1), 1-10. https://doi.org/10.19030/ctms.v5i1.5036

23. Jorgensen, B. N., & Kirschenheiter, M. T. (2003). Discretionary risk disclosures. *The Accounting Review, 78*(2), 449-469. http://doi.org/10.2308/accr.2003.78.2.449
24. Khandelwal, C., Kumar, S., Verma, D., & Pratap Singh, H. (2019). Financial risk reporting practices: Systematic literature review and research agenda. *The Bottom Line, 32*(3), 185-210. https://doi.org/10.1108/BL-03-2019-0071
25. Kirabaeva, K. (2011). *Adverse selection and financial crisis* (Bank of Canada Review, winter 2010-2011). Retrieved from https://www.bankofcanada.ca/wp-content/uploads/2011/02/kirabaeva.pdf
26. Koonce, L. (2014). Risk in financial reporting. *CPA Magazine.* Retrieved from CPA Magazine website: https://www.cpacanada.ca/en/connecting-and-news/cpa-magazine/articles/2014/January/risk-in-financial-reporting/
27. Koonce, L., Lipe, M. G., & McAnally, M. L. (2005). Judging the risk of financial instruments: Problems and potential remedies. *The Accounting Review, 80*(3), 871-895. https://doi.org/10.2308/accr.2005.80.3.871
28. Koonce, L., McAnally, M. L., & Mercer, M. (2005). How do investors judge the risk of financial items? *The Accounting Review, 80*(1), 221-241. http://doi.org/10.2308/accr.2005.80.1.221
29. Lajili, K., & Zéghal, D. (2005). A content analysis of risk management disclosures in Canadian annual reports. *Canadian Journal of Administrative Sciences, 22*(2), 125-142. https://doi.org/10.1111/j.1936-4490.2005.tb00714.x
30. Lindsay, H. (2006). *20 questions directors should ask about risk* (2nd ed.). Toronto, Canada: CICA.
31. Linsmeier, T. J., Thornton, D. B., Venkatachalam, M., & Welker, M. (2002). The effect of mandated market risk disclosures on trading volume sensitivity to interest rate, exchange rate, and commodity price movements. *The Accounting Review, 77*(2), 343-377. http://doi.org/10.2308/accr.2002.77.2.343
32. Maignan, I., & Ferrell, O. C. (2004). Corporate social responsibility and marketing: An integrative framework. *Journal of the Academy of the Marketing Science, 32*(1), 3-19. http://doi.org/10.1177/0092070303258971
33. Ontario Securities Commission. (2003). *National instrument 51-102: Continuous disclosure obligations and related amendments.* Retrieved from Ontario Securities Commission website: http://www.osc.gov.on.ca/en/13344.htm/
34. Rajgopal, S. (1999). Early evidence on the informativeness of the SEC's market risk disclosure: The case of commodity price risk exposure of oil and gas producers. *The Accounting Review, 74*(3), 251-280. http://doi.org/10.2308/accr.1999.74.3.251
35. Salama, A., Anderson, K., & Toms, J. S. (2011). Does community and environmental responsibility affect firm risk? Evidence from UK panel data 1994-2006. *Business Ethics: A European Review, 20*(2), 192-204. http://doi.org/10.1111/j.1467-8608.2011.01617.x
36. Securities and Exchange Commission. (1997, February 10). Disclosure of accounting policies for derivative financial instruments and derivative commodity instruments and disclosure of qualitative and quantitative information about market risk inherent in derivative financial instruments, other financial instruments, and derivative commodity instruments. *Federal Register, 62*(27), 6044-6079. Retrieved from Federal Register website: https://www.federalregister.gov/documents/1997/02/10/97-2991/disclosure-of-accounting-policies-for-derivative-financial-instruments-and-derivative-commodity
37. Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance, 19*(3), 425-442. http://doi.org/10.2307/2977928
38. The Institute of Risk Management (IRM), The Association of Insurance and Risk Managers (AIRMIC), & The National Forum for Risk Management in the Public Sector (ALARM). (2002). *A risk management standard.* Retrieved from http://www.michaelsamonas.gr/images/Mixalhs/resources/Risk_Management_Standard_030820.pdf
39. Thornton, D. B., & Welker, M. (2004). The effect of oil and gas producers' FRR No. 48 disclosures on investors' risk assessments. *Journal of Accounting, Auditing, and Finance, 19*(1), 85-114. http://doi.org/10.1177/0148558X0401900106
40. Woolfson, C., & Beck, M. (Eds.). (2005). *Corporate social responsibility failures in the oil industry.* New York, the USA: Baywood Publishing.