

Examining the Effects of Varying Levels of Similar or Dissimilar Detail on Investors'

Risk Perceptions and Investment Decisions

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**Abstract**

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Risk Perceptions and Investment Decisions

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I use an experiment to examine how varying levels of similar or dissimilar detail between risk oversight disclosures influences nonprofessional investors' judgments and decisions. Investors evaluate the risk oversight disclosures of two firms that have different levels of risk exposure but the same risk governance practices. Drawing from research in psychology, I predict and find that more detailed disclosures have a greater persuasive influence on investors' (1) perceptions of the board's involvement in risk oversight, (2) perceptions of the board and management's effectiveness at managing risks, and (3) investment decisions. Investors' risk perceptions and investment decisions are greater for the low-risk firm relative to the high-risk firm, except when the low-risk firm's risk oversight disclosure contains less detail than the high-risk firm's disclosure, suggesting that detail within risk oversight disclosures can influence investors'

perceptions of risk governance beyond the underlying risk characteristics of the firm. Results have implications for investors, regulators, managers, and boards.

## I. INTRODUCTION

A growing line of research in accounting explores the influence of disclosure characteristics on investors' judgments and decisions. Although this research explores how characteristics such as optimistic and pessimistic tone (Davis et al. [2012], Davis and Tama-Sweet [2012]), vividness (Hales et al. [2011]), readability (Lawrence [2013], Li [2008], Miller [2010], Rennekamp [2012], Tan et al. [2013]), and concrete language (Elliott et al. [2014]) influence investors, little is known about how disclosure characteristics influence investors' risk perceptions and, subsequently, their investment decisions. In this paper, I use the setting of the risk oversight disclosure contained in firm proxy statements to examine how two disclosure characteristics – the level of disclosure similarity between two firms and the level of detail between two disclosures – influence investors' risk perceptions and investment decisions.

Beginning with the 2010 proxy season, the Securities and Exchange Commission (SEC) requires firms to disclose the extent of the board's role in risk oversight (SEC [2009, 2010]). Although the purpose of the risk oversight disclosure is to increase the transparency about the board's role in overseeing a firm's risk management system, the SEC provides little guidance on how firms should implement the disclosure requirement except to state that firms have the "flexibility to describe how the board administers its risk oversight function" (SEC [2010]).<sup>1</sup> Commenters expressed two concerns with the flexibility firms have in implementing their risk oversight disclosure. One concern is that disclosures may not provide meaningful information to investors due to a high level of similarity between disclosures resulting from firms disclosing

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<sup>1</sup> The title of the proxy disclosure rule is, "The Board's Role in Risk Oversight" and the rule mandates disclosure for all public companies as part of their Proxy Statements (Regulation S-K Item 407(h); SEC [2010]). I refer to this rule as the risk oversight disclosure or disclosure.

similar risk governance practices with similar levels of detail (SEC [2010]). The second concern is that disclosures may provide investors a false sense of comfort regarding how a firm manages its risks due to a high level of dissimilarity between disclosures resulting from detailed explanations of risk management and oversight practices and lead investors to believe that risks are controlled (Cleary [2009], DolmatConnell [2009], Rubin [2009]).<sup>2</sup> Prior research suggests that the flexibility afforded firms in implementing their risk-related disclosures can result in disclosure choices that adversely affect investors' judgments and influence their risk perceptions (Hodder et al. [2001], Ryan and Buchholtz [2001]). Further, research shows that risk perceptions are subjective and relative in nature, and influence investment behavior (Nosic and Weber [2010], Ricciardi [2004], Weber [2004]). Thus, variation in disclosure characteristics within the risk oversight disclosure can influence investors' risk perceptions and investing behavior. Because of the relative nature of risk perceptions, I conduct an experiment in which two firms have different levels of risk exposure but disclose the same risk governance practices, with varying levels of similar or dissimilar detail, to examine investors' relative risk perceptions and investment decisions.

Using the setting of the risk oversight disclosure and the relative comparison of two firms to examine the influence of varying levels of similar or dissimilar detail is appropriate for three reasons. First, investors evaluate the riskiness of an investment by considering the firm's risk exposure and the board's attempt to manage firm risks, and use risk disclosures to understand both risk exposures and risk governance. The risk oversight disclosure is the only mandated

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<sup>2</sup> In Section 2.2, I distinguish the terms risk oversight and risk management. I use the term risk governance when discussing the collective terms risk oversight *and* risk management.

source of communication that firms' offer regarding their board's role in risk oversight. As the risk governance process continues to evolve both within firms and on a regulatory level, understanding how cross-sectional differences in risk oversight disclosures influence investors becomes increasingly important. Further, risk oversight disclosures could have cost of capital implications as results from this study suggest that characteristics of the risk oversight disclosure influence investors' risk perceptions.

Second, when given flexibility, managers are more likely to engage in behaviors to influence stakeholder perceptions of themselves or their firm (Schenkler [1980], Tedeschi [1981]). One way managers can influence investors' perceptions is through their disclosure choices in communicating with investors (Dutton and Ashford [1993], Merkl-Davies and Brennan [2007]). This study examines two disclosure characteristics – the level of disclosure similarity between two firms and the level of detail between two disclosures. In terms of developing a disclosure strategy, managers may choose to “follow the herd” and adopt disclosures similar to their peers or attempt to differentiate themselves and adopt dissimilar disclosures. Because practitioner analyses of risk oversight disclosures suggest that managers adopt varying disclosure strategies, this study provides evidence as to how the adoption of similar or dissimilar disclosure strategies influence investors (Deloitte [2010, 2011], Protiviti [2010], Spencer Stuart [2012], The Conference Board [2010]).

Finally, when disclosures are dissimilar, investors are more likely to incorporate characteristics of the disclosure into their investment decisions. Disclosure characteristics that can create dissimilarities include the use of tone, diction, images, language, sentence structure, and details (Ober [1995]). This study focuses on the level of detail used to discuss specific risk

governance practices where I define a disclosure that contains a greater, rather than lesser, degree of detail as one that includes more specific and concrete language (Bell and Loftus [1985], Miller et al. [2007], Sadoski [2001], SEC [1998], Strunk and White [1935]).<sup>3</sup> Prior research suggests that more-detailed disclosures can have a greater persuasive influence on investors than less-detailed disclosures, and this study provides evidence that although two firms disclose similar risk governance practices, the level of detail used to discuss those practices can differentially influence investors beyond the underlying risk characteristics of the firm.

To examine the influence of varying levels of similar or dissimilar detail between two risk oversight disclosures, I conduct a 2 (level of disclosure similarity: similar or dissimilar) x 2 (level of detail: less or more) between-participants experiment. In the experiment, participants assume the role of an investor, read an overview and risk oversight disclosure for each of the firms, and answer questions to assess their (1) perceptions of the board's involvement in risk oversight (risk oversight), (2) perceptions of the board and management's effectiveness at managing risks (risk management), and (3) investment decisions. The key aspect of my research design is that participants evaluate two firms that have different levels of risk exposure (low or high) but the same risk governance practices. Thus, the dependent variables assess how characteristics of the low-risk firm's disclosure influence investors' perceptions and decisions *relative to* the high-risk firm's disclosure. I manipulate between participants the level of disclosure similarity such that *both* disclosures are either similar or dissimilar in detail. In addition, I manipulate the level of detail such that *each* disclosure contains either more or less detail. In other words, in the similar conditions both firms share either similarly less or similarly

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<sup>3</sup> In Section 2.1, I discuss further the types of risk governance practices that companies disclose.

more detailed disclosures. In the dissimilar conditions, the low-risk firm's disclosure contains more (less) detail and the high-risk firm's disclosure contains less (more) detail.

Prior research in psychology suggests more, rather than less, detailed disclosures have a greater persuasive influence on investors (Bell and Loftus [1985], Miller et al. [2007], Nisbett and Ross [1980]), due to the attention-getting and interesting nature of the inclusion of specific and concrete language, which generates imagery in the mind of the reader, carries more weight in judgments, and improves the adequacy and acceptability of an explanation (Nisbett and Ross [1980], Paivio et al. [1968], Shapiro et al. [1994]). I predict and find investors' perceptions of risk oversight and risk management are greater for the low-risk firm relative to the high-risk firm, except when the low-risk firm's risk oversight disclosure contains less detail than the high-risk firm's disclosure.

Further, research in psychology and behavioral finance suggests investors invest more in firms that they perceive to have lower risk because investors expect low-risk firms to produce a higher return (Alhakami and Slovic [1994], Ganzach [2000], Shefrin [2001], Nasic and Weber [2010]). Consistent with this research and the findings above, I find investors exhibit an investment preference for the low-risk firm and allocate a greater portion of their investment portfolio to the low-risk firm relative to the high-risk firm, except when the low-risk firm's risk oversight disclosure contains less detail than the high-risk firm's disclosure. In other words, investors invest more in the low-risk firm in all conditions except when the high-risk firm's disclosure contains more detail than the low-risk firm's disclosure, in which case investors invest more in the high-risk firm.

The results from this study have two implications for regulators, investors and managers

and support the concern that more detailed disclosures can provide investors a false sense of comfort regarding risk governance, under certain conditions. First, the finding that investors' risk perceptions and investment decisions are greater for the high-risk firm when its risk oversight disclosure contains more detail than the low-risk firm's disclosure runs contrary to the underlying risk characteristics of both firms (namely, that the low and high-risk firms share the same level of risk governance). My results suggest that when two firms share the same risk governance practices yet communicate those practices with varying levels of detail, that the inclusion of more detail within the disclosure can influence investors' perceptions of risk governance beyond the underlying risk characteristics of the firm. Second, my results suggest that when risk oversight disclosures communicate the same risk governance practices with a similar level of detail, then the disclosures do not offer meaningful information to investors.

This research contributes to the academic literature in several ways. This study contributes to the literature that examines investor reactions to disclosure characteristics. While most studies in accounting examine the influence of disclosure characteristics as they exist in isolation (i.e., for a single firm), this study examines the *relative* effects of disclosure; namely, when disclosures are similar or dissimilar in detail. Thus, this study speaks to how investors likely make investment decisions – by examining multiple firms' disclosures together and not in isolation. In addition, this study adds to the literature that examines specific disclosure characteristics such as optimistic and pessimistic tone (Davis et al. [2012], Davis and Tama-Sweet [2012]), vividness (Hales et al. [2011]), readability (Lawrence [2013], Li [2008], Miller [2010], Rennekamp [2012], Tan et al. [2013]), and concrete language (Elliott et al. [2014]). Specifically, this study examines the use of detail (i.e., specific and concrete language) in

disclosure narratives and finds support that more detailed disclosures have a greater persuasive influence on investors' judgments and decisions than less detailed disclosures. However, unlike prior research that examines disclosure characteristics in isolation, I find the greater persuasive influence of more detailed disclosures holds only when two disclosures are dissimilar in detail and not when two disclosures are similar in detail.

Further, this study contributes to the literature that examines risk disclosures. Prior research shows that flexibility in market risk disclosures (Hodder et al. [2001]), or in the numerical presentation of risk disclosures (Nelson and Rupaar [2011]) can adversely influence investors' risk perceptions. Further, recent research in the archival and experimental literature examines how communications about the board's role in risk oversight influence investors. This research finds that characteristics of risk oversight have a positive influence on equity risk, credit risk and returns (Ormazabal [2011]), and that the mere inclusion of the risk oversight disclosure influences investors' judgments and decisions (Suh et al. [2012]). My study extends both lines of research and shows that disclosure characteristics of risk oversight disclosures can influence investors' risk perceptions and investment decisions.

This paper proceeds as follows. Section 2 discusses the origin of the risk oversight disclosure. Section 3 presents the theory and hypotheses. I discuss the experimental task and results in Sections 4 and 5, and Section 6 concludes.

## **II. INSTITUTIONAL BACKGROUND**

### **The Board's Role in Risk Oversight Disclosure**

Since the financial crisis, there is a renewed focus on firm risk management, risk oversight, and risk communication practices (Bhimani [2009], RIMS [2009, 2011], SEC [2009],

Drexel [2010], IRM [2010]). In particular, there is increased demand for more transparency surrounding the role that the board of directors plays in overseeing a firm's risk management system (COSO [2004, 2009], IRM [2010]). In response to this demand, both the SEC and the New York Stock Exchange (NYSE) have implemented rules requiring firms to discuss their risk oversight practices (NYSE [2008], SEC [2010]). In February 2010, the SEC enacted a new proxy disclosure rule requiring firms to "describe the board's role in the oversight of risk" (SEC [2009, 2010]).<sup>4</sup> The purpose of the risk oversight disclosure is to increase the level of transparency and information investors receive about (1) the board's role in overseeing a firm's risk management system, and (2) the relationship between the board and management in managing firm risks (SEC [2010]). In the disclosure proposal, the SEC noted that, "Given the role that risk and the adequacy of risk oversight have played in the recent market crisis, we believe it is important for investors to understand the board's, or board committee's, role in this area. We believe that this (*the risk oversight*) disclosure will provide key insights into how a firm's board perceives and manages a firm's risk" (SEC [2009]).

During the proposal period, the SEC received several comment letters both in support of, and in opposition to, the proxy disclosure rule. Comments in support of the risk oversight disclosure echoed the SEC's belief that the disclosure would increase transparency, allow investors to assess the board's role in the oversight of risk management, and enable investors to allocate their investments to firms where the board focus is on firm risks (GMI [2009], RIMS

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<sup>4</sup> In addition to the risk oversight disclosure, which is part of a new disclosure requiring discussion about board leadership structure, the SEC enacted four additional rules. These include: (1) a new disclosure requiring discussion of how compensation policies and practices relate to risk management and revisions to the summary compensation table; (2) enhanced director and nominee disclosure; (3) a new disclosure regarding the use of compensation consultants; and (4) a new disclosure regarding the reporting of voting results. The purpose of the proxy disclosure rules, as a whole, is to improve disclosures around risk, governance and director qualifications, compensation and to allow shareholders the opportunity to evaluate the board and executive leadership of companies (SEC [2010]).

[2009]). Comments in opposition to the disclosure centered around concerns that the flexibility and lack of guidance within the rule may have unintended consequences as a result of implementation of the rule, such as providing investors a false sense of comfort regarding the effectiveness of risk management and oversight or failing to provide investors with meaningful information (Cleary [2009], DolmatConnell [2009], Rubin [2009], SEC [2010]).

Since the proxy rule went into effect in 2010, practitioners have analyzed the risk oversight disclosures of leading public firms to ascertain the types of risk oversight practices firms disclose and the extent to which firms disclose their risk oversight practices (Deloitte [2010, 2011], Protiviti [2010], Spencer Stuart [2012], The Conference Board [2010]). These analyses reveal that firms generally disclose any of 13 common risk oversight practices (Appendix 1). For example, some firms designate the Audit Committee as the committee primarily responsible for risk oversight, while other companies assign responsibility to the full board. In addition, some firms have a Chief Risk Officer, while other firms have a separate board Risk Committee. Of these 13 risk oversight practices, approximately 50% of firms disclose they have adopted one or more of the following five practices: (1) the full board is responsible for risk oversight; (2) the compensation committee is responsible for risk oversight in compensation plans; (3) risk management and oversight align with the firm's strategic objectives; (4) the firm takes an enterprise approach to risk; and (5) management is involved with risk management (Deloitte [2010, 2011], Spencer Stuart [2012], The Conference Board [2010]). In addition, other organizations examined the risk oversight disclosures and identified significant variation in

length and detail with additional detail stemming from the inclusion of specific details discussing a firm's risk oversight practices (Akin Gump [2010], NACD [2010]).<sup>5</sup>

Variation within the risk oversight disclosure is not surprising given the flexibility allowed by the SEC and the competing incentives for including detail within the disclosure. On the one hand, consulting companies and board committees encourage managers to include more detail within disclosures to appear more transparent to stakeholders (Deloitte [2011], NACD [2010], RiskMetrics [2010]). In addition, as no externally verifiable mechanisms exist to assure stakeholders that a certain level of risk oversight exists, managers likely offer additional detail as a way to provide reassurance to investors that risk oversight occurs. On the other hand, managers may choose not to provide detail in order to protect the firm from potential litigation in the event of a risk management failure (King and Spalding [2009], NACD [2010]).

### **Risk Governance: Risk Oversight and Risk Management**

Although the proxy disclosure rule requires companies to disclose the *board's* role in risk oversight, many companies also use the disclosure to describe *management's* role in risk management. There is an important distinction between the concepts of risk management and risk oversight. The purpose of an effective risk management system is to identify, evaluate, and manage internal and external risk factors with the objective of maximizing firm value (COSO [2004], IRM [2010]). A key component to any risk management system is oversight by the board of directors (COSO [2004], IRM [2010]). COSO's *Enterprise Risk Management – Integrated*

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<sup>5</sup> I conducted an interpretive analysis of 121 risk oversight disclosures from 2012 using a process similar to Beck et al. [2010]. The purpose of the analysis was to verify prior practitioner analyses across a broader sample of public firms and to rule out the possibility that any variation in disclosures was a result of characteristics such as firm size or auditor type. My analysis confirms prior findings that identify the types of risk oversight practices that firms disclose and that indicate variation exists in both the types of risk oversight practices that firms disclose and the level of detail in discussing risk oversight practices.

*Framework* notes that through the risk oversight process the board should understand the firm's risk philosophy and agree with the firm's risk appetite, know the extent to which management has established effective risk management of the firm, review the firm's portfolio of risk and consider it against the firm's risk appetite, and be apprised of the most significant risks and management's response to those risks (COSO [2004]).<sup>6</sup> Therefore, *risk management* is the process by which management identifies, evaluates and manages risks on a day-to-day basis, and *risk oversight* is the process by which board members satisfy themselves that management has implemented a risk management system and is a key competency of the board (COSO [2004, 2009], NACD [2010], SEC [2010]). In this paper, I define risk governance to include both the concepts of risk management and risk oversight.

Prior research in accounting and finance provides evidence that risk governance practices add value to investors through increased external financing and investment opportunities (Froot et al. [1993], Geczy et al. [1997]), the use of hedging (Allayannis and Weston [2001], Carter et al. [2004], Mackay and Moeller [2007]), and the use of derivatives (Guay [1999]). More recently, research in accounting shows that characteristics of risk oversight are negatively related to risk and positively related to shareholder value (Ormazabal [2011]). Ormazabal [2011] constructs a risk oversight index to examine the influence of risk oversight during the period of 2000 to 2006. He provides evidence that observable risk oversight characteristics are negatively associated with both equity (idiosyncratic volatility and systematic risk) and credit risk (loan spreads) and positively associated with credit ratings. In addition, companies with greater risk

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<sup>6</sup> Risk appetite is the amount of risk an organization is willing to accept in pursuit of maximizing firm value (COSO [2004], ISO Guide 73 [2009], ISO31000 [2009]).

oversight before 2007 experienced higher returns and were less susceptible to stock market fluctuations during the 2007-2008 financial crisis than companies with less risk oversight before 2007 (Ormazabal [2011]).<sup>7</sup>

In the next section, I discuss and present my hypotheses relating to investors' perceptions of risk oversight and risk management. Then, I discuss and present my hypothesis for investors' investment decision.

### **III. THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT**

#### **The Influence of Detail**

Narratives that include a greater degree of detail use more specific and concrete language, are more precise, and leave less room for interpretation; whereas, less detailed narratives use more non-specific and vague language, are less precise, require more inference, and leave more room for interpretation (Bell and Loftus [1985], Miller et al. [2007], Sadoski [2001]). Research in persuasion finds more detailed narratives are more persuasive than less detailed narratives due to the “vividness effect,” where vivid narratives are those that are “(a) emotionally interesting, (b) concrete and imagery-provoking, and (c) proximate in a sensory, temporal or spatial way (Nisbett and Ross [1980], p. 45). The vividness effect has been studied in the fields of psychology, communications, education, and marketing where researchers implement multiple strategies for manipulating vividness, including the use of detailed language, graphic presentations, or guided imagery (Kisielius and Sternthal [1986], MacInnis and Price [1987]).

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<sup>7</sup> Ormazabal [2011] constructs a risk oversight index using publicly observable information of risk oversight characteristics: existence of a board risk committee; implementation of an Enterprise Risk Management (ERM); existence of a Chief Risk Officer (CRO) or similar position; policy and standards related risk management; and other organizational structures associated with risk oversight. Importantly, Ormazabal's risk oversight index was constructed prior to the proxy disclosure rule and few, if any, of these characteristics reflect the *board's* role in risk oversight. However, Ormazabal's risk oversight construct does speak to the presence of “risk oversight” type characteristics.

More specifically, prior research has examined the persuasive and vivid effects of detail (i.e., specific and concrete language) in settings such as courtroom testimony, promotional messages, and educational contexts. For example, Bell and Loftus [1985] used the following two statements to study the influence of detail in eyewitness testimony on juror perceptions:

(Less detail) He requested a few store items.

(High detail) The culprit requested a six-pack of Diet Pepsi, Kleenex, and Tylenol.

In another example, Miller et al. [2007] used the following excerpts to study the influence of detail in promotional health messages on adult perceptions and behaviors:

(Less detail) You won't burn many calories by sitting in one place, so it makes sense to stay active as much as possible to help manage a more healthy weight. You may want to exercise more vigorously too, especially if you need to lose weight.

(More detail) Sitting only allows you to burn 90 calories an hour. Because you can burn up to 440 calories an hour by exercising, you may want to consider more physical activity as a way of managing a more healthy weight – or simply as a way of losing weight.

This line of research shows the vivid effects of detail in narratives can influence judgments through (1) attention and memory, (2) affect, and (3) inferences on credibility. Due to its attention-getting and interesting nature, vivid information carries more weight in judgments because of greater recruitment of memory, which is more likely to be recalled (Berg and Paivio [1969], Nisbett and Ross [1980], Paivio et al. [1968]). In addition, vivid information can stimulate the generation of imagery, which can elicit more emotional responses (Paivio and Csapo [1973], Paivio et al. [1968], Richardson [1980]), and make an event seem more likely (MacInnis and Price [1987]). Finally, vivid information can increase the perceived importance of

a message (Miller et al. [2007]), improve the adequacy and acceptability of an explanation (Shapiro et al. [1994]), and increase the perceived credibility of the message source (Bell and Loftus [1985], Miller et al. [2007]).

In relation to firm disclosures, examining the influence of detail is important because the SEC encourages firms to use more specific and concrete language to enhance the clarity of their disclosures (SEC [1998]). In its *Plain English Handbook*, the SEC uses the following quote to emphasize the ability of specific and concrete language to generate imagery, “Language that is more concrete and specific creates pictures in the mind of [your] listener...” (Lutz [1996], SEC [1998]), and provides the following example of how a firm can use specific and concrete language to make a disclosure more detailed:

(Less detail) Sandyhill Basic Value Fund, Inc. (the “Fund”) seeks capital appreciation and, secondarily, income by investing in securities, primarily equities, that management of the Fund believes are undervalued and therefore represent basic investment value.

(More detail) At the Sandyhill Basic Value Fund, we will strive to increase the value of your shares (capital appreciation) and, to a lesser extent, to provide income (dividends). We will invest primarily in undervalued stocks, meaning those selling for low prices given the financial strength of the companies.

Taken all together, this suggests that risk oversight disclosures that contain a greater degree of detail can influence investors’ perceptions and judgments more than disclosures that contain a lesser degree of detail because the inclusion of specific and concrete language makes it easier for investors to imagine how a firm’s board of directors oversees a firm’s risk management system and interacts with management in managing firm risks.

## **Perceptions of Risk Oversight and Risk Management**

My first set of hypotheses examines the influence of varying levels of similar or dissimilar detail on investors' perceptions of risk oversight and risk management. I predict that investors' perceptions of risk oversight and risk management are greater for the low-risk firm relative to the high-risk firm, except when the low-risk firm's risk oversight disclosure contains less detail than the high-risk firm's disclosure. When making investment decisions, investors evaluate the riskiness of an investment by considering both the firm's risk exposure and the risk governance practices of the firm. For an investor evaluating two firms with different levels of risk exposure, the risk oversight disclosure serves as a way to gain insight into the board's role in overseeing firm risks.

If we first consider the conditions where two firms' risk oversight disclosures are similar in detail and, therefore, communicate both the same risk governance practices and use the same level of detail to discuss those practices, then similarity can lead to four potential outcomes. Further, I argue that these outcomes hold whether the disclosures are similarly more or less detailed. First, when both firms' risk oversight disclosures are similar, then investors may discount the disclosure and focus on the firms' risk exposure. In this case, the firms' risk exposure becomes the most salient feature and investors' infer the low-risk firm has a greater level of risk oversight and risk management than the high-risk firm, due to its lower level of risk exposure. Second, the similarity in disclosures may lead investors to infer that both firms are equally effective at risk oversight and risk management. Third, the similarity in disclosures may lead investors to infer the high-risk firm does not have sufficient risk oversight and risk management, in which case investors' infer the low-risk firm has greater risk oversight and risk

management. Alternatively, the similarity in disclosures may lead investors to infer that the low-risk firm is obfuscating its true level of risk exposure since it engages in the same risk governance practices as the high-risk firm. Although this last consideration is a possibility outside of an experimental setting, investors that infer the low-risk firm is worse at risk oversight and risk management than the high-risk firm, violate the underlying risk characteristics of the two firms. Hence, under the conditions where both the low and high-risk firms' risk oversight disclosures share similar detail, I predict investors to perceive the risk oversight and risk management of the low-risk firm to be greater than or equal to that of the high-risk firm.

If we next consider the conditions where two firms' risk oversight disclosures are dissimilar in detail, then I expect investors' perceptions to favor the firm with the more detailed disclosure, irrespective of the firm's risk exposure. In the dissimilar conditions, both firms communicate the same risk governance practices but use varying levels of detail to discuss those practices. Drawing from the prior discussion on the influence of detail, I argue that the disclosure that contains more detail has a greater persuasive influence on investors than the disclosure with less detail. Specifically, when the risk oversight disclosure of a high (low)-risk firm contains more detail than the disclosure of a low (high)-risk firm, I expect investors to perceive the high (low)-risk firm as having greater risk oversight and risk management than the low (high)-risk firm. This suggests risk oversight disclosures that contain more detail can influence investors' perceptions beyond the underlying risk characteristics of both firms. Hence, under the conditions where the low and high-risk firms' risk oversight disclosures are dissimilar in detail, I predict investors to perceive the risk oversight and risk management of the low (high)-risk firm to be greater than that of the high (low)-risk firm, when the low (high)-risk firm's disclosure contains

more detail than the high (low)-risk firm's disclosure.

Taken together, I expect investors' perceptions of risk oversight and risk management to be greater for the low-risk firm relative to the high-risk firm when both firms' disclosures are similar in detail and when the low-risk firm's disclosure contains more detail than the high-risk firm's disclosure. However, I expect investors' perceptions of risk oversight and risk management to be greater for the high-risk firm relative to the low-risk firm when the high-risk firm's disclosure contains more detail than the low-risk firm's disclosure. My first hypotheses are:

H1a: Perceptions of risk oversight are greater for the low-risk firm relative to the high-risk firm, except when the low-risk firm's risk oversight disclosure contains less detail than the high-risk firm's disclosure.

H1b: Perceptions of risk management are greater for the low-risk firm relative to the high-risk firm, except when the low-risk firm's risk oversight disclosure contains less detail than the high-risk firm's disclosure.

### **Investment Decision**

Hypothesis 2 examines the influence of varying levels of similar or dissimilar detail on investors' investment decisions. Although traditional asset pricing theory posits a positive risk-return relation when using objective measures of risk (e.g., standard deviation of returns, beta, etc.) (Markowitz [1952], Sharpe [1964]), research in accounting, behavioral finance, and psychology suggests that subjective risk perceptions (i.e., perceived risk) are a better predictor of risk-taking behavior in an investment decision and lead to a negative risk-return relation (Alhakami and Slovic [1994], Shefrin [1999, 2001], Ganzach [2000], Koonce et al. [2005], and

Nosic and Weber [2010]).<sup>8</sup> In other words, in a negative risk-return relation, investors expect riskier stocks to produce lower returns and less risky stocks to produce higher returns, in contrast to traditional asset pricing theory (Shefrin [2001]). Shefrin [2001] states, “while in principle, investors accept that the relationship between risk and return is positive, in practice, they form judgments in which the relationship is negative.” In terms of investment decisions, the negative risk-return relation suggests investors invest less in stocks they perceive as riskier (due to the expected lower return), and invest more in stocks they perceive as less risky (due to the expected higher return).

In relation to this study, this evidence suggests that investors invest more in the firm they perceive to have better risk oversight and risk management (hence, less risk) and less in the firm they perceive to have worse risk oversight and risk management (hence, more risk). Following from the risk oversight and risk management predictions, I expect investors to allocate a greater portion of their investment portfolio towards the low-risk firm, except when the low-risk firm’s risk oversight disclosure contains less detail than the high-risk firm’s disclosure. This suggests that when the two firm’s disclosures are similar in detail and when the low-risk firm’s disclosure contains more detail than the high-risk firm’s disclosure, investors allocate a greater portion of their investment portfolio to the low-risk firm. However, when the two disclosures are dissimilar in detail and the high-risk firm’s disclosure contains more detail than the low-risk firm’s disclosure, investors allocate a greater portion of their investment portfolio to the high-risk firm, contrary to the underlying risk characteristics of both firms. My second hypothesis is:

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<sup>8</sup> Risk-taking behavior in an investment decision is a function of perceived return, risk attitude and risk perception (Nosic and Weber [2010]).

H2: Investors' investment allocations are greater for the low-risk firm relative to the high-risk firm, except when the low-risk firm's risk oversight disclosure contains less detail than the high-risk firm's disclosure.

#### **IV. METHOD**

I conduct a 2 (level of disclosure similarity) x 2 (level of detail) between-participants experiment to examine how varying levels of similar or dissimilar detail between two risk oversight disclosures influences investors' risk perceptions and investment decisions. I manipulate between participants the level of disclosure similarity such that *both* disclosures are either similar or dissimilar in detail. In addition, I manipulate the level of detail such that *each* disclosure contains either less or more detail. The following subsections detail the participants, experimental procedures and manipulations, and dependent variables.

##### **Participants**

This paper examines the judgments and decisions of non-professional investors as individual investors represent a significant portion of the market, with approximately 45% of U.S. households owning shares of publicly traded stock (Investment Company Institute [2008]). Furthermore, examining how disclosure characteristics influence non-professional investors is important as the SEC intends the least sophisticated investors to be able to read and understand disclosures (SEC [1998]).

I recruit non-professional investors using the participant pool available for purchase through Qualtrics. Similar to other studies that use non-MBA students as proxies to examine individual investor behavior, I require all participants to have at least a Bachelor's degree and some prior investment experience in stocks, mutual funds, or retirement plans (Cohen et al.

[2012]). To be eligible to participate in the experiment, participants answer two screening questions to indicate their highest level of education and their prior level of investment experience. I screen out participants who indicate they do not have at least a Bachelor's degree or any prior investment experience. Consistent with prior research in accounting, finance and psychology that examines individuals' risk perceptions and investment decisions, I collect additional background information including participants' gender, age, work experience, education, number of accounting and finance classes taken, investment experience, and risk attitude (Barber and Odean [2001], Eckel et al. [2008], Elliott et al. [2008]). I elicit participants' risk attitudes using the following questions adopted from Hoffmann et al. [2011]: "I prefer certainty over uncertainty when investing," "I avoid risks when investing," "I like to 'play it safe' when investing," and "I like to take financial risks." Investors rate their level of agreement to each question using a 7-point Likert-type scale where "1 = Totally Agree" and "7 = Totally Disagree." For each question, a score of one indicates a high level of risk aversion and a score of seven indicates a low level of risk aversion, except for the last question which I reverse score. I sum participants' responses to the four questions to determine a total risk attitude score. I use Hoffman et al.'s [2011] measure of risk aversion instead of a "lottery" or self-reported measure of risk aversion as these measures do not correlate with participants' level of risk aversion in a financial context (Weber et al. [2002]).

128 non-professional investors pass the pre-screening and complete the experiment. 75 (59%) participants are male and 53 (41%) are female. The average participant is 44.5 years old, has 23 years work experience, has some graduate education, and has taken approximately 4.5 accounting and finance courses. Participants, on average, have made 15 investments and 125

participants (97.7%) indicate they have at least \$1,000 of their own money invested in individual stocks or mutual funds. Participants receive \$15 for their participation and take, on average, 10 minutes to complete the experiment. An analysis of variance (ANOVA) reveals no significant differences across experimental conditions in participants' background information or time spent completing the experiment.

### **Experimental Procedures and Manipulations**

All participants complete the experiment on-line using Qualtrics survey software, which allows me to counterbalance the order in which participants view the information for each firm and prevents participants from changing their responses throughout the duration of the study. All materials for this study are adapted from actual publicly traded paper product firms using their Forms 10-K (Annual Report) and DEF 14A (Proxy Statement). A risk management professional reviewed the materials for accuracy.

In step 1 of the experiment, participants access the survey website and electronically sign the consent form. I instruct participants to assume the role of an investor and inform them that they have \$5,000 to invest in one or two firms in the paper products industry, Aspen Paper and Larch International. I inform participants that they will read an overview and risk oversight disclosure for each firm, answer questions about the firms, and make an investment decision.

In step 2, all participants read a brief overview for each firm. A key aspect of my research design is that the two firms differ in their level of risk exposure such that Aspen Paper represents the low-risk firm, Firm A, and Larch International represents the high-risk firm, Firm B. By using two firms with different levels of risk exposure, I can assess how varying levels of similar or dissimilar detail influences participants' risk perceptions and investment decisions of the low-

risk firm *relative* to the high-risk firm. The Institute of Risk Management (IRM) defines a firm's level of risk exposure as the total level of risk associated with both internal and external risk factors (IRM [2010]). IRM classifies internal and external risk factors into four broad categories: financial, infrastructure, marketplace, and reputational risks. Examples of internal financial risk include internal control risk, risk of fraud, investment risk, and liquidity risk. Examples of external financial risk include differing and changing accounting standards, interest rate risk, and foreign exchange risk (IRM [2010]). To vary the level of risk exposure between Aspen Paper and Larch International, I vary characteristics of each firm's business structure such as place of operation (domestic or global) and customer base (smaller, established or larger, less established). By the nature of its business structure, Larch International is subject to more internal and external risks (e.g., financial, infrastructure, regulatory, political, geographical, and market risks) than Aspen Paper. Appendix 2, Panel A and B present the firm overviews. After reading each overview, participants respond to a comprehension check that asks them to assess which firm has a greater level of risk exposure.

In Step 3, participants learn that both firms recently released disclosures concerning their boards' role in risk oversight and read each disclosure. I randomly assign participants to one of four conditions in which the two disclosures share either similar detail (i.e., less/less or more/more) or dissimilar detail (i.e., more/less or less/more). In all conditions, I hold constant the risk governance practices and only vary the level of detail with which the firm discusses their particular risk oversight practices. Relying on practitioner analyses of the risk oversight disclosure, each firms' disclosure includes these five common risk oversight practices: (1) the full board is responsible for risk oversight; (2) the Compensation Committee is responsible for

risk oversight in compensation plans; (3) risk management and oversight align with the firm's strategic objectives; (4) the firm takes an enterprise approach to risk oversight; and (5) management is involved with risk management (The Conference Board [2010], Deloitte [2010, 2011], Spencer Stuart [2012]). I manipulate the level of detail such that a disclosure contains either more or less detail. Consistent with prior research that examines the influence of detail in narratives, I make the less detailed disclosure more detailed by adding specific and concrete language such as defining terms and duties, specifying the frequency of events, and identifying specific positions (Bell and Loftus [1985], Miller et al. [2007], Sadoski [2001]). Figure 1 presents the detail manipulations.<sup>9</sup>

In Step 4, participants respond to questions that measure (1) their perceptions of the board's involvement in risk oversight (risk oversight), (2) their perceptions of the board and senior management's effectiveness at managing risks (risk management), and (3) their investment decision. As the general focus of this paper is on the board's role in risk oversight, I measure two dependent variables to ascertain investors' perceptions of risk oversight. My first

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<sup>9</sup> The possibility exists that disclosures with more, rather than less, detail convey, or can be perceived as conveying, different information. To rule out this possibility, I conduct a pre-test of the detail manipulation using 44 senior undergraduate students as participants. I randomly assign participants to one of two detail conditions (less or more) in which participants read *one* risk oversight disclosure and identify which of 13 risk oversight practices the disclosure discusses (Appendix 1). As each disclosure contains the same five risk oversight practices, I expect participants to identify the same five risk oversight practices. I score each risk oversight practice that participants correctly identify a "1" and "0" otherwise. Then, I sum each participant's scores to get a total disclosure score, where the minimum (maximum) score is a zero (13). Participants in the less (more) detailed condition identify, on average, 5.38 (s.d. = 1.86) (5.00 (s.d. = 1.04)) risk oversight practices. An independent samples *t*-test indicates no significant difference between detail conditions ( $t = 0.848$ ,  $p = 0.410$ , two-tailed). Further, participants in both conditions identify the correct risk oversight practices. In addition, participants indicate the extent to which the disclosure persuades them to believe that the board and management are effectively managing risks. Participants respond using a 7-point Likert-type scale where "1 = Not at all persuaded" and "7 = Very much persuaded." An independent samples *t*-test indicates participants are no more likely to be persuaded by the more detailed disclosure (4.52) than the less detailed disclosure (4.86) ( $p = 0.34$ ). Together, results from the pre-test provide some evidence that participants do not perceive the more detailed disclosure to convey different information than the less detailed disclosure.

dependent variable (risk oversight) examines how detail influences investors' perceptions of the board's involvement in risk oversight. To assess participants' perceptions of the board's involvement in risk oversight, participants respond to the following question for each firm, "To what extent is the Board of Directors involved in the oversight of Aspen Paper's [Larch International's] risk management system?" Participants respond using a 9 point Likert-type scale with endpoints, "1 = Very Uninvolved" and "9 = Very Involved."

My second dependent variable (risk management) considers the entire risk management system because a firm's ability to manage risks relies on both management's day-to-day management of risks and the boards' oversight of risk management. Thus, risk management assesses how detail influences investors' perceptions of the board and management's effectiveness at managing risks. Because the primary focus of this study is about the board's role in risk oversight, I hold constant management's involvement in risk management; therefore, any differences in investors' perceptions of risk management can be attributed to communication about the board's role in risk oversight. To assess participants' perceptions of the effectiveness of the board and management at managing risks, participants respond to the following question for each firm, "How effective is the Board of Directors and senior management of Aspen Paper [Larch International] at managing risks?" Participants respond using a 9 point Likert-type scale with endpoints, "1 = Very Ineffective" and "9 = Very Effective."

My third dependent variable measures participants' investment decision via an investment task adopted from Hodge et al. [2004], Elliott [2006], and Nasic and Weber [2010]. I instruct participants to assume they have \$5,000 to invest, as they choose, between Aspen Paper and Larch International. Participants indicate their level of investment in each firm using a slider

scale with endpoints, “\$0” and “\$5,000.” Participants must allocate the entire \$5,000 to one or both companies.

Finally, participants respond to a manipulation check question to assess which risk oversight disclosure contains more detail and answer demographic questions. Figure 2 presents the flow of the experiment.

## V. RESULTS

### **Comprehension and Manipulation Checks**

One comprehension check question appears in the study to ensure participants’ perceive the two firms as having different levels of risk exposure. After reading the firm overviews for both the low (Aspen Paper) and high-risk (Larch International) firms, participants indicate which firm has a greater level of risk exposure. Participants respond using a 7-point Likert-type bipolar scale, with endpoints “1 = Aspen Paper has much greater risk exposure” and “7 = Larch International has much greater risk exposure.” One-sample *t*-tests show that the rating across all conditions (4.50) is significantly greater than 4 ( $p < 0.000$ , one-tailed) and a one-way ANOVA reveals no significant differences in participants’ ratings of risk exposure across experimental conditions, suggesting participants correctly perceive Larch International to have a greater level of risk exposure than Aspen Paper.

One manipulation check question appears in the study to assess participants’ perceptions of similar or dissimilar detail. In the post-experimental questionnaire, participants indicate which firm’s disclosure contains more detail. Participants respond using a 7-point Likert-type bipolar scale, with endpoints “1 = Aspen Paper’s risk oversight disclosure was much more detailed” and “7 = Larch International’s risk oversight disclosure was much more detailed.” One-sample *t*-tests

show that in the similar conditions participants did not rate the disclosures (3.90) as significantly different than 4 ( $p = 0.605$ , two-tailed), suggesting participants correctly perceive that both disclosures share a similar level of detail. In the condition where Aspen Paper's disclosure contains more detail, one-sample  $t$ -tests indicate participants' rating of detail (3.26) was significantly less than 4 ( $p < 0.003$ , one-tailed), and in the condition where Larch International's disclosure contains more detail, participants' rating of the detail (4.56) was significantly greater than 4 ( $p < 0.007$ , one-tailed), suggesting participants correctly perceive that the low-risk firm's disclosure contains more (less) detail than the high-risk firm's disclosure.

Since no participant answered both the comprehension check and the manipulation check incorrectly, I use all 128 responses in subsequent analyses.

### **Hypotheses Testing – Risk Oversight, Risk Management and Investment Decision**

H1 and H2 predict that investors' risk perceptions and investment decisions are greater for the low-risk firm relative to the high-risk firm, except when the low-risk firm's risk oversight disclosure contains less detail than the high-risk firm's disclosure. Since the dependent variables measure participants' judgments of both the low (Aspen Paper) and high-risk (Larch International) firms, I take the difference between the two measures to capture participants' relative judgments. Thus, positive (negative) values reflect a judgment favorable to the low (high)-risk firm. Table 1, Panel A (risk oversight), Panel B (risk management), and Panel C (investment decision) present descriptive statistics (means and standard deviations).

Table 2 reports a multivariate analysis of variance (MANOVA) that includes the two independent variables: the level of disclosure similarity (Similar) and the level of detail (Detail), and three dependent variables: Risk Oversight, Risk Management, and Investment Decisions.

Since H1 and H2 predict that investors' risk perceptions and investment decisions are greater for the low-risk firm relative to the high-risk firm except when the low-risk firm's risk oversight disclosure contains less detail, my primary interest is the interaction between Similar and Detail. I code the Similar variable such that 1 (0) represents the condition where the two disclosures are dissimilar (similar) in detail. I code the Detail variable such that 1 (0) represents the condition where the low-risk firm's disclosure contains less (more) detail. Hence, the interaction term represents the condition where the two disclosures are dissimilar in detail and low-risk firm's disclosure contains less detail than the high-risk firm's disclosure. Results from the MANOVA indicate the interaction between similar and detail, for all three dependent variables, is significant ( $p < 0.025$ ).<sup>10</sup>

I follow up the MANOVA with discriminant analysis, which reveals three discriminant functions. The first explains 91.5% of the variance (canonical  $R^2 = 0.216$ ) whereas the second and third discriminate functions explain only 6.1% and 2.4% of the variance. In combination, these discriminate functions significantly differentiate the four conditions ( $\Lambda = 0.76$ ,  $\chi^2(9) = 33.17$ ,  $p < 0.000$ ), but removing the first function indicates that the second two functions are not significant ( $\Lambda = 0.99$ ,  $\chi^2(1) = 0.89$ ,  $p = 0.344$ ). The discriminant function plot shows that the first function discriminates the condition where the low-risk firm's risk oversight disclosure contains less detail than the high-risk firm's disclosure from the other three conditions. Thus, offering further support that participants' risk perceptions and investment decisions are greater for the

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<sup>10</sup> Each cell of the risk oversight and risk management variables and two of the four cells of the investment decision variable violate the normality assumption, but my sample size ( $n > 20$ ) suggests that parametric tests are robust to deviations from normality (Mardia [1971]). Furthermore, Box's M test fails to reject the assumption of homogeneity of variance for the risk oversight and risk management variables. However, inferences are the same when I conduct nonparametric tests or Welch's ANOVA. Therefore, for ease of presentation, my analyses present parametric tests.

low-risk firm relative to the high-risk firm, except when the low-risk firm's risk disclosure contains less detail.

Results from the MANOVA and subsequent discriminant analysis find support for H1a, H1b and H2. Specifically, results provide evidence that more detailed disclosures can have a greater persuasive influence on investors' risk perceptions and investment decisions beyond the underlying risk characteristics of the firm.

### **Indirect effects on Investment Decision**

Hypothesis H2 examines the direct effect of varying levels of similar or dissimilar detail on investors' investment decisions. Prior research indicates disclosure characteristics influence investors' investment decisions through their risk perceptions (Nosic and Weber [2010], Ryan and Buchholtz [2001]). In supplemental analysis, I test whether perceptions of risk oversight and risk management mediate the effect of the level of disclosure similarity on investment decisions, and if the level of detail moderates this mediating effect. I use the bootstrapped macro developed by Hayes [2013] that uses a path analytic framework to test for both direct and indirect effects. PROCESS is ideal for analyzing the current data because it allows for the simultaneous examination of multiple moderators and mediators. In addition, PROCESS uses a bootstrapping approach to estimate intervening variable effects, which research shows is a more valid and powerful approach than the Baron and Kenny [1986] causal steps approach or the Sobel test (Sobel [1982, 1986]) (Hayes [2009], MacKinnon et al. [2004], Williams and MacKinnon [2008]). The current analysis uses PROCESS Model 8, a mediated moderation model, 10,000 bootstrap samples and a 95% confidence interval (CI). In the model, investment decision is the outcome variable, the level of disclosure similarity (Similar) is the independent variable, the

level of detail (Detail) is the moderator variable, and risk oversight and risk management are mediators.

First, I examine the *indirect* effects of the interaction between Similar and Detail on investment decisions. The indirect effect of highest order interaction is significant through both perceptions of risk oversight (effect = -345.53, 95% CI: -752.77, -106.09) and risk management (effect = -200.23, 95% CI: -564.29, -18.46), since the zero falls outside the 95% confidence interval. These results present evidence of a mediated moderation model (Figure 3). In other words, results support the notion that investors' investment decisions are mediated by their risk perceptions.

Next, I examine the conditional indirect effects for different levels of the moderator (Detail). The indirect effects of the interaction (Similar and Detail) on investment decisions is significant through risk oversight when disclosures are more (effect = 132.80, 95% CI: 12.68, 381.54) or less (effect = -212.72, 95% CI: -501.77, -64.85) detailed. This implies that when the low-risk firm's disclosure contains more (less) detail than the high-risk firm's disclosure that investors' perceptions of risk oversight have a positive (negative) effect on investors' investment decisions. The indirect effects of the interaction (Similar and Detail) on investment decisions is significant through risk management for less detail (effect = -134.98, 95% CI: -356.04, -14.89) but insignificant for more detail (effect = 65.25, 95% CI: -33.42, 295.65). This implies that when the low-risk firm's disclosure contains less (more) detail than the high-risk firm's disclosure that investors' perceptions of risk management have a negative (no) effect on investors' investment decisions. These results provide further evidence of the greater persuasive influence of more

detailed disclosures as more detailed disclosures positively influence investors' perceptions of the firm whose disclosure actually contains more detail.

Finally, I examine the *direct* effect of Similar and Detail on investment decisions. The direct effect is significant ( $B = -1405.00$ ,  $p = 0.009$ ) suggesting that risk oversight and risk management only partially mediate the effect of disclosure characteristics on investment decisions. Although the significant indirect effects suggest that risk perceptions mediate the relation between disclosure characteristics and investment decisions, the significant direct effects suggest that omitted mediators are likely (Zhao et al. [2010]).

## VI. CONCLUSION

In this study, I examine how varying levels of similar or dissimilar detail within the risk oversight disclosure influences investors' risk perceptions and investment decisions. Holding the level of risk governance practices constant between two firms with different levels of risk exposure, I find that investors' perceptions of risk oversight and risk management, and their investment allocations are greater for the low-risk firm relative to the high-risk firm except when the low-risk firm's disclosure contains less detail than the high-risk firm's disclosure. Results suggest that although both firms have the same risk governance practices, when the high-risk firm's disclosure contains more detail than the low-risk firm's disclosure, the inclusion of detail leads investors to have favorable risk perceptions of the high-risk firm and invest more in the high-risk firm, contrary to the underlying risk characteristics of both firms.

This study contributes to both academia and practice. This study extends prior research that examines disclosure characteristics and risk communications. I provide evidence that two disclosure characteristics – the level of disclosure similarity between two firms and the level of

detail between two disclosures – influence investors’ risk perceptions and investment decisions. Current research shows that the mere inclusion of the risk oversight disclosure influences investors’ willingness to invest (Suh et al. [2012]) and that characteristics of risk oversight can positively influence firm value (Ormazabal [2011]). I extend this literature by showing that the inclusion of more detail within the risk oversight disclosure can influence investors’ risk perceptions and investment decisions. Specifically, I find that investors’ risk perceptions and investment decisions are greater for a low-risk firm relative to a high-risk firm, except when the low-risk firm’s risk oversight disclosure contains less detail than the high-risk firm’s disclosure. Although I find evidence that more detailed disclosures have a greater persuasive influence on investors, I find this result holds only when two disclosures are dissimilar in detail. In other words, I find two disclosures that are similarly more detailed are no more persuasive than two disclosures that are similarly less detailed. Together, results from this study provide evidence that more detailed disclosures can have a greater persuasive influence on investors but that this influence can adversely influence investors’ perceptions and decisions under some conditions. Further, while the SEC’s intention of the risk oversight disclosure is to increase the transparency and information investors receive about the board’s role in risk oversight (SEC [2009, 2010]), results from this study provide evidence that more detailed disclosures can provide investors a false sense of comfort regarding risk governance, under certain conditions.

As with all research, this study is subject to limitations and provides opportunities for future research. To isolate the effect of detail within the risk oversight disclosure and reduce potential confounds in risk perceptions, I vary the level of risk exposure through characteristics of each firm’s business structure and only provide participants the risk oversight disclosure.

Because risk perceptions are context specific (Fischhoff et al. [1998], Weber et al. [2002]), results may differ to the extent that other risk communications (e.g., market risk disclosures in the 10-K, compensation risk disclosures in the proxy statement, or risk communications via a company's website) interact with the risk oversight disclosure to influence investors' judgments and decisions. Future research can examine the influence of multiple sources of risk communications. In addition, while I provide evidence that detail influences investors' investment decisions through their perceptions of risk oversight and risk management, I find investors' risk perceptions only partially mediate their investment decisions. Thus, it may be useful to identify other mechanisms through which detail influences investors. For example, research on the vivid effects of narratives suggests detail can influence judgments through affect and inferences on credibility (Bell and Loftus [1985]) and prior research indicates that affect can influence risk perceptions and behavior (Finucane et al. [2000], Loewenstein et al. [2001], Slovic et al. [2004]). Future research can examine the role of affect and credibility in mediating the relation between detail in risk oversight disclosures and investors' risk perceptions and investment decisions.

## APPENDIX 1 Risk Oversight Practices

The following list identifies the types of risk oversight practices that firms disclose in their risk oversight disclosure (The Conference Board [2010], Deloitte [2010, 2011]).

1. The full board is responsible for risk.\*
2. The Audit Committee is the *primary* committee responsible for risk oversight.
3. The Compensation Committee is responsible for overseeing risk in the compensation plans.\*
4. Other board committees (other than Audit and Compensation) are involved in risk oversight.
5. The firm has a separate board risk committee.
6. Risk management and oversight align with the firm's strategy.\*
7. The board is involved with determining the firm's risk appetite.
8. The Chief Executive Officer (CEO) is responsible for or involved in risk management.
9. The firm has a Chief Risk Officer (CRO).
10. Management is involved with risk management.\*
11. The firm has a risk management committee at the management level.
12. The firm discusses "enterprise" risk (i.e., a process by which management identifies, monitors, and manages risk) and/or has a formal enterprise risk management (ERM) program.\*
13. The firm discusses reputational risk.

\*I include these risk oversight practices in each firm's risk oversight disclosure in my experiment.

## **APPENDIX 2**

### **Risk Exposure**

#### **Panel A – Low-Risk Exposure (Firm A)**

##### **Aspen Paper Overview**

Aspen Paper is a regional manufacturer of paper products. We produce bulk tissue paper, known as parent rolls, and convert parent rolls into finished products, including paper towels, bathroom tissue and paper napkins. We sell any remaining parent rolls to other converters.

We have an established and proven core customer base that consists of dollar stores and other discount retailers located throughout the United States. We focus on the dollar stores and discount retailers because of their overall market growth, consistent order patterns, and high inventory turnover. We own our manufacturing plant and convert sourced fiber into parent rolls. Our paper making capacity generally exceeds the requirements of our converted product business allowing us to sell the resulting surplus parent rolls on the open market.

Our profitability is subject to several key factors, including: the cost of fiber used in producing paper; the market price of our product; the efficiency of operations in our manufacturing facilities; and the cost of energy.

#### **Panel B – High-Risk Exposure (Firm B)**

##### **Larch International Overview**

Larch International is a global paper manufacturing firm that manufactures, converts, and sells paper and paper products. Our Tissue segment produces a complete line of towel and tissue products for the away-from-home market.

We sell our tissue products to paper and sanitary supply distributors throughout North and South America that serve commercial and industrial locations (e.g., office buildings, theme parks, airports and hotels). Our foreign sales represent 45% of our consolidated net sales. We have three manufacturing facilities located in the United States, Canada and Mexico. We purchase our fiber and chemicals used in the pulping and papermaking processes on the open market, principally from producers in Canada and Mexico.

Our profitability is subject to several factors including, but not limited to: the costs of purchasing fiber and chemicals; the ability to sell our product in both domestic and foreign markets; and the ability to maintain output at our manufacturing facilities, relationships with labor unions, and the costs of energy throughout North America. In addition, our profitability is subject to fluctuations in foreign exchange rates; changing economic conditions and demands of the away-from-home

market; and regulatory and environmental risks associated with our operations in the United States, Canada, and Mexico.

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## **FIGURE 1**

### **Manipulation of Detail**

#### **Panel A – Less Detail**

Our Board of Directors oversees an enterprise-wide approach to risk management, designed to support the achievement of organizational and strategic objectives. While the entire Board of Directors is responsible for the oversight of our Company's risk management system, each Board Committee is responsible for risk oversight related to its area of responsibility. The Board of Directors periodically interacts with management and receives updates to understand and assess risks.

Board committees are responsible for risk oversight in specific areas as follows. The Audit Committee is responsible for risk oversight relating to financial statements, the financial reporting process, internal controls, compliance and legal matters, and the Company's risk management process. Throughout the year, the Audit Committee interacts with management, auditors and the Board to discuss risks.

The Compensation Committee is responsible for risk oversight relating to the Company's overall compensation structure. The Compensation Committee periodically evaluates compensation plans to assess whether the compensation structure establishes appropriate incentives for all employees.

While the Board is responsible for risk oversight, management as a whole is responsible for the day-to-day management of risks the Company faces. In regards to management's day-to-day management of risks, Standard and Poor's has rated our risk management system as "Good." However, there is no standard rating scale to assess the board's role in risk oversight.

#### **Panel B – More Detail**

Our Board of Directors oversees an enterprise-wide approach to risk management, which includes the identification, assessment and treatment of company risks. Our enterprise-wide approach to risk oversight is designed to support the achievement of organizational and strategic objectives. While the entire Board of Directors is responsible for the oversight of our Company's risk management system, each Board Committee is responsible for risk oversight related to its area of responsibility. The Board of Directors provides risk oversight by: (i) receiving regular reports from management to understand company specific risks, and (ii) meeting with management to assess the company's risk management system.

Board committees are responsible for risk oversight in specific areas as follows. The Audit Committee is responsible for risk oversight relating to financial statements, the financial reporting process, internal controls, compliance and legal matters, and the Company's risk management process. On a quarterly basis, the Audit Committee interacts with management

auditors and the Board to discuss risks. The Audit Committee provides risk oversight by: (i) receiving reports from management on individual risk areas and matters that arise throughout the year, and (ii) meeting with external and internal auditors on the status of audit activities and findings. The Audit Committee reports its findings from its meetings with management and the auditors to the full Board at each quarterly meeting.

The Compensation Committee is responsible for risk oversight relating to the Company's overall compensation structure. At least annually, the Compensation Committee evaluates the potential compensation payable to executives, managers and employees under its various compensation plans, including bonuses and other benefits. The Compensation Committee assesses whether the compensation incentives under each plan encourage appropriate risk-taking behavior that is consistent with the Company's long-term business strategy and objectives.

While the Board is responsible for risk oversight, management as a whole is responsible for the day-to-day management of risks the Company faces. In regards to management's day-to-day management of risks, Standard and Poor's has rated our risk management system as "Good." However, there is no standard rating scale to assess the board's role in risk oversight.

**FIGURE 2**  
**Flow of Experiment**

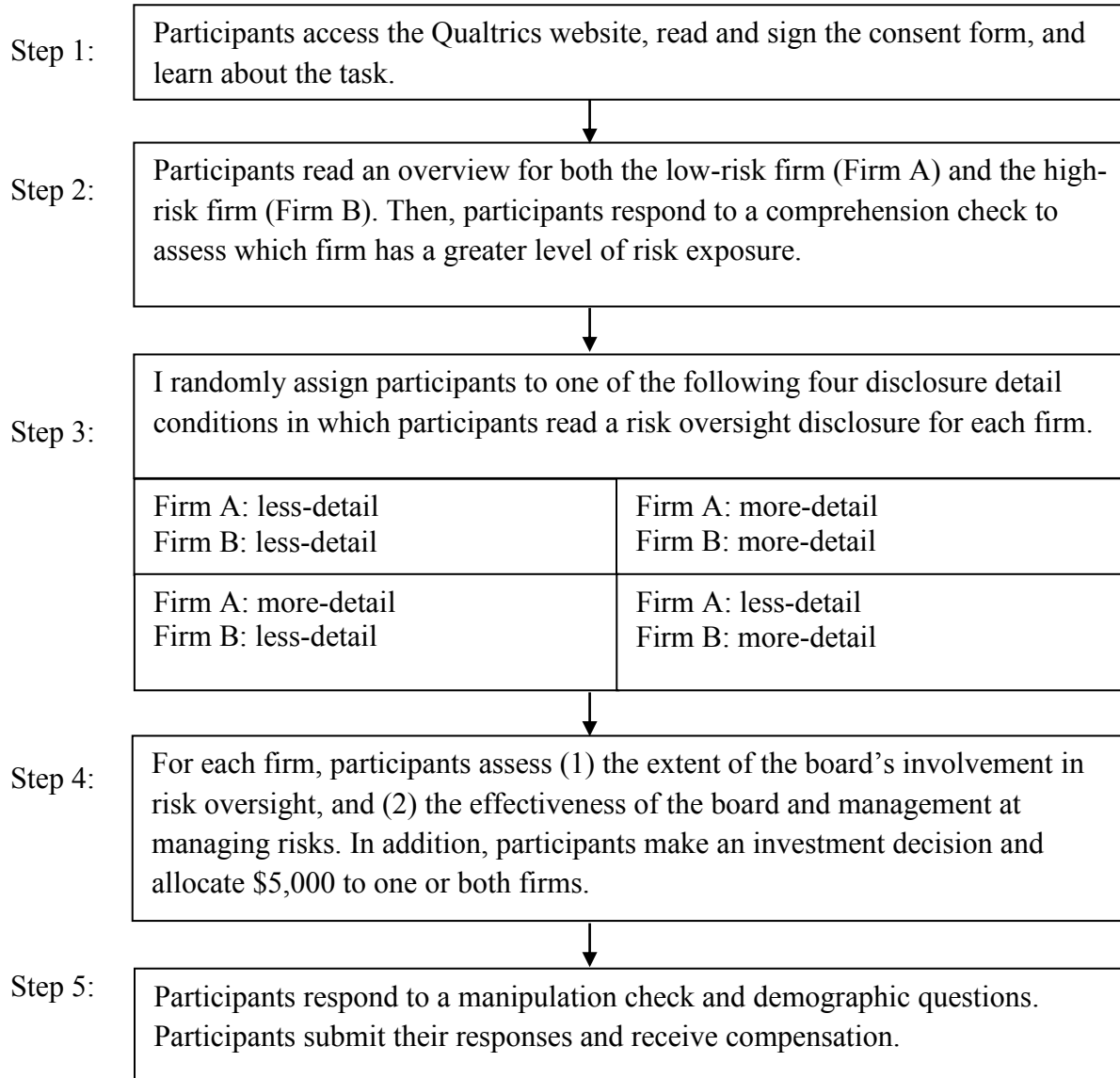


Figure 2 presents the flow of the experiment.

**FIGURE 3**  
**Investment Decisions**

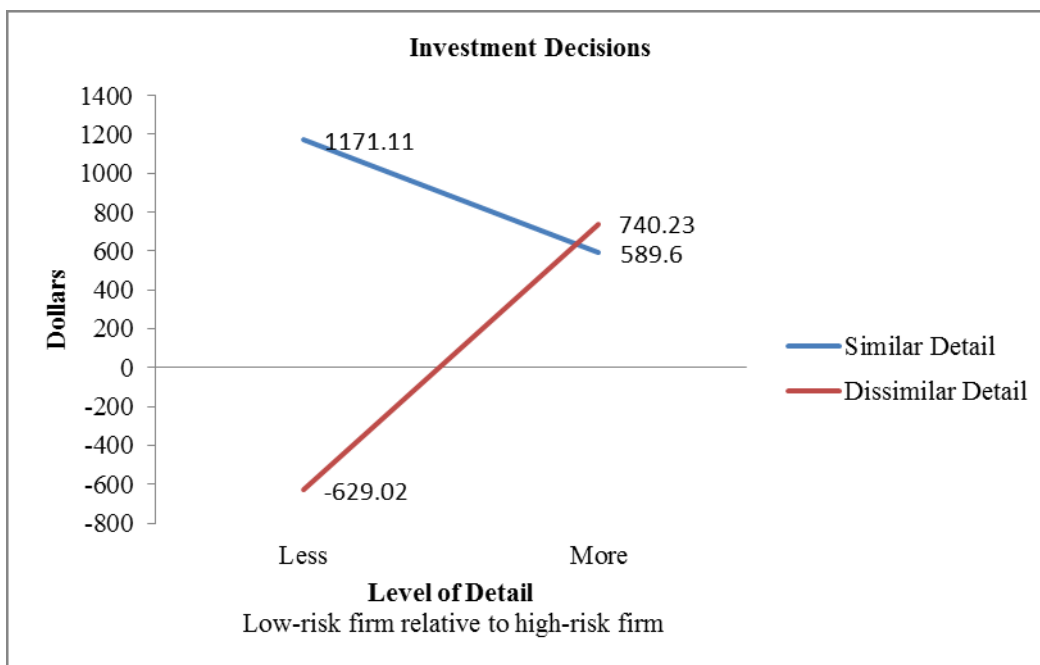


Figure 3 presents the plot of the Similar x Detail interaction of investors' investment allocations for the low-risk firm relative to the high-risk firm. Positive (negative) values indicate investors allocated more (less) of their \$5,000 investment portfolio to the low (high)-risk firm.

**FIGURE 4**  
**Mediated Moderation Model**

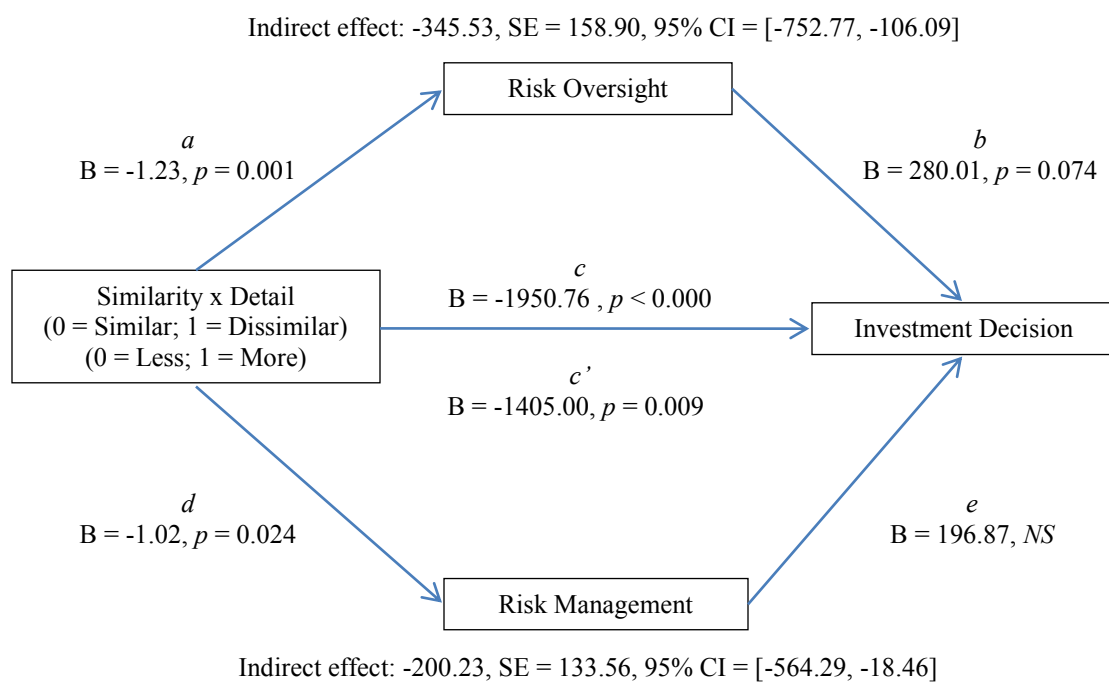


Figure 4 presents the mediated moderation model.

**TABLE 1**  
**Descriptive Statistics and MANOVA**

**Panel A: Mean and (Std Dev) Perceptions of Risk Oversight**

	Detail of Low-Risk Firm		Overall
	Less	More	
Similar	.222 (.424) n = 27	.040 (.934) n = 25	.135 (.715) n = 52
Dissimilar	-.463 (1.43) n = 41	.371 (1.54) n = 35	-.079 (1.53) n = 76
Overall	-.191 (1.19) n = 68	.233 (1.32) n = 60	.008 (1.26) n = 128

**Panel B: Mean and (Std Dev) Perceptions of Risk Management**

	Detail of Low-Risk Firm		Overall
	Less	More	
Similar	.296 (1.03) n = 27	-.160 (.688) n = 25	.077 (.904) n = 52
Dissimilar	-.463 (1.12) n = 41	.314 (1.08) n = 35	-.105 (1.16) n = 76
Overall	-.162 (1.14) n = 68	.117 (.958) n = 60	-.031 (1.06) n = 128

**Panel C: Mean and (Std Dev) Perceptions of Investment Decisions**

	Detail of Low-Risk Firm		Overall
	Less	More	
Similar	1171.11 1334.64 n = 27	589.60 1739.10 n = 25	891.54 1554.81 n = 52
Dissimilar	-629.02 1421.54 n = 41	740.23 1413.29 n = 35	1.55 1566.91 n = 76
Overall	85.74 1638.60 n = 68	677.47 1544.97 n = 60	363.11 1616.56 n = 128

**Panel D: MANOVA**

<b>Independent variable</b>	<b>Dependent variables</b>	<b>SS</b>	<b>F</b>	<b>p</b>
Similar	Risk Oversight	.965	.637	.426
	Risk Management	.627	.604	.439
	Investment Decision	20930000.94	9.70	.002
Detail	Risk Oversight	3.28	2.16	.144
	Risk Management	.795	.765	.383
	Investment Decision	4773410.64	2.21	.140
Similar x Detail	Risk Oversight	7.96	5.25	.024
	Risk Management	11.71	11.28	.001
	Investment Decision	29273217.27	13.56	.000

Table 1, Panels A-C present descriptive statistics for the measures used in my experiment to capture investors' perceptions and decisions of the low-risk firm relative to the high-risk firm after viewing each firms' risk oversight disclosure. The experiment manipulates whether (1) the two disclosures contain similar or dissimilar detail, and (2) the level of detail of each disclosure contains less or more detail. The measures in my analyses capture the difference between judgments of the low and high-risk firms; hence, investors' *relative* perceptions and decisions. A positive (negative) value indicates investors' relative preference for the low (high)-risk firm. Panel D presents the multivariate analysis of variance (MANOVA).