



**ANNUAL REPORT RISK DISCLOSURES AND  
NONPROFESSIONAL INVESTORS' JUDGMENTS AND DECISIONS**

Anne Fortin  
École des sciences de la gestion  
Université du Québec à Montréal  
C.P. 8888, Succursale Centre-ville  
Montréal, QC, H3C 3P8  
Canada  
Tel.: 514- 987-3000, ext. 3987  
Fax: 514-987-6629  
E-mail: [fortin.anne@uqam.ca](mailto:fortin.anne@uqam.ca)

Sylvie Berthelot  
Faculté d'administration  
Université de Sherbrooke  
2500, boul. Université  
Sherbrooke, QC, J1K 2R1  
Canada  
Tel: 819-821-8000, ext. 62003  
Fax: 819-821-7934  
E-mail: [sylvie.berthelot@usherbrooke.ca](mailto:sylvie.berthelot@usherbrooke.ca)

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### **Abstract**

Disclosures concerning risk and risk management have received considerable attention from financial and accounting regulators since the 1990s. In Canada, the provincial securities commissions have set out requirements for the disclosure and discussion of risks in MD&As, as have the SEC in the United States and securities regulators in other countries. The Canadian Performance Reporting Board (CPRB 2004) has published guidelines to complement Canadian regulatory requirements for MD&As. Using an experimental approach, this study examines whether risk information published by companies following this guideline impacts nonprofessional investors' judgments and investment decisions through the negative affective effect ensuing from the negative nature of the information. The results provide empirical evidence that risk information seems to have a significant negative incidence on underlying judgments (net income volatility, growth prospects, net income as a predictor of future net income and risk associated with investing in a company's stock) and on the primary judgment of expected stock price reaction and an indirect effect on the investment decision. The effect has been noted even among individuals who do not intentionally use the information: they are negatively influenced due to the negative affect effect induced by the information. These results provide evidence, as did the findings of Koonce, McAnally and Mercer (2005), that behavioral/affect variables influence judgments and decision beyond cognitive variables. In providing a better understanding of the way risk disclosures influence nonprofessional investors, the results of this study inform professional bodies and national market regulators about certain market participants' reactions to information provided under their regulations.

**Key words:** Affect, risk disclosures, MD&A, judgment, nonprofessional investors.

## **Les informations sur les risques dans le rapport annuel et les jugements et décisions des investisseurs non professionnels**

### **Résumé**

Depuis les années 1990, les autorités de réglementation des marchés financiers de même que les organismes de normalisation comptable ont accordé une attention particulière à la divulgation des risques et des pratiques de gestion s'y rapportant. Au Canada, les Autorités canadiennes en valeurs mobilières provinciales, à l'exemple de la SEC aux États-Unis et des Autorités des marchés financiers d'autres pays, ont mise en place des règles à suivre visant à ce que les entreprises présentent et expliquent leurs risques dans leur rapport de gestion. Dans le but de compléter ces règles à suivre, le Conseil canadien de l'information sur la performance (CCIP, 2004) a, de plus, publié des lignes directrices. Basée sur une approche expérimentale, la présente étude examine si l'information publiée par les entreprises en vertu de ces règles à suivre et de ces lignes directrices a une incidence négative, en raison de la nature négative de l'information divulguée, sur le jugement et les décisions d'investissement des investisseurs non professionnels. Les résultats démontrent que l'information sur les risques semble avoir une incidence négative sur les jugements sous-jacents à la décision d'investissement (volatilité du bénéfice net, perspectives de croissance, bénéfice net en tant que prédicteur des bénéfices futurs et risques associés à un investissement dans les actions de l'entreprise) et sur le jugement global relatif à l'anticipation de la réaction du prix des actions, et indirectement sur la décision d'investissement. Cette incidence a été observée même pour les individus qui n'ont pas intentionnellement utilisé l'information : ils ont été négativement influencés par l'effet émotionnel négatif induit par l'information sur les risques. À l'instar de Koonce, McAnally and Mercer (2005), ces résultats apportent des éléments nouveaux dans le domaine de recherche portant sur la divulgation des risques. Les variables liées aux comportements/émotions influencent les jugements et les décisions en plus des variables cognitives. En apportant une meilleure compréhension de la manière selon laquelle les divulgations de risques influencent les investisseurs non professionnels, les résultats de cette étude apportent des observations empiriques aux autorités de réglementation des marchés financiers de même qu'aux organismes de normalisation comptable sur la réaction des participants à l'information divulguée en vertu des règles et lignes directrices mises en place.

Mots clés : divulgation des risques, émotions, investisseurs non professionnels, jugement, rapport de gestion.

## INTRODUCTION

The concepts of risk and risk management have recently received considerable attention from financial and accounting regulators (Linsley and Shrives 2006). In several countries, discussion documents or guidelines for risk management and/or risk reporting have been published under the aegis of various professional bodies (Boritz 1990; The Canadian Institute of Chartered Accountants (CICA) 1998; The Institute of Chartered Accountants in England and Wales (ICAEW) 1998, 1999, 2002; The Institute of Risk Management (IRM), the Association of Insurance and Risk Managers (AIRMIC) and the ALARM, The National Forum for Risk Management in the Public Sector 2002; Lindsay 2006). Also, in 2005, the International Accounting Standards Board (IASB 2005) issued a discussion paper, Management Commentary (MC), which required comments on whether the MC should be considered an integral part of financial reports to assert compliance with IFRS.

Moreover, since the 1980s, several securities regulators have issued rules requiring public companies to publish information on the risks they face. In 1997, the U. S. Securities and Exchange Commission (SEC) issued *Financial Reporting Release (FRR) Number 48 on Derivative and Market Risk Disclosure*, which requires SEC registrants to disclose both quantitative and qualitative information about market risks (potential losses arising from adverse changes in interests rates, foreign currency rates, commodity prices, and equity prices). Similar initiatives have been undertaken in other countries, such as the United Kingdom (Linsley and Shrives 2005a), France (Combes-Thuélin, Henneron and Touron 2006), Germany (Dobler 2005), and across the European Union (Abraham and Cox 2007).

In fact, under European Union directives, listed companies are required to publish a business review that includes a discussion of principal risks and uncertainties (Abraham and Cox 2007).

In Canada, provincial securities commissions, including the Ontario Securities Commission (OSC 2003), followed the same path in 2003, adopting the National Instrument 51-102 on continuous disclosure obligations, requiring public companies to disclose in their Management Discussion and Analysis (MD&A), information on risks that can materially affect their future performance.<sup>1</sup> The provisions of the Canadian regulations are similar to those of the SEC (Carnaghan and Gunz 2007).<sup>2</sup>

In 2004, the Canadian Performance Reporting Board (CPRB), mandated by the Board of Directors of the CICA to issue guidance documents on key issues in performance measurement and reporting, published MD&A guidelines (CPRB 2004). The objective 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, notably individual investors, receive the necessary and pertinent information to make investment decisions (CPRB 2004).

According to the guidelines, Canadian public companies should disclose their principal risks and describe related risk management systems to enable readers of the MD&A report to “understand and evaluate the company's risks and its decisions regarding the management of such risks. Such disclosure should include: (1) the principal risks and

uncertainties facing the company and its core businesses and segments, as appropriate; (2) the strategies and processes employed for managing these risks; and (3) the potential specific impact of these risks on results and capabilities, including capital resources and liquidity” (CPRB 2004, para. 360.2).

The objective of this study is to examine whether the information published by companies following the guidelines concerning risk assessment and reporting and the National Instrument 51-102 impacts readers' judgments and investment decisions. We also examine whether this input is influenced by the affective effect this information has on nonprofessional investors, who represent an important contingent of investors (Belzile, Fortin and Viger 2006).

To reach our objective, we conducted a between-subject experiment employing 157 MBA students as nonprofessional investors. In the experiment, we examined whether the presentation of the risks section of the MD&A affects financial statement users' judgments and investment decisions. Our results lend support to the idea that the risk information divulged significantly and negatively influences users' perceptions of net income volatility, net income as a predictor of future years' net income, growth prospects, and the risk of investing in the firm's shares (underlying judgments). In addition, such information influences, also negatively, the primary judgment of expected stock price reaction and the investment decision. However, the influence of risk information on the investment decision is indirect since it is mediated by the information's effect on the judgment variables. Thus, these results correspond to our hypotheses developed on affect-based reasoning theory, i.e.

that a negative affective effect would ensue from the negative nature of the risk information provided in the MD&A.

These results are interesting for several reasons. First, they complement past studies that establish the usefulness of the MD&A's non-financial statement disclosures (Cole and Jones 2005). Second, they show that, because of its negative affective impact, information on risks dampens judgments made in the process of financial statement analysis. It thus makes nonprofessional users more aware of future events that could negatively affect the companies so that these investors can take that information into account in their analysis. Thus, the results of this study support the establishment of guidance regarding risk disclosures issued by professional bodies such as the CICA's CPRB.

The remainder of this paper is organized as follows. The next section discusses prior research and develops hypotheses. The research method and sample data are then presented, followed by a description of results. The discussion, conclusion and limitations of the study come last.

## **PRIOR RESEARCH AND HYPOTHESES DEVELOPMENT**

### **Prior Research**

Good governance implies that management deals effectively with the risks it faces in conducting its affairs. Details on risks and risk management are disclosed in the MD&A

and in the notes to financial statements to provide stakeholders with information to assess management's performance and effectiveness in dealing with business uncertainties. While the reporting in the notes to financial statements of items such as currency, credit, interest rate and financial instruments risks is mandatory, other risks, such as strategic and environmental risks, are disclosed on a voluntary basis in other parts of the annual report. In Canada, security commission rules make risk disclosure in the MD&A section of the annual report (OSC 2003) mandatory, and the CPRB (2004) guidelines provide a framework to organize MD&A disclosures that are either mandated by the securities commissions or recommended by the guidelines.

#### *Research on MD&A*

According to Cole and Jones (2005), research on MD&A and on specific non-financial statement disclosures is limited. They call for more research on the usefulness of MD&A disclosures, indicating that "including MD&A variables may alter the estimated effects of financial variables if the MD&A information itself affects [...] the dependent variable" (Cole and Jones 2005, 153), such as the stock price. Research on MD&A information has been primarily market based. To date, it has been mainly focused on its usefulness in predicting future accounting outcomes and in explaining contemporaneous or future stock returns (e.g. Bryan 1997; Clarkson, Kao and Richardson 1999; Cole and Jones 2004; Erkner, Helzi and Glenzen 2000; Lundholm, McVay and Randall 2009; Schipper and Vincent 2003), on assessing whether the information is properly incorporated into share prices (e.g. Bryan 1997; Rajgopal, Shevlin and Venkatachalan 2003), on evaluating its quality (e.g. Baron, Kile and O'Keefe 1999; Clarkson et al. 1994; Jones and Cole 2005;

Pava and Epstein 1993) and its impact on analysts' forecasts (e.g. Bozzolan, Trombetta and Beretta 2009; Vanstraelen, Zarzewski and Robb 2003).

Overall, the research provides evidence that some supplemental disclosures in the MD&A have incremental information content as reflected in contemporaneous or future stock returns, improve accuracy and reduce dispersion of analysts' forecasts. Some are also useful in predicting future revenues and income. The quality of the information is variable across firms and within reported elements, and disclosures seem biased towards providing optimistic forecasts or good news. Further, Hüfner (2007) points to the lack of rules requiring a strategic analysis of companies, including the reporting of the expected impact of strategically relevant factors on important financial statement elements.

#### *Research on risk disclosures*

Research focusing specifically on risk disclosures in MD&A or elsewhere in the financial report mainly concerns preparers and the disclosures' market effect. Such research has dealt with the market impact of financial risk disclosures (Linsmeier, Thornton, Venkatachalan, and Welker 2002; Venkatachalan 1996), the association of fuzzy<sup>3</sup> measures of risk and risk management disclosures with certain accounting and market measures of risk and return (Dia and Zéghal 2008), the determinants of risk disclosures (Abraham and Cox 2007; Bushman, Piotroski, and Smith 2004; Guo, Lev, and Zhou 2004; Konishi and Ali 2007; Robb, Single, and Zarzewski 2001), the readability of risk disclosures (Linsley and Lawrence 2007), and the standardizing and presentation formats of risk measures (Eccles, Herz, Keegan, and Phillips 2001; Hodder and McAnally 2001; Linsmeier and Pearson 1997).

Research has also focused on describing and/or comparing firm risk disclosures within and between countries (Amran, Bin, and Hassan 2009; Beretta and Bozzolan 2004; Blankley, Lamb, and Schroeder 2002; Combes-Thu  lin et al. 2006; Kaj  ter 2001, 2004; Koro  ec and Horvat 2005; Lajili and Z  ghal 2005; Linsley and Shrivess 2000; Linsley and Shrivess 2005a, 2005b; Linsley, Shrivess, and Crumpton 2006; Roulstone 1999; Shrivess and Linsley 2003).

Taken as a whole, the research provides evidence that risk disclosures have an impact on some market related variables. However, there is a lack of uniformity in the information provided both within and between countries. Moreover, financial risks are more widely reported on than operational and other risks, which are less extensively covered. Finally, the quantification of risks needs to be improved, as does the information provided on management programs planned to face identified risks.

The research reported above does not address the impact of risk information on individual investors' investment decision making. However, individual investors, even less experienced ones (Shleifer 2000) like nonprofessional investors, have an impact on market prices (Hirshleifer and Teoh 2003). They are important stakeholders. In Canada, "retail investors own fully 55 percent of all S&P/TSX company shares and approximately 80 percent of all trust units outstanding" (Eberts 2003, 4, cited in Belzile et al. 2006, 155). In the U.S., at the end of 2006, 34% of all shares were owned by retail investors (Brewster 2008).

Accordingly, the study of the usefulness of risk information at the investors' level is warranted, although such research is scarce. Koonce, McAnnaly, and Mercer (2005) have looked at the impact of loss outcome disclosures on risk judgments and have shown both a direct and an indirect impact via their effect on Slovic's (1987) behavioral/affect variables. Koonce, Lipe, and McAnnaly (2005) found that the format of the sensitivity analysis provided for certain market risks, disclosing only the potential losses, impedes investors' ability to distinguish among firms with different risk-management strategies.

In view of the increased importance of risk disclosures in financial reporting, research is needed on their impact on judgments and decisions made in investment contexts and their cognitive and affective effects.<sup>4</sup> Information on risks and risk management ought to reduce information asymmetry between the firm and stakeholders and thus improve disclosure quality, transparency and market efficiency. However, there are costs involved in compiling and disclosing the information, including competitive harm as a result of competitors having access to the information. It is thus important to better understand the impact of risk disclosures on investors' judgments and decisions to help assess their benefit.

### **Theory and Hypotheses Development**

Tversky and Kahneman (1974) and Kahneman, Slovic, and Tversky (1982) have demonstrated that boundedly rational individuals use various heuristics such as availability, representativeness, and anchoring and adjustment in judgment and decision making. Moreover, Slovic, Finucane, Peters, and MacGregor (2002) have established that affect also

plays a role in guiding judgments and decisions, calling it the affect heuristic. These authors define affect as “specific quality of ‘goodness’ or ‘badness’ (1) experienced as a feeling state (with or without consciousness); and (2) demarcating a positive or negative quality of a stimulus” (Slovic et al. 2002, 397). Zajonc (1980) argues that all perceptions contain an affective reaction to the stimuli to some extent. Kida and Smith (1995, 585) contend “that affective or evaluative reactions to numerical data are central to encoding and retrieval processes in accounting decision contexts” and they argue that this contention extends to non numerical data. Subsequently, these affect-laden perceptions guide information processing, judgments and decisions, especially under conditions of risk and uncertainty (Loewenstein, Weber, Hsee, and Welch 2001). In particular, information on the risk of the harmful consequences of events will elicit negative emotions that will negatively influence judgments and decisions (Channouf 2004).

Fischhoff, Slovic, Lichtenstein, Reid, and Coombs (1978) demonstrated that perceptions of risk and society’s response to it are linked to the degree to which a hazard evokes feelings of dread. Regarding financial items, Koonce et al. (2005) found that risk disclosures not only had a direct cognitive effect on their participants’ risk judgments but also had an indirect effect on perceived risk via their influence on dread (which includes the perceived controllability and voluntariness of an element, as well as the associated worry and potential for catastrophe).

Ganzach (2000) illustrates this influence of feelings on judgments of financial analysts for unfamiliar stocks. When stocks were perceived as bad, their return was judged to be low

and their risk high, and vice versa. Mercer (2005) found that investors' affective reaction to the valence of the news (positive or negative) drives their perceptions of management's reporting credibility in the long term. Kida, Smith and Maletta (1998) show that decisions of experienced managers in a stock investment context were impacted by their affective reactions to numerical data when their decisions were based on information retrieved from memory.<sup>5</sup> MacGregor, Slovic, Dreman, and Berry (2000, 110) also conclude that affect appears "to have a strong influence on judgments of the quality of financial stimuli".<sup>6</sup> In fact, the influence of feelings on investor decision making has only been studied recently and deserves further investigation (Lucey and Dowling 2005).

Following Fischhoff et al.'s (1978) finding that judgments of risk and benefit are negatively correlated, Alhakami and Slovic (1994) suggested that this inverse relationship could be explained by people's reference to an affective feeling when judging the risk or benefit of specific hazards. That is, if people like an activity, they will tend to judge its risk as low and its benefits as high and vice versa if they dislike the activity. Thus, Alhakami and Slovic (1994) posit that affect precedes and directs judgments of risk and benefit.

Finucane, Alhakami, Slovic, and Johnson (2000) went further and manipulated affect by providing positive or negative information to alter the affective impression and consequently influence the risk and benefit judgments in the direction of the affective evaluation. Thus, information indicating that risks are high for an item leads to a less favorable affective impression of it and accordingly to a lower evaluation of benefits linked to the item.

In terms of risk disclosures in financial statements, the more the information provided stresses risky negative outcomes (risks that could adversely impact the company), the higher the perception that the company is risky will be, thus generating a negative affect. In turn, this negative affect will adversely impact the evaluation of the benefits of investing, as well as the judgments made in the decision-making process. As the risk information provided in the MD&A is generally negative (Lajili and Zeghal 2005), the presentation of several risky negative outcomes ought to lead to negative affect toward the company. As indicated by the definition of affect presented earlier, the feeling about the company can have an effect on information processing whether it is conscious or not.

Baird and Zelin (2000) have demonstrated that individuals' perceptions and decisions are influenced by the order in which information is presented. After reading a president's letter providing a mix of positive and negative information on a hypothetical company, subjects had to make various judgments relating to the company's past performance and its future potential. Subjects' judgments were influenced by the first information they read, irrespective of whether it was positive or negative (primacy effect). In Baird and Zelin's experiment, the complexity of subjects' task was low, the information set short and the judgments were made after the participants received all the information. However, the authors also indicate that, according to the Belief-Adjustment Model (Hogarth and Einhorn 1992), the primacy effect would also prevail in the case of a consistent, long, and complex information set, whether subjects' evaluations were provided step by step or after reading all the text. The risk information provided in the MD&A is usually consistent as to the

unfavorable nature of the possible future outcomes for the company and, if presented first, the primacy effect would be expected to prevail on both the cognitive assessments made by financial statement users and the affect effect experienced.

Prior research suggests that nonprofessional investors process information differently than professional investors (Bouwman 1982; Bouwman, Frishkoff and Frishkoff 1987; Elliott 2006; Frederickson and Miller 2004; Maines and McDaniel 2000; SRI International 1987). Nonprofessional investors seem to read financial statement information in the order in which it is presented (Bouwman 1982; Maines and McDaniel 2000), acquiring information in a relatively unstructured manner since their valuation models are often relatively ill-defined (Maines and McDaniel 2000; SRI International 1987). Professional investors search for information relevant to their own valuation models (Bouwman et al. 1987; Hunton and McEwen 1997). The risk information is provided in the MD&A, which is presented before the financial statements in the annual report. Therefore, on sequentially reading the annual report, nonprofessional investors probably acquire information on risks and risk management (cognitive effect). Further, it would be expected that they experience a negative affect effect because they read that information first (as discussed earlier). Therefore, nonprofessional investors represent an adequate population to test the affect effect of risk disclosures.

Based on the above analysis, the following hypotheses are put forward:

HYPOTHESIS 1. *The judgments of nonprofessional investors that are provided with MD&A risk disclosures will be more negative than the judgments of those who do not have such information.*

HYPOTHESIS 2. *Nonprofessional investors that are provided with MD&A risk disclosures will be less inclined to invest in the company's stock than those who do not have such information.*

The dependent variables are the investor's judgment of the overall financial condition, profitability, net income volatility, growth prospects, net income as a predictor of the income of future years, risk of investing in the company's stock, expected stock price reaction and the investment decision. Further, the investment decision ought to be consequent to the primary judgment regarding expected stock price reaction and the secondary (underlying) judgments that influence the primary judgment, i.e. the company's overall financial condition, profitability, net income volatility, growth prospects, the risk of investing in the company's stock and the usefulness of the current year's net income as a predictor of the income of future years. Viger, Belzile and Anandarajan (2008) and Belzile et al. (2006) show that, overall, the judgments made by individuals in analyzing financial statements have an impact on their decisions.

Share value depends on both future earnings and risk. All things being equal, a growth in earnings ought to lead to an increase in share value. However, this increase is negatively affected by any augmentation in risk. Thus, a firm's growth rate and risk both influence its

stock price (White, Sondhi, and Fried 2003). The primary judgment of expected stock price reaction is conditioned by the judgments reached while analyzing the financial and risk information, i.e. the secondary judgments. Underlying (secondary) judgments of profitability, net income as a predictor of future years' income and a company's growth prospects are made in the process of forecasting earnings and they all should be related positively to future earnings. The risk assessment is conditioned by underlying judgments of a company's net income volatility, the risk of investing in its shares (positive relationship) and its overall financial condition (negative relationship). As indicated above, the investment decision is likely to be influenced by factors other than cognitive variables such as affect. However, it can be hypothesized that the investment decision will be consistent with the primary judgment of the expected stock price reaction. The greater the expected increase in the stock price, the greater the probability that the individual will invest in the company's stock.

## **METHODOLOGY**

### **Research Method**

To determine whether the risk information published by companies affects financial statement users' judgment and investment decisions, we conducted a laboratory experiment with a questionnaire in fall 2007 and winter 2008. The experimental plan included two groups: (a) the treatment group for which the risk section of the MD&A<sup>7</sup> was provided with the financial statements; and (b) the control group that had only the financial data. The sample's 157 MBA students<sup>8</sup> were randomly assigned to the two groups. With their

professor's permission, the participants received the experimental material at the end of their course. Students' participation was voluntary but to thank them, a draw was held in each participating class for a nominal sum of \$50. All but two of the students solicited chose to take part in the experiment.

MBA students were used as proxies for nonprofessional investors since other authors (cf. Maines and McDaniel 2000; Frederickson and Miller 2004; Hodge et al. 2004; Elliott 2006). Elliott, Hodge, Kennedy, and Pronk (2007) have established that MBA students who have completed their core courses and are enrolled in or have completed a financial statement analysis course are a good proxy for nonprofessional investors in tasks relatively low in integrative complexity. MBA students in their first-year financial accounting course also perform similarly to nonprofessional investors in such tasks, except for investment decisions (Elliott et al. 2007).<sup>9</sup> The experimental task used in this research can be considered low in integrative complexity according to Elliott et al.'s (2007) classification, given that participants did not have to make any adjustments to the financial statements to be able to make their judgments and decision.

Hypothesis one, i.e. that judgments of nonprofessional investors provided with MD&A risk disclosures will be more negative than the judgments of those who do not have such information, is tested using an analysis of variance between the two experimental groups. Hypothesis two, i.e., that nonprofessional investors provided with MD&A risk disclosures will be less inclined to invest in the company's stock than those who do not have such information, is first tested by comparing the two experimental groups using Fisher's exact

test. Further, for the expected stock price reaction and the investment decision, the univariate analysis is complemented using a multivariate approach. As the primary judgment of expected stock price reaction is conditioned by the judgments made while analyzing the financial and risk information, i.e., the secondary (underlying) judgments, regression analysis is performed using the secondary judgments<sup>10</sup> as independent variables. In addition, as the investment decision ought to be consequent with the primary and secondary judgments, regression analysis of the investment decision is performed using these judgments as independent variables. The attitude towards risk is included in the latter regression as a control variable since risk aversion may render individuals less prone to investment in securities (Mittal and Vyas 2008; Schooley and Worden 1999). Also, among the reasons motivating their investment decision, 33 participants indicated in the open-ended question that they would not invest in the apparel industry sector. Accordingly, the variable Reason\_Sector was included in the regression as an explanatory variable.

### **Research Material**

Both groups received the same financial data about an anonymous, yet real, manufacturing company, more specifically a vertically-integrated marketer and manufacturer of activewear, underwear and socks. A manufacturing firm was chosen because making decisions about this type of firm, contrary to firms in the oil and gas or banking industries, does not require significant knowledge about the particular industry, and can be affected by some risks that nonprofessional investors are familiar with and understand. The data included a description of the company, the share price the day before the financial statement release, and various ratios for the last three years (sales growth ratio, current

ratio, total debt/total assets ratio, net income/sales ratio, return on asset ratio, return on investment ratio, price/earnings ratio). Also included were the auditor's report, the complete consolidated financial statements, along with the notes, for two fiscal periods. The financial statements were followed by a questionnaire, adapted from the one used in Belzile et al. (2006), which was comprised of three sections.

The first section set out eight questions intended to test the research hypotheses. Respondents were required to answer all the questions based on their best judgment, using either a Likert-type scale of 1 - 10 (worst - best scenario) or a simple choice from those offered. In chronological order, the questions asked related to:

- (1) the firm's overall financial condition, very poor to excellent;
- (2) the firm's profitability, hardly at all to extremely profitable;
- (3) the volatility of firm's net income, hardly at all to extremely volatile;
- (4) the firm's growth prospect, very poor to excellent;
- (5) the firm's net income as a predictor of future years' net income, very poor to excellent;
- (6) the risk of investing in the firm's stock, very low to extremely high; and
- (7) anticipation of the firm's stock price reaction on the release of the information included in the financial data, very important decrease to very important increase.

The eighth question (8) asked respondents to indicate whether they would invest in the firm's stock (yes or no) on the basis of the information provided. This section also included

an open-ended question asking respondents what were the determining factors in their decision.

The second section of the questionnaire contained eight questions on the respondents' background. They were asked to indicate their age, gender, mother tongue, number of courses completed to date in their graduate program and to identify the courses in accounting or finance taken to date in their program (including the current term), the area of study for their bachelor's degree, their investment experience, and their attitude towards risk (on a scale 1 to 10, 1 representing risk-averse and 10, risk taker). The last section of the questionnaire asked respondents to indicate (by yes or no) whether the documentation provided mentioned that the company was exposed to foreign currency risk, pricing pressures, a small number of significant customers, labor disruptions, concentrations of credit risk and raw material price volatility.<sup>11</sup> These questions were asked to ensure that the experimental plan was effective and that respondents had acquired the risk information.

### **Sample**

Descriptive statistics on risk attitude, age, gender, education, first language, advancement in graduate program and investment experience (see Table 1) show that randomization was successful in obtaining similar groups for these demographic variables.<sup>12</sup> No significant difference could be found between the groups for these variables. On average, participants perceive themselves as somewhat risk taking (overall mean of 5.58 on a 10-point Likert-type scale). Their mean age was about 28 years, with women being in the majority (60.5%, or 95/157). Most participants had a bachelor's degree in accounting or finance (61.3%, or

95/155), and had completed the first half of their graduate program (59.2%, or 93/157). About 46% (i.e., 73/157) mentioned they had previously invested in stocks or mutual funds. French was their first language for the vast majority of participants (86%, or 135/152).

[Insert Table 1]

## RESULTS

### **Acknowledgement of Experimental Manipulation**

Some risks are discussed both in the MD&A and the notes to the financial statement (foreign currency risk, small number of significant customers, concentrations of credit risk), while others are reported only in the MD&A (pricing pressures, labor disruptions, raw material price volatility). It was thus expected that participants who received the risk information from the MD&A would overwhelmingly report seeing the risks that are reported twice in the annual report.

Table 2, panel A shows that there are significant differences between the two groups ( $p < 0.05$  for the three risks) that conform to expectations. With respect to the risks discussed only in the MD&A, the vast majority of participants who had this information indicated they saw the risks related to pricing pressures and raw material price volatility (65/76 and 70/76 respectively), while a little under half indicated they saw the risk concerning labor disruptions (37/76). There are significant differences between the two groups ( $p < 0.000$ ) for these three risks. The risk respecting labor disruptions was mentioned in the text under

the heading “Our operations are subject to political, social and economic risks” (Gildan 2006, 39), and was thus less prominent than those mentioned as captions. Several participants (37/78) who did not have the risk information mentioned the raw material price volatility risk. This could be explained by the fact that, even if the financial statements did not include a caption regarding this risk, as did the MD&A, the financial statement note on significant accounting policies indicated the company was entering into contracts “to buy cotton and yarn with future delivery dates at fixed prices in order to reduce the effects of fluctuations in the prices of cotton used in the manufacture of its products” (Gildan 2006, 52).

[Insert Table 2]

Overall, the summary comparison presented in Table 2, panel B, shows that the participants who had the risk information overwhelmingly reported seeing four to six risks (92.4%, or 73/79) and that there is a significant difference between the two experimental groups ( $p < 0.000$ ). Thus, participants who had the risk information seem to have acquired that information.

### **Hypothesis 1 Test**

According to the first hypothesis relating to the primary and secondary (underlying) judgments, the judgments of nonprofessional investors who are given the risk disclosures will be more negative than those who are not. An analysis of variance was performed to assess whether the participants’ judgments were affected by the risk information. The

results, shown in Table 3, panels A and B, indicate a significant difference between the two groups for the underlying judgments of net income volatility ( $p = 0.005$ ), growth prospects ( $p = 0.030$ ), net income as a predictor of the income of future years ( $p = 0.004$ ), risk of investing in the company's stock ( $p = 0.004$ ), and the primary judgment of expected stock price reaction ( $p = 0.021$ ). Further, in comparison to participants who do not have the risk information, the judgments of participants in group 1 who had this information are more negative. They believe that net income is more volatile, growth prospects are poorer, net income is less likely to be a predictor of future income, the risk of investing is greater, and the expected increase in the stock price is smaller.

The underlying judgments of the overall financial condition ( $p = 0.547$ ) and profitability ( $p = 0.746$ ) are not affected by the risk information. Therefore, the risk information negatively affects the perceptions about future earnings and their risk, but not the current evaluation of the company's financial status.<sup>13</sup> These results support both the cognitive effect of risk information and the affect heuristic. However, since the group that had only the financial statements also had some risk information, the negative affective impact is believed to be what mainly explains the results.

[Insert Table 3]

Behavioral research on judgment shows that stimuli (accounting and financial information) can affect user judgment through intentional or non-intentional cognitive effects (Frederickson and Miller 2004; Elliott 2006). Intentional cognitive effects apply as

financial statement users take into account the information available in their own judgments because they have perceived its usefulness. Non-intentional cognitive effects lead users to take the information into account without having perceived it to be informative (Frederickson and Miller 2004). These non-intentional cognitive effects show that the negative perceptions driven by the negative affective effect of the risk information has an impact on judgments. In the open-ended question asking respondents about the determining factors in their investment decision, some participants (22) specifically referred to risks. The majority of these participants (19, 14 of whom had the risk information) chose not to invest in the company's stock. The results for the ANOVAs reported in Table 3 remain the same if these 22 participants are removed from the analysis (not tabulated). It therefore seems that the impact of the risk information is the result of non-intentional cognitive effects laden by the affective impact of the information.

Table 4 presents a regression of the primary judgment of expected stock price reaction on underlying judgments, the presence of risk information and investment experience.<sup>14, 15</sup> Overall financial condition, profitability, growth prospects (all positively) and investing experience (negatively) significantly explain the expected stock price reaction. The coefficients of having the risk information, the risk of investing in the company's stock (both negative), and income as a predictor of future income (positive) are significant, albeit only marginally. It can thus be concluded that having the risk information has an effect both on the underlying judgments (see Table 3) and on the primary judgment. Moreover, the risk information effect on the primary judgment is not completely mediated by the underlying judgments since the coefficient on risk information is marginally significant.

[Insert Table 4]

### **Hypothesis 2 Test**

The second hypothesis relates to the investment decision. Under this hypothesis, nonprofessional investors who have the risk disclosures will be less inclined to invest in the company's stock than those who do not. Table 5, panel A, compares the investment decisions of the experimental groups. There is a marginally significant difference between the decision of participants that have the risk information and those who do not ( $p = 0.064$ ). There are more participants who choose not to invest when they have the information on risks. However, when a regression of the primary and secondary judgments on the investment decision is carried out, the risk information loses its significance (Table 5, panel B). Instead, the direct effect of risk information is mediated by its effect on the independent variables. Accordingly, the effect of risk information on the investment decision is indirect.

[Insert Table 5]

Growth prospects, expected stock price reaction and profitability are the variables for which an increase of 1 in value would positively change the odds of investing in the company's stock. Risk and income volatility also have a significant impact on the investing decision: a change of 1 in their value would negatively affect the odds of investing in the company's stock. The greatest negative impact on the investment decision is the company's business sector, as it offsets the effect of any positive analysis of the company's financial situation. Finally, as expected, when individuals are risk takers, they will tend to invest in

the company's stock ( $p = 0.010$ ). The model has a good fit with 89.5% of correct predictions for the investment decision (Table 5, panel C).

Elliott et al. (2007) have established that MBA students in their first-year financial accounting course may not be good proxies for nonprofessional investors for investment decisions. Table 6 thus presents the analysis of the investment decision only for participants who have completed the first half of their program. The difference between the investment decision of participants that have the risk information and those who do not is now significant at  $p = 0.038$  (Table 6, panel A). However, when the regression of the primary and secondary judgments on the investment decision is carried out, the risk information still loses its significance (Table 6, panel B). As a result, the direct effect of risk information is mediated by its effect on the independent variables, as for the regression presented in Table 5, panel B.

[Insert Table 6]

Three variables lose significance as compared to the regression with the full sample: profitability, income volatility and expected stock price reaction. Income as a predictor of future years' income becomes marginally significant with a positive effect on the investment decision. Growth prospects (positive) and risk (negative) have an increased impact in comparison to the regression with all participants. Overall, the model is somewhat better than the model using all participants since the percentage of hits is greater (92.2%, Table 6, panel C, compared to 89.5%, Table 5, panel C).<sup>16</sup>

## **DISCUSSION, CONCLUSION AND IMPLICATIONS**

The concepts of risk and risk management have received considerable attention from financial and accounting regulators since the 1990s. In Canada, the provincial securities commissions have set out requirements for disclosure and discussion of risks in MD&As, as have SECs in the United States and securities regulators in other countries. The CPRB (2004) has also published guidelines to complement Canadian regulatory requirements for MD&As. The objective of this study was to examine whether information published by companies following this guideline affects nonprofessional investors' judgments and investment decisions through the negative affective effect ensuing from the negative nature of the risk information provided in the MD&A.

The study complements prior research on MD&A non-financial information content and on risk disclosures using a behavioral approach at the investors' level. In particular, the results provide empirical evidence that information on risks and risk management provided in the MD&A affects nonprofessional investors' decision processes. In fact, the risk information included in the MD&A section seems to have a significant negative incidence on the underlying judgments and on the primary judgment of expected stock price reaction, and an indirect effect on the investment decision. Respondents' perceptions of net income volatility, growth prospects, net income as a predictor of future net income and risk associated with investing in the company's stock are indeed influenced by the risk disclosures set out in the MD&A section of the annual report. The effect is observed even

for individuals who do not intentionally use the information; they are negatively influenced due to the negative affect effect induced by the information. These results provide evidence, as did the findings of Koonce, McAnally and Mercer (2005), that behavioral/affect variables influence judgments and decisions beyond cognitive variables.

In providing a better understanding of the way risk disclosures influence nonprofessional investors, the results of this study inform professional bodies and national market regulators about some market participants' reactions to information provided under their regulations. Although we have not taken into consideration the costs related to these types of disclosures, our results show that these disclosures have an impact on nonprofessional investors by dampening the investors' evaluation of a company's future prospects. Providing a detailed discussion in the MD&A of management programs respecting the risks mentioned therein might mitigate the negative impact of the information on these risks. This contention could be investigated in future research.

This study has some limitations. Since nonprofessional investors generally have access to more information than that provided in the experimental plan, the effect of risk disclosures on primary and secondary judgments and investment decision making could be less marked in actual practice. Also, the respondents in our experiment do not have the same incentives as actual nonprofessional investors (Cianci and Kaplan 2008). The presence of stronger incentives might be expected to lead to more vigilant information processing (Cianci and Kaplan 2008), which might modify the magnitude of the risk disclosures' affect effect.

Finally, the results of this study are limited to nonprofessional investors. Studies conducted among other populations could lead to different results.

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TABLE 1  
 Statistics on demographic variables by group\*

Panel A: Age and risk attitude <sup>†</sup> (F-test)						
	Group	N	Mean	St. dev.	F	<i>p</i> -value
Risk attitude <sup>‡</sup>	0	76	5.80	2.12	1.625	0.204
	1	<u>78</u>	<u>5.37</u>	<u>2.08</u>		
		154	5.58	2.10		
Age <sup>‡</sup>	0	78	28.32	5.63	0.531	0.467
	1	<u>79</u>	<u>27.67</u>	<u>5.54</u>		
		157	27.99	5.58		

  

Panel B: Gender, education, first language, advancement in graduate program, investment experience (Fisher's Exact Test)						
	Group	N	Male	Female		<i>p</i> -value
Gender	0	78	34	44		0.330
	1	<u>79</u>	<u>28</u>	<u>51</u>		
		157	62	95		
Education	Group	N	Bachelor in accounting or finance	Bachelor in other disciplines		
	0	76	52	24		0.099
	1	<u>79</u>	<u>43</u>	<u>36</u>		
	155	95	60			
First language	Group	N	French	Other		
	0	77	56	21		0.174
	1	<u>75</u>	<u>62</u>	<u>13</u>		
	152	135	34			
Advancement in graduate program	Group	N	Early in program	First half completed		
	0	78	30	48		0.627
	1	<u>79</u>	<u>34</u>	<u>45</u>		
	157	64	93			
Investment experience <sup>†</sup>	Group	N	Yes	No		
	0	78	39	39		0.425
	1	<u>79</u>	<u>34</u>	<u>45</u>		
	157	73	84			

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\* Group 0: Participants did not have the information on risks from the MD&A

Group 1: Participants had the information on risks from the MD&A

† These variables were measured as follows:

- When it comes to my investment decisions, I generally consider myself (Please circle on the scale indicating your judgment) (10-point Likert scale where 1 represents “risk adverse” and 10 represents “risk taker”)
- Have you ever invested in stock or mutual funds? Yes/No

‡ The Levene statistic for homogeneity of variance is not significant.

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**TABLE 2**

Statistics on acknowledgement of experimental manipulation\*

<b>Panel A: Acknowledgement of experimental manipulations</b>					
	Group <sup>†</sup>	N	Yes	No	Fisher's exact test <i>p</i> -value (one-tailed test)
Foreign currency risk	0	77	63	14	0.001
	1	<u>78</u>	<u>76</u>	<u>2</u>	
		155	139	16	
Small number of significant customers	0	77	25	52	0.000
	1	<u>76</u>	<u>74</u>	<u>2</u>	
		153	99	54	
Concentrations of credit risk	0	77	54	23	0.016
	1	<u>77</u>	<u>66</u>	<u>11</u>	
		154	120	34	
Pricing pressures	0	76	22	54	0.000
	1	<u>76</u>	<u>65</u>	<u>11</u>	
		152	87	65	
Labor disruptions	0	76	6	70	0.000
	1	<u>76</u>	<u>37</u>	<u>39</u>	
		152	43	109	
Raw material price volatility	0	78	37	41	0.000
	1	<u>76</u>	<u>70</u>	<u>6</u>	
		154	107	47	
<b>Panel B: Summary comparison - Acknowledgement of experimental manipulations</b>					
Group	N	0 to 3 risks	4 to 6 risks	Fisher's exact test <i>p</i> -value (one-tailed test)	
0	78	55	23	0.000	
1	<u>79</u>	<u>6</u>	<u>73</u>		
	157	61	96		

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\* The manipulations were tested with the following question:

Were the following risks mentioned in the documents concerning Canada inc. that you received?

- Foreign currency risk: Yes/No
- Pricing pressures: Yes/No
- Small number of significant customers: Yes/No
- Labor disruptions: Yes/No
- Concentrations of credit risk: Yes/No
- Raw material price volatility: Yes/No

† Group 0: Participants did not have the information on risks from the MD&A

Group 1: Participants had the information on risks from the MD&A

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**TABLE 3**Test on underlying (secondary) and primary judgments\* : comparisons by group<sup>†</sup>

<b>Panel A: Underlying judgments</b>						
	Group	N	Mean	Standard deviation	F Statistic	(p-value) <sup>‡</sup>
<b>Overall financial condition</b>	0	78	7.42	1.22	0.364	0.547
	1	<u>79</u>	<u>7.30</u>	<u>1.25</u>		
		157	7.36	1.24		
<b>Profitability</b>	0	78	7.12	1.26	0.106	0.746
	1	<u>78</u>	<u>7.18</u>	<u>1.20</u>		
		156	7.15	1.23		
<b>Net income volatility</b>	0	78	5.17	1.96	7.942	0.005
	1	<u>79</u>	<u>6.03</u>	<u>1.86</u>		
		157	5.60	1.95		
<b>Growth prospects</b>	0	78	6.29	1.70	4.806	0.030
	1	<u>79</u>	<u>5.72</u>	<u>1.58</u>		
		157	6.01	1.66		
<b>Net income as a predictor</b>	0	78	5.64	1.82	8.590	0.004
	1	<u>79</u>	<u>4.76</u>	<u>1.94</u>		
		157	5.20	1.93		
<b>Risk of investing in Canada's stock</b>	0	78	4.79	1.74	8.644	0.004
	1	<u>79</u>	<u>5.68</u>	<u>2.04</u>		
		157	5.24	1.94		
<b>Panel B: Primary judgment</b>						
	Group	N	Mean	Standard deviation	F Statistic	(p-value)
<b>Expected stock price reaction</b>	0	78	6.31	1.39	5.424	0.021
	1	<u>79</u>	<u>5.76</u>	<u>1.55</u>		
		157	6.03	1.50		

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\* The underlying and primary judgments were measured as follows:

1. I believe Canada Inc.'s overall financial condition is \_\_\_\_\_ (on a 10-point Likert scale where 1 represents very poor and 10 represents excellent).
2. I believe that Canada Inc. is \_\_\_\_\_ profitable (on a 10-point Likert scale where 1 represents hardly at all and 10 represents extremely).
3. I believe that Canada Inc.'s net income is: (on a 10-point Likert scale where 1 represents hardly volatile at all and 10 represents extremely volatile).
4. I believe Canada Inc.'s growth prospects are: (on a 10-point Likert scale where 1 represents very poor and 10 represents excellent).
5. I believe Canada Inc.'s 2006 net income as a predictor of future years' net income is: (on a 10-point Likert scale where 1 represents very poor and 10 represents excellent).
6. In the context of a diversified portfolio, I believe that an investment in Canada Inc.'s stock has: (on a 10-point Likert scale where 1 represents very low risk and 10 represents extremely high risk).
7. Assume that the financial information for 2006 has just been publicly released and that the stock market is receiving this information for the first time. Please indicate what you believe will most likely happen to the stock price of Canada Inc. upon release of this information (on a 10-point Likert scale where 1 represents a very important decrease and 10 represents a very important increase).

† Group 0: Participants did not have the information on risks from the MD&A

Group 1: Participants had the information on risks from the MD&A

‡ In the case of all variables, the Levene statistic for homogeneity of variance is not significant.

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**TABLE 4**Regression of the primary judgment of expected stock price reaction (ESPR)<sup>\*</sup>

$$ESPR_i = \beta_0 + \beta_1 (Risk\_Info_i) + \beta_2 (Fin\_condition_i) + \beta_3 (Profitability_i) + \beta_4 (Inc\_Volatility_i) + \beta_5 (Growth_i) + \beta_6 (Inc\_Pred_i) + \beta_7 (Risk_i) + \beta_8 (Inv\_Exp_i) + \varepsilon_i$$

Variable	Expectation	Coefficient	t-statistic	p-value
$\beta_0$ (Constant)	?	2.284	2.480	0.014 <sup>§</sup>
<i>Risk_Info</i>	-	-0.300	-1.400	0.082 <sup>†</sup>
<i>Fin_Condition</i>	+	0.231	2.104	0.019 <sup>§</sup>
<i>Profitability</i>	+	0.182	1.757	0.041 <sup>§</sup>
<i>Inc_Volatility</i>	-	-0.002	-0.031	0.488
<i>Growth</i>	+	0.184	2.492	0.007 <sup>#</sup>
<i>Inc_Pred</i>	+	0.088	1.348	0.090 <sup>†</sup>
<i>Risk</i>	-	-0.090	-1.429	0.078 <sup>†</sup>
<i>Inv_Exp</i>	?	-0.411	-1.973	0.050 <sup>§</sup>

Adjusted  $R^2 = 0.300$  (F-value = 9.9284) p-value = 0.000

\* The independent variables are: Having risk information (*Risk\_Info*), overall financial condition (*Fin\_Condition*), Canada Inc.'s profitability (*Profitability*), Canada Inc.'s net income volatility (*Inc\_Volatility*), growth prospects (*Growth*), net income as a predictor (*Inc\_Pred*), risk of investing in Canada Inc. (*Risk*), and having investment experience (*Inv\_Exp*).

† Probabilities are for one-tailed tests when there was a directional expectation.

‡ Significant at the 0.10 level.

§ Significant at the 0.05 level.

# Significant at the 0.01 level.

**TABLE 5**

The investment decision (ID)\*

**Panel A:** The investment decision: comparison between groups

Group <sup>†</sup>	N	Investment		Fisher's Exact Test <i>p</i> -value (one-tailed test)
		Yes	No	
0	78	46	32	0.064
1	<u>79</u>	<u>36</u>	<u>43</u>	
	157	82	75	

**Panel B:** Regression (logistic) of the investment decision on secondary and primary judgments<sup>‡</sup>

$$ID_i = \beta_0 + \beta_1 (Risk\_Info_i) + \beta_2 (Fin\_Condition_i) + \beta_3 (Profitability_i) + \beta_4 (Inc\_Volatility_i) + \beta_5 (Growth_i) + \beta_6 (Inc\_Pred_i) + \beta_7 (Risk_i) + \beta_8 (ESPR_i) + \beta_9 (Risk\_Attitude_i) + \beta_{10} (Reason\_Sector_i) + \varepsilon_i$$

Variable	Expectation	Coefficient	Odds (Exp $\beta$ )	<i>p</i> -value <sup>§</sup>
$\beta_0$ (Constant)	?	-5.165	0.006	0.036
<i>Risk_Info</i>	-	-0.698	0.498	0.105
<i>Fin_Condition</i>	+	-0.049	0.952	0.438
<i>Profitability</i>	+	0.398	1.489	0.084 <sup>#</sup>
<i>Inc_Volatility</i>	-	-0.274	0.760	0.040 <sup>**</sup>
<i>Growth</i>	+	0.461	1.586	0.013 <sup>**</sup>
<i>Inc_Pred</i>	+	0.202	1.223	0.103
<i>Risk</i>	-	-0.478	0.620	0.003 <sup>††</sup>
<i>ESPR</i>	+	0.363	1.438	0.047 <sup>**</sup>
<i>Risk_Attitude</i>	+	0.314	1.369	0.010 <sup>††</sup>
<i>Reason_Sector</i>	-	-2.990	0.050	0.000 <sup>††</sup>

Test for  $\beta_1$  to  $\beta_{10} = 0$  Chi square = 111.436 *p*-value = 0.000**Panel C:** Hits of predicted investment decision

Investment decision	Actual	Hits	% right
Yes	80	74	92.5
No	<u>73</u>	<u>63</u>	<u>86.3</u>
All	153	137	89.5

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\* The investment decision was measured as follows:

On the basis of the information provided, would you be willing to invest in Canada Inc.'s stock? Yes / No

† Group 0: Participants did not have the information on risks from the MD&A

Group 1: Participants had the information on risks from the MD&A

‡ The independent variables are: Having risk information (*Risk\_Info*), overall financial condition (*Fin\_Condition*), Canada Inc.'s profitability (*Profitability*), Canada Inc.'s net income volatility (*Inc\_Volatility*), growth prospects (*Growth*), net income as a predictor (*Inc\_Pred*), risk of investing in Canada Inc. (*Risk*), expected stock price reaction (*ESPR*), attitude towards risk (*Risk\_Attitude*), and business sector indicated by participant as motivation for not investing (*Reason\_Sector*).

§ Probabilities are for one-tailed tests when there was a directional expectation.

# Significant at the 0.10 level.

\*\* Significant at the 0.05 level.

†† Significant at the 0.01 level.

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**TABLE 6**

The investment decision (ID)\* - Participants with first half of program completed

**Panel A:** The investment decision: comparison between groups

Group <sup>†</sup>	N	Investment		Fisher's Exact Test <i>p</i> -value - one tailed test
		Yes	No	
0	48	28	20	0.038
1	<u>45</u>	<u>17</u>	<u>28</u>	
	93	45	48	

**Panel B:** Regression (logistic) of the investment decision on secondary and primary judgments<sup>‡</sup>

$$ID_i = \beta_0 + \beta_1 (Risk\_Info_i) + \beta_2 (Fin\_Condition_i) + \beta_3 (Profitability_i) + \beta_4 (Inc\_Volatility_i) + \beta_5 (Growth_i) + \beta_6 (Inc\_Pred_i) + \beta_7 (Risk_i) + \beta_8 (ESPR_i) + \beta_9 (Risk\_Attitude_i) + \beta_{10} (Reason\_Sector_i) + \varepsilon_i$$

Variable	Expectation	Coefficient	Odds (Exp $\beta$ )	<i>p</i> -value <sup>§</sup>
$\beta_0$ (Constant)	?	-5.785	0.003	0.172
<i>Risk_Info</i>	-	-0.777	0.460	0.186
<i>Fin_Condition</i>	+	0.354	1.424	0.291
<i>Profitability</i>	+	-0.044	0.957	0.470
<i>Inc_Volatility</i>	-	-0.358	0.699	0.106
<i>Growth</i>	+	0.614	1.848	0.045**
<i>Inc_Pred</i>	+	0.385	1.470	0.091 <sup>#</sup>
<i>Risk</i>	-	-0.889	0.411	0.010 <sup>††</sup>
<i>ESPR</i>	+	0.577	1.782	0.130
<i>Risk_Attitude</i>	+	0.408	1.503	0.053 <sup>#</sup>
<i>Reason_Sector</i>	-	-3.628	0.027	0.002 <sup>††</sup>

Test for  $\beta_1$  to  $\beta_{10} = 0$  Chi square = 83.986 *p*-value = 0.000**Panel C:** Hits of predicted investment decision

Investment decision	Actual	Hits	% right
Yes	43	40	93.0
No	<u>47</u>	<u>43</u>	<u>91.5</u>
All	90	83	92.2

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\* The investment decision was measured as indicated in Table 5.

† Group 0: Participants did not have the information on risks from the MD&A

Group 1: Participants had the information on risks from the MD&A

‡ The independent variables are the same as in Table 5. One-tailed F tests for analyses of variance between the two groups are significant for the following variables: Canada Inc.'s net income volatility (*Inc\_Volatility*) ( $p = 0.018$ ), net income as a predictor (*Inc\_Pred*) ( $p = 0.018$ ), risk of investing in Canada Inc. (*Risk*) ( $p = 0.000$ ), expected stock price reaction (*ESPR*) ( $p = 0.057$ ). The means are higher for Group 1 than Group 0 for *Inc\_Volatility* and *Risk*, and lower for *Inc\_Pred* and *ESPR*.

§ Probabilities are for one-tailed tests when there was a directional expectation.

# Significant at the 0.10 level.

\*\* Significant at the 0.05 level.

†† Significant at the 0.01 level.

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<sup>1</sup> The OSC adopted a revised version of National Instrument 51-102 in 2007 (OSC 2007) in which more emphasis is placed on discussing trends and risks that are expected to affect financial statements in the future (OSC 2007, 83).

<sup>2</sup> Annual MD&A reporting requirements, similar to those adopted by the SEC in 1980, were first instituted in Canada by the OSC in 1989 (Clarkson, Kao, and Richardson 1999). According to the regulation, risks and uncertainties represented one of the specific areas to be addressed in the MD&A.

<sup>3</sup> Fuzzy set theory is used to model imprecise numeric quantities and transform qualitative descriptions, such as those regarding risk and risk management, into quantitative numbers that can be used in analysis (Dia and Zéghal 2008).

<sup>4</sup> Cognitive effects related to the information provided take the form of thoughts. Affective effects involve a positive or negative emotional response associated with an event or the information provided.

<sup>5</sup> In another context, i.e. capital budgeting decisions, Kida, Moreno and Smith (2001) and Moreno, Kida and Smith (2002) show that affective reactions have an impact on managers' risk-taking tendencies and decisions.

<sup>6</sup> In MacGregor et al.'s (2000) research, the financial stimuli were either a financial offering or the performance of stocks in an industry group compared to the market as a whole.

<sup>7</sup> The discussed risks fall into the following categories: strategy, market, operational, financial, environment, government regulation and political risks. Some risks involve moderate consequences for the firm, others entail major consequences. Most risks are phrased in terms of negative outcomes with a probability level of "possible". There is little sensitivity analysis in the MD&A except for the price of raw materials (effect of change of 0.01\$ on costs) and for financial risks in the financial statements. There were also only a few risk management elements.

<sup>8</sup> Students came from two universities. There were no significant mean differences between participants from the two universities for demographic variables and dependent variables. All participants were thus treated as part of a single sample.

<sup>9</sup> The sample's respondents were at different stages of advancement in their graduate program. The findings of Elliott et al. (2007) were taken into account by first performing the analysis for the whole sample and then for participants that had completed the first half of their program (including a financial statement analysis course).

<sup>10</sup> As indicated above, the secondary (underlying) judgments are the company's overall financial condition, profitability, net income volatility, growth prospects, the risk of investing in the company's stock and the usefulness of the current year's net income as a predictor of the income of future years

<sup>11</sup> Respondents were asked not to refer to the information they received about Canada Inc. The researchers were present during the experiment and ensured that the participants abided by this requirement while answering the last part of the questionnaire.

<sup>12</sup> Since some students did not answer all the questions, the number of respondents for each test and analysis differs.

<sup>13</sup> The risk information deals with the future. It thus makes sense that its impact would be on judgments relating to future performance.

<sup>14</sup> Elliott, Hodge, and Jackson (2008) show that investing experience influences nonprofessional investors' information choice and returns.

<sup>15</sup> There is no multicollinearity among the independent variables.

<sup>16</sup> Results do not differ when taking into account participants' bachelor degrees.