The impact of risk factor categorization and summary disclosures on investor risk perceptions

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**THE IMPACT OF RISK FACTOR CATEGORIZATION AND SUMMARY
DISCLOSURES ON INVESTOR RISK PERCEPTIONS**

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NANYANG BUSINESS SCHOOL

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A thesis submitted to the Nanyang Technological University in partial fulfilment of
the requirement for the degree of Doctor of Philosophy.

2021

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A handwritten signature in black ink that reads "Michael Prieto". The signature is written in a cursive style with a large initial "M" and a stylized "P".

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Michael Prieto

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TABLE OF CONTENTS

Title Page	1
Statement of Originality.....	2
Supervisor Declaration Statement.....	3
Authorship Attribution Statement.....	4
Acknowledgements.....	5
TABLE OF CONTENTS.....	6
SUMMARY	8
INTRODUCTION	9
BACKGROUND AND HYPOTHESES	14
Background.....	14
Hypotheses.....	17
The Joint Effect of Categorization and Summary.....	17
The Joint Effect of Adding Extra Risks and Summary.....	21
METHOD	23
Participants.....	23
Experimental Task and Procedures.....	23
Independent Variables.....	24
RESULTS	28
Manipulation Checks	28
Sample Description.....	29
Summary Statistics.....	30
Tests of Hypotheses	31
Supplementary Analysis	34
Risk Perception's Valuation Assessment Effects.....	35
Analyses of Readability	35
Robustness Analyses.....	37
Testing H1 and H2 by Excluding Participants who Failed on the Categorized Manipulation.....	38
Testing H3 and H4 by Excluding Participants who Failed on the Extra Risks Manipulation.....	38
CONCLUSION.....	39
BIBLIOGRAPHY	43
TABLE 1.....	47
Demographics Descriptive Statistics.....	47
TABLE 2.....	48
Company Risk Assessments	48
TABLE 3.....	49
Tests of Hypotheses 1 & 2 for Company Riskiness DV (Bulleated and Numbered Summary combined vs. No Summary).....	49
TABLE 4.....	50
Tests of Hypotheses 2 (Bulleated Summary vs Summary Absent)	50
for Company Riskiness DV	50
TABLE 5.....	51
Tests of Hypotheses 2 (Numbered Summary vs Summary Absent).....	51
for Company Riskiness DV	51
TABLE 6.....	52
Tests of Hypotheses Involving Extra Risks (H3 & H4) for Company Riskiness DV.....	52
TABLE 7.....	53
Effect of Risk Perception on Future Material Loss Likelihood Assessments.....	53
TABLE 8.....	54
Readability Assessments.....	54
Figure 1	57
The Effects of Categorization and Bulleted Summary on Participants' Risk Perceptions....	57
Figure 2	58

The Effects of Categorization and Numbered Summary on Participants' Risk Perceptions	58
Figure 3	59
The Effects of Extra Risks and Summary on Participants' Risk Perceptions	59
APPENDIX A	60
Variable Definitions.....	60
APPENDIX B	62
Page Layouts of Conditions	62
APPENDIX C	64
Instructions.....	64
APPENDIX D	65
Background Information	65
APPENDIX E	66
Pre-Screening.....	66
Dependent Variable Questions.....	67
Follow-Up Questions	68
Additional Follow-Up Questions	69
Demographic Questions.....	70
APPENDIX F.....	71
Conditions	71

SUMMARY

In this study, I analyze the changes in investors' risk assessments in response to the implementation of a recent SEC update that requires publicly listed companies to, within the risk factor section of their annual reports, separate their firm-specific risk factors from their general risk factors, as well as provide a summary of the risk factors. I also investigate the impact of adding more general risk factors to the general risk factor section, a possible action taken by management in order to dilute investors' risk perceptions. I predict that categorizing risk factors by separating firm-specific risk factors from general risk factors increases risk perceptions, but that this effect is attenuated by the presence of a risk factor summary. Results support this latter prediction when a bulleted summary is examined. However, when a numbered summary is examined, separating firm-specific risks from general risks increases risk perception regardless of whether a numbered summary is provided. I also predict that adding more general risks may either increase risk perceptions or reduce them. Results show that adding extra general risks do not affect risk perceptions. However, when manipulation check failures are removed from the sample, I do find that, while adding extra risk factors does not affect risk perception when a summary is absent, it does reduce risk perception when a summary is present. Supplementary analyses show that higher company risk perceptions translate into higher assessments of future material loss likelihood. Finally, in supplementary tests, the study discredits a competing theory by eliminating risk factor readability as a possible driver of the results.

INTRODUCTION

In an effort to increase transparency, the Securities and Exchange Commission (SEC) issued a mandate in 2005 requiring companies to disclose their most significant risk factors in 10-K reports (Securities Offering Reform 2005), ending the days of non-mandatory risk disclosures. Due to the significance of this reform, both practitioners and academics grew interested in its impact. Although the academic research that emerged in the few years after the mandate's issuance initially depicted risk factor disclosure as relevant to investor decision making (Campbell, Chen, Dhaliwal, Lu, Steele 2014; Hope, Hu, & Lu 2016), the research in recent years has cast doubt on the usefulness of risk factor disclosures (Beatty, Cheng, & Zhang 2019). Practitioners have shared this latter sentiment by pointing out that a significant portion of risk factor disclosures is repetitive, lacks specificity, and is excessively lengthy (PwC 2013 & 2014).

Driven by concern about a lack of relevance in recent risk factor disclosures, the SEC published a proposal in 2019 to “modernize disclosures of business, legal proceedings, and risk factors under Regulation S-K” (Modernization of Regulation S-K 2019). After reviewing comment letters, the SEC moved the proposal to the final rule stage the following year, whereby the updated proposal became mandated (Modernization of Regulation S-K 2020). This finalized Regulation S-K modernization update mandates, among other things, that companies separate their firm-specific risk factors from any general risk factors and place the firm-specific risk factors at the top of the risk factor section. This regulation also mandates that companies provide a summary of their firm-specific risk factors if their risk factor sections exceed 15 pages. The summary is allowed to include general risk factors. By requiring a more structured risk factor section, the SEC expects the modernization of Regulation S-K to reduce immaterial disclosures and to simplify them, providing

investors with more readable and less redundant information about the company's current riskiness. Therefore, it is worthwhile to examine whether the SEC's newly updated initiative for risk factor disclosure modernization can actually translate into changes in potential investors' assessments of companies. Specifically, I wish to observe whether the two SEC mandates have any effect on potential investors' perceptions of company risk.

In this study, I investigate the joint effect of separating firm-specific risk factors from general risk factors and providing a risk factor summary in the risk factor section of a company's 10-K on investors' perceptions of company riskiness. I examine this by not only including firm-specific risk factors, but also general risk factors in the summary in order to see whether the intended effects materialize when the company has incentives to include general risk factors in the summary. I do this under a setting in which a fictitious technology company faces several high-severity risks stemming from its business model, including the absence of physical stores, a high reliance on overseas suppliers, and a high reliance on business partners that provide complementary products. This high-risk severity setting provides a strong test of the SEC's update, as the intention of the update is to allow for the easier detection of *Company Riskiness* by investors. I argue that the Regulation S-K modernization's categorization mandate will make risk factors, particularly firm-specific risk factors, more salient, which will subsequently cause investors to increase their assessments of company riskiness.

Because investors rely mostly on firm-specific risk factors to form their assessments of firm riskiness, separating firm-specific risk factors from general risk factors may increase the salience of the firm-specific risk factors by making the firm-specific risks appear more prominent as they are now grouped together and placed at the top of the risk factor section. This salience of the firm-specific risks may increase perceptions of

Company Riskiness as investors may perceive these risks to be more closely related to the firm and thus more likely to materialize. However, when a risk factor summary is provided, potential investors now get to see every company risk, including the general risks, in one place. The general risks, in particular, will help dilute investors' perceptions of *Company Riskiness* as the investors can more easily see that there exist several risks that are not specifically attributed to the company's actions or inactions. In this way, providing a summary may actually attenuate the effect of categorization such that categorization has a lesser effect on increasing risk perception.

This study also investigates the effect of including extra general risk factors in the general risk factor section. This is a strategy that is similar to that seen when management of companies with high litigation risk introduce more boilerplate risk factors when risk factors are mandated (Nelson and Pritchard 2016). Practitioners complain about companies adding more seemingly irrelevant risk factors in recent years (PwC 2013 & 2014). I argue that, to the extent a company's management strategically takes this step under the new, modernized Regulation S-K environment, the intended effects of this new regulation may be curtailed. This is because psychology theory (Nisbett, Zukier, and Lemley 1981) and accounting research (Fanning, Agoglia, and Piercey 2014) suggest that listing more general risks may help attenuate investors' perceptions of company risk severity due to dilution effects, especially when paired with a risk factor summary. On the other hand, adding more general risks may increase risk perceptions by making the company appear riskier since it has more risk factors. Hence, I do not form a directional prediction for the effect of adding more general risk factors.

Due to the recency of the new SEC update, there is currently no empirical evidence to directly support its effectiveness. Given the mixed results of previous studies on the effectiveness of risk factor statements under the post-Regulation S-K setting,

discovering the incremental impact of the update to the 15-year old regulation is imperative to see whether simple structural changes to a risk factor statement can affect investors' risk assessments. An experimental method offers the ability to consider the effects of the reforms while holding other factors constant. The experiment for this study utilizes a $2 \times 3 + 3$ between-subjects experimental design. The two main manipulations, *Categorized* and *Summary*, are manipulated between subjects and the *Extra Risks* manipulation is conducted within the condition where categorization is present.

I test two forms of *Summary*, one where all risk factors are summarized in a bullet-pointed format, and another where risk factors are summarized in a numbered format (i.e., listing them with numbers 1 to 5 or 1 to 10, depending on the categorization and/or extra risks conditions). These two summary types are recommended by the Regulation S-K modernization update. The study's participants, who proxy for potential investors, are workers recruited from Amazon Mechanical Turk (Mturk). They are tasked with assessing the risk of a company's stock after being randomly assigned to a condition that includes the two regulatory manipulations and the strategic general risk manipulation.

This paper predicts that the Regulation S-K modernization's risk factor categorization requirement leads to higher perceptions of *Company Riskiness* by potential investors, but that these risk perceptions are attenuated by the presence of a risk factor summary. Results are generally consistent with these predictions, but also provide some nuance. First, results show that a bullet-pointed summary format is consistent with predictions. That is, adding a bullet-pointed summary attenuates the increased risk perceptions caused by categorization such that categorizing risk factors increases risk perception when a bullet-pointed summary is absent, but categorizing risk factors does not increase risk perception in the presence of a bullet-pointed

summary. However, providing a numbered summary format does not attenuate the effect of categorization such that categorizing risk factors increases risk perception, regardless of whether a numbered summary is provided.

Second, I do not find evidence that adding extra general risks decreases risk perceptions. However, when excluding manipulation check failures, I do find some evidence for the joint effect of adding extra risks and categorization. Specifically, results show that, while adding extra risk factors does not affect risk perception when a summary is absent, it does reduce risk perception when a summary is present.

Subsequent analysis reveals that company risk perceptions affect investors' assessments of future material loss likelihood for a company. It also reveals that controlling for readability does not change the main results. The readability finding lends further support to my theory that the dilution-reducing impact of general risks is a driver of my main results.

This study makes several important contributions to accounting literature. First, I contribute to risk factor disclosure literature. Prior research finds that, despite a lack of overall risk factor section informativeness, firm-specific risk factors are more relevant to investors than general risk factors (Bao & Datta 2014; Hope et al. 2016). However, an important question remains about whether the structure of risk factor disclosure, particularly the separation of firm-specific risk factors from general risk factors, and the inclusion of a risk factor summary, affects potential investors' risk assessments.

My study shows that restructuring the risk factor disclosure can increase risk perception, suggesting that the documented lack of informativeness of risk factor disclosure (Beatty et al. 2019) can be partially due to lack of structured risk factor disclosure. My study speaks to Bao & Datta (2014) by suggesting another reason why risk factor disclosure can be less informative, namely a lack of structure.

My study also has implications for management and regulators. Instead of helping investors identify a company's true riskiness, the new Regulation S-K modernization update may incentivize management to dilute the appearance of riskiness in the risk factor sections of their annual reports by simply adding a *Bulleted Summary* section or a risk factor section with more general risks regardless of whether the risk factor section meets the 15-page requirement mandating a *Summary* inclusion. Therefore, this is something the SEC may wish to consider if it decides to make further improvements to the risk factor section.

The following section provides background information and the hypotheses development. The subsequent sections are the study's method, its results, and the conclusion.

BACKGROUND AND HYPOTHESES

Background

Prior archival studies on the relevance of risk factor disclosures mainly focus on the impact of the disclosures on investor judgment and generally find that risk factor disclosures have declined in relevance to investors and other stakeholders in recent years. For example, Beatty et al. (2019) highlight the lack of risk factor informativeness, finding that investor's reactions to unexpected risk factor disclosures, and the link between risk factor disclosures and companies' future bankruptcy risk, have significantly declined since the last financial crisis. The Beatty et al (2019) findings are made even more noteworthy by their observation that the decreased informativeness does not arise from year-to-year repetitive phrasing, but rather from new disclosures and discontinued previous disclosures.

Bao & Datta (2014) develop a model that uses computer programming to discover risk factor disclosure types and find that about two-thirds of these disclosure types are

not informative. However, contrary to their finding that decreases in risk perceptions are attributed to unsystematic risks, the authors find that investor risk perceptions may increase with systematic and liquidity risks. Campbell et al. (2014) find that risk factor disclosures accurately represent both the systematic and idiosyncratic risks faced by the companies providing the disclosures. Hope et al. (2016) create a *Specificity* measurement to quantify the level of specific (rather than boilerplate) risks in firms' risk factor sections and find that the market's reaction to 10-K filings is positively and significantly associated with *Specificity*, underscoring the informational value of specific risk factors. The findings of this particular study imply that the new Regulation S-K update, which emphasizes risk disclosures that are firm-specific, may increase the relevance of risk disclosures for investors. However, none of these studies examine the mechanisms through which risk factor disclosures affect investor judgment, let alone the effect of risk factor presentation format on investor judgment.

A series of accounting studies examine the effect of presentation format in corporate financial disclosures and find that investors are susceptible to the influence of language choices (Elliott, Rennekamp, and White 2015; Hales, Kuang, and Venkataraman 2011) and presentation format, such as aggregate versus disaggregate formats (Elliott, Hobson, and Jackson 2011). However, these studies do not consider risk factor disclosure structure and its effect on investors' assessments.

My study is also related to a number of studies in the area of management accounting on common versus unique measures of the balanced scorecard, such as Lipe and Salterio (2000) and Banker, Chang, and Pizzini (2004), which find that managers evaluate their multiple subordinates by overly focusing on measures that are common across the subordinates, while neglecting to take into account the unique situation of each subordinate. Libby, Salterio, and Webb (2004) show that the heavy reliance on common measures in performance evaluations is attenuated

by either invoking accountability or enhancing the assurance of the performance measures.

My study examines a particular SEC update that restructures the presentation of the risk factor statement through the separation of risk factors specific to the firm from risk factors that are more general, placing the firm-specific risk factors before the general risk factors under a separate heading. The updated regulation also mandates the inclusion of a *Summary* of firm-specific risks in the risk factor section if the main body exceeds 15 pages in length, but importantly, it does not forbid companies from writing risk factor summaries if the main body does not exceed 15 pages or from adding general company risks to the *Summary*.

The proposed main effects in the Hypotheses section that follows are for the *Categorized* and *Extra Risks* manipulations. The categorization of a company's risk factors, or the separation of them into firm-specific and general risks, is a key mandate of the Regulation S-K modernization's finalized update, while the addition of *Extra Risks* into the risk factor section is a non-mandated measure that managers may wish to take in order to lower investor's risk perceptions of their companies in response to the categorization mandate.

Meanwhile, the study also wishes to investigate the incremental effect of including a *Summary* in the risk factor section. Since including a *Summary* in the risk factor section is actually intended to be a punishment for management that fails to reduce the amount of risk-based content below 16 pages, I wish to see whether the intended punishment of a *Summary* inclusion may actually help management when it interacts with either the categorized mandate or the supposed dilution-inducing *Extra Risks*.

Since management is allowed to write a *Summary* in either bullet-pointed or numbered format, I also wish to see whether results differ based on these separate

Summary format types. Specifically, as opposed to investors who read a *Bulleted Summary*, I wish to know whether potential investors who read a *Numbered Summary* will have unattenuated risk perceptions due to investors becoming fixated on the numbers displayed in the *Summary* at the top of the *Categorized Present* condition; in the *Categorized Present* condition, the top-five displayed risk factors are now only firm-specific, and thus appear riskier than the mixture of risk types shown in the *Categorized Absent* condition because of the apparent ranking system of the *Categorized Present* condition.

Hypotheses

The Joint Effect of Categorization and Summary

The changes from the Regulation S-K modernization update that are considered for this study only affect the structure of the risk factor section and not its content. This structural nature applies even to the addition to a summary disclosure, which is merely a condensed restatement of the individual risk factor statement headings. Although the content is not affected since there is no resulting extra or omitted information, the separation of risk factors into categories within the risk factor section, and the placement of the firm-specific risk factors above the general risk factors, will likely make the firm-specific risk factors more salient. Investors may be inclined to assess higher riskiness levels for firms with separated risk factors because the investors will now be viewing the firm-specific risks, which investors may scrutinize more as these risks are more directly associated with the company, first in the risk factor section. In other words, de-mixing the risks and placing the firm-specific risks on top of the firm's risk factor section may effectively prime investors, who assume the firm is more sensitive to specific risks, into believing the company is more risky. This is the reverse of a dilution effect, where having relatively more positive risks mixed in with

negative risks provides the impression of less overall risk severity (Fanning et al 2014).

This reasoning is consistent with construal level theory (Trope and Liberman 2010), which develops a concept called psychological distance, or an individual's subjective perception of the distance to an event. Several factors affect individuals' perception of psychological distance, such as time and distance. Depending on the psychological distance, individuals construe events at different levels of concreteness versus abstractness. An event that is perceived as being close is construed concretely, while an event that is perceived as being far is construed abstractly. For example, holiday plans for next month are construed concretely, whereas holiday plans for next year are construed abstractly. Chandran and Menon (2004) show how construal level theory can apply to this concept of temporal distance, with health hazards that are framed as occurring daily causing more concern and cautiousness among participants than health hazards that are framed yearly.

Accounting scholars have previously applied construal level theory to accounting settings. For example, Elliott, Grant, and Rennekamp (2017) find that different presentation formats and CSR framing strategies can cause investors to perceive different levels of psychological distance, thereby affecting the investors' judgments. I argue that separating firm-specific risk factors from general risk factors can affect risk-based judgments via differences in psychological distance. As previously discussed, risk factor separation makes firm-specific risks more salient to investors. Because firm-specific risks are directly related to the focal company, which investors are likely to be familiar with, specific risks can be perceived as being more concrete and having a lower psychological distance, and thus more likely to materialize in the future than the more abstract general risks that carry a higher psychological distance. Since investors would scrutinize the supposed more important firm-specific risks more

closely when they are separated from general risks, the investors may perceive the company to be riskier. In contrast, investors who view firm-specific risks mixed in with general risks may fail to pay attention to these firm-specific risks. Therefore, these latter investors would judge a firm to be less risky.

Combining the arguments above, I predict that separating specific risks from general risks increase investors' perceptions of *Company Riskiness*. The first hypothesis follows:

H1: Separating risk factors into firm-specific and general risk factor sub-sections, in the absence of a summary disclosure, results in a higher assessment of firm risk by potential investors.

I further argue that providing a summary of risk factors may moderate the effect of categorization on risk perceptions.¹ The summary requirement of the Regulation S-K modernization update is intended to give investors a quick glimpse into the lengthy body of the risk factor section, improving risk factor navigation by providing investors with a brief outline of what's ahead and helping to direct investors' attention to risk factors that may be of interest to them, but that might otherwise get buried in the body of the risk factor section. As simple as the requirement to include a summary may be, summaries have been shown to change investors' perceptions of companies. For

¹ My study focuses on the moderating effect of summary. Yet, providing a Summary may directly impact risk perception. In the current regulatory regime, where firm-specific and general risk factors are mixed, investors are compelled to read through the entire risk factor section as they cannot easily parse out the information in which they are interested. If a summary disclosure is provided to investors, investors will now have a roadmap that allows them to easily locate the risk factors that they view as more important. This may cause investors to place a heavy reliance on the summary for the sake of convenience, resulting in them skipping the general risk factors in favor of focusing their attention on the firm-specific risk factors. Because the brief risk factor descriptions of the summary disclosure provide a degree of repetition, or information redundancy, for all the risk factors that follow, investors who view a summary may feel comfortable with only reading the brief general risks factor descriptions within the summary section due to increased processing fluency (Alter and Oppenheimer 2009). In other words, investors may more readily ignore the seemingly less important general risk factors since the summary will already provide them with a sufficient glimpse into these risks. Thus, higher risk perceptions may result from investors as they now have increased viewership of risks that are more likely to directly impact the company.

example, Cardinaels, Hollander, and White (2019) noticed that the presence versus absence of management summaries resulted in higher valuation judgements.

Including a summary disclosure in the risk factor section may attenuate the risk perception-increasing effect of separating general risks from firm-specific risks. The presence of a risk factor *Summary* in the *Categorized Present* condition changes the presentation of the risk factor section such that all risk factors become immediately viewable to potential investors at once in the same condensed area at the top of the risk factor section; in a categorized risk factor section, instead of being on different pages, the general risk factors share one or two pages with the firm-specific risk factors, so the user is immediately made aware of the presence of these less directly related and presumably more distant risks. Seeing the general risks together with the firm-specific risks on the same one or two pages can attenuate the risk perception-increasing effect of categorization as the viewing of the less direct general risks would lower investors' average perceptions of riskiness. This is similar to the dilution phenomenon explored in Fanning et al. (2014). The second hypothesis follows:

H2: Including a summary disclosure in the risk factor section will reduce the effect of increased risk perceptions caused by categorization.

Primacy effects, which suggest that items that stand out may influence results more than those that do not, may be an alternative explanation for the main effect of categorization because the firm-specific risk factors are now located at the top of the section. However, primacy effects do not explain the predicted interaction effect between *Categorized* and *Summary*. This is because H2 predicts that the presence of a *Summary* will reduce the effect of categorization on risk perception, whereas primacy effects would not predict this interaction effect. In other words, while H2 implies that the effect of categorization on increasing risk perception might be weak, or even absent in the presence of a *Summary*, primacy effects would predict that categorization

still increases risk perceptions, and that this categorization effect may even increase in the presence of a Summary since the firm-specific risk factors have become even more salient at the top of the risk factor section.

In my hypotheses relating to summary disclosures, I explore the effects of bullet-pointed and numbered summaries separately as these are the formats recommended by the SEC in its Regulation S-K Modernization update (Modernization of Regulation S-K 2020). I do not have an a priori basis to theoretically predict whether there are differences between the two types of summary disclosures. However, a numbered summary might be more concrete and salient in the minds of potential investors by virtue of its precise-seeming nature, and this might lead to stronger results for comparisons between the categorized conditions. Essentially, the supposed more risky firm-specific risk factor sub-group at the top of the risk factor section would be the first sub-group to be assigned numbers that potential investors might assume is a ranking of risk importance. This could result in the potential investors providing higher risk assessments for firms with numbered risk factor summaries than for firms with bulleted risk factor summaries, the latter of which would not invoke a similar mistaken attribution of risk importance. In other words, while adding a bulleted summary may attenuate the effect of categorization by forcing investors to read both specific and general risk factors, adding a numbered summary may not attenuate the effect of categorization, as investors may fixate on the top-ranked specific risk factors.

The Joint Effect of Adding Extra Risks and Summary

The Regulation S-K modernization's regulations may not only change investors' risk assessments, but they may also affect the behavior of company management. In order to attenuate the categorization-induced higher risk assessments, management may choose to strategically add more general risk factors to the general risk factor subsection. This may help management reduce investors' perceptions of riskiness for the

company because risk dilution may cause investors to consider the new average riskiness of the company; as the general risks may be considered less risky than firm-specific risks, adding more general risks may help to dilute, or lower, the average overall perceived risk severity of a company, a prediction suggested by psychology research (Nisbett et al 1981) and accounting research (Fanning et al. 2014). This dilution effect is similar to what was predicted for summary disclosures, except that adding extra risks is no simple change to the risk factor section format. Also, there is more at stake for management, because having more risks would reasonably make a company appear riskier, so there is more opportunity for this strategy to backfire. Thus, it is unclear whether the dilution effect of adding more general risk factors to the risk factor section would nonetheless lead to a decrease in investors' perceptions of *Company Riskiness*. The third hypothesis, stated as a null, follows:

H3: Adding more general risks to categorized risk factor sections, in the absence of a summary disclosure, will not decrease investor risk perceptions.

When a summary is added to the risk factor section, we should notice the same dilution effect for risk perceptions that we predicted for H2. The dilution effect of the summary should decrease risks perceptions even further than what adding extra general risks to a categorized risk factor section may do on its own. This is because a summary will make the extra general risks easily available for potential investors to see, leading to even lower average company risk perceptions. Thus, regardless of H3's results, the moderating effect of summary inclusion should decrease risk perceptions:

H4: Including a summary disclosure in the risk factor section will moderate the effect on risk perceptions from including extra general risk factors in a categorized risk factor section, such that this effect will be more negative (less positive).

METHOD

Participants

We recruit participants from Amazon Mechanical Turk (Mturk), as Krische (2019) finds that Mturk participants can be appropriate proxies for investors. The instrument, which includes background information adapted from Feng (2016) and a risk factor statement adapted from Apple's 2018 annual report (Apple, 2018), is administered on the Qualtrics platform. To ensure potential participants are appropriate proxies for potential investors, the study implements a pre-screening questionnaire that contains five questions. Only participants who speak English, have at least some work experience and investment experience, plan to invest in securities the next 5 years, and have financial knowledge of 4 or above on 7-point scale can participate in the experiment. Overall, 360 individuals took part in the study. Participants had an average of about 14 years of work experience and 8.5 years of investment experience. Investment experience does not affect participants' risk perceptions (both $p \geq 0.24$). Participants spent an average of about 20 minutes completing the experiment and earned a fixed compensation of \$2 USD for completing the study.

Experimental Task and Procedures

To begin the study, all participants are provided with instructions telling them to assume they are potential investors who are considering the riskiness of investing in a fictitious and financially healthy computer tablet company. They are then provided with background and financial information of the company. Each participant is subsequently provided the company's 10-K risk factor section, which contains the manipulations for the particular condition to which he or she is randomly assigned. Appendix A shows the relationships between the experimental conditions and how the hypotheses are tested for these conditions, as well as the definitions of the independent and dependent variables, while Appendix B shows the layout of each page of the risk

factor section for each condition.² Instructions and background information that are given to participants are provided in Appendix C and Appendix D, respectively. Finally, Appendix E shows all of the study's questions and Appendix F provides all of the conditions used in the study.

After examining the fictitious company's risk factor disclosure, participants assess the firm's riskiness by answering the following question: "*How risky do you consider the company to be?*" This question is measured on an 11-point scale, with a score of 0 equivalent to "Not at all risky" and 10 = "Very risky." The answers to this question form the dependent variable of the study.

Following the risk assessment question, a post-experimental questionnaire (PEQ) is provided to participants. The PEQ contains manipulation checks, experiment-related questions, and demographic questions.

Independent Variables

I manipulate three factors (*Categorized*, *Summary*, and *Extra Risks*). *Categorized* is separated into the *Categorized Present* and *Categorized Absent* conditions, *Summary* is separated into the *Summary Present* and *Summary Absent* conditions, and *Extra Risks* is separated into the *Extra Risks Present* and *Extra Risks Absent* conditions. The first two factors are crossed into a 2 x 3 between-subjects design, with extra risks absent. Additionally, there are two between-subject treatment levels for *Summary Present* (*Bulleted* vs. *Numbered*), resulting in *Summary* being manipulated at three different levels: *Summary Absent*, *Bulleted Summary Present*, and *Numbered Summary Present*. Taken together, the study conducts a 2 (*Extra Risks Absent/Categorized Present*, *Categorized Absent*) x 3 (*Extra Risks Absent/Summary Absent*, *Extra Risks*

² The requirement that all risk factor sections above 15 pages must have a summary disclosure that outlines firm-specific risk factors does not stop companies that do not meet this requirement from voluntarily providing a summary disclosure or to include general risks for that matter. Also, as it is impractical to have participants read 15 pages of risk factors, I provide participants with a summary of shorter risk factor sections for this study.

Absent/Bulleted Summary Present, Extra Risks Absent/Numbered Summary Present) + 3 (*Extra Risks Present/Categorized Present/Summary Absent, Extra Risks Present/Categorized Present/Bulleted Summary Present, Extra Risks Present/Categorized Present/Numbered Summary Present*) between-subjects experimental design. Appendix A presents the relationships between the experimental conditions of the study, the tests of the hypotheses, and manipulations of all independent and dependent variables.

The first manipulation is *Categorized*. For the *Categorized Present* condition, participants receive a risk factor disclosure that categorizes factors into either specific risk factors or general risk factors. Specifically, five firm-specific risk factors are presented to participants under a “Risks Specific to Our Company” sub-heading and five general risk factors are presented to participants under a “General Risks” sub-heading. The two sub-sections are presented on separate pages, with the “Risks Specific to Our Company” subsection presented before the “General Risks” subsection, which is consistent with the SEC regulation update (Modernization of Regulation S-K 2020). The *Categorized Absent* condition provides participants with a risk factor disclosure that mixes both types of risk factors together within the risk factor section under no sub-headings. I compare the risk assessments between these two conditions to test Hypothesis 1.

The second factor is *Summary*. Participants who are in the *Summary Present* condition receive a risk factor summary at the beginning of the risk factor section and participants who are in the *Summary Absent* condition do not receive this summary. I test Hypothesis 2 by comparing whether the difference between the *Categorized Present* and *Categorized Absent* condition within the *Summary Absent* condition is larger than that difference within the *Summary Present* condition. As previously mentioned in the theory section, and also recommended by the Regulation S-K

modernization update (Modernization of Regulation S-K 2020),³ I further manipulate between subjects, within the *Summary Present* condition, two types of summary styles, namely the bulleted summary and numbered summary styles. *Bulleted Summary Present* summarizes all risk factors by listing each risk factor in bullet-point format. *Numbered Summary Present* summarizes all risk factors by numbering them from 1-5 in the *Categorized Present* condition under each sub-heading, except under the “General Risks” sub-heading when five extra general risks are included, and from 1-10 in the *Categorized Absent* condition or under the “General Risks” sub-heading when extra general risks are provided.⁴

Although the Regulation S-K modernization update does not require the inclusion of general risk factors (Modernization of Regulation S-K 2020), at least five general risk factors are included in every Summary Present condition because companies are not prohibited from including them (in fact, the initial Regulation S-K modernization proposal did not specify that only firm-specific risks would be mandated for the disclosure summary), so managers may wish to do so in order to give prospective investors a fuller picture of the risks the company is facing and to make investors feel that, overall, the company has lower risks. The Extra Risks Present condition, which is discussed later, includes ten general risks and serves as a control for the purpose of observing investor perceptions when more general risks are added. Otherwise, the number of firm-specific and general risk factors are the same, at five each, to keep one risk type from overpowering the other.

³ The SEC offers two summary style suggestions: “If a registrant’s risk factor disclosure exceeds 15 pages, Item 105(b) will require in the forepart of the document a series of concise, bulleted or numbered statements summarizing the principal factors that make an investment in the registrant or offering speculative or risky.” (Modernization of Regulation S-K 2020).

⁴ Because each page contains five risk factors, I counterbalance the number of firm-specific risk factors and general risk factors on the first page so that half of the participants receive a first page containing 3 specific risk factors and 2 general risk factors and the other half receive a first page containing 2 specific risk factors and 3 general risk factors. I also counterbalance whether the first factor is specific or general.

Given the two summary styles, I also assess the effects of *Bulleted Summary Present* and *Numbered Summary Present* separately for the testing of H2. That is, I compare whether the difference between the *Categorized Present* and *Categorized Absent* conditions within the *Summary Absent* condition is larger than the difference within the *Bulleted Summary Present* condition, and I do this comparison again for the *Numbered Summary Present* condition.

The third factor is *Extra Risks*. It is used to test whether the strategy of adding extra risks to dilute the higher risk perceptions caused by categorization is effective (Fanning et al 2014). The *Extra Risks Present* condition provides participants with five extra general risk factors on the last page of the instrument, while the *Extra Risks Absent* condition provides participants with only the original five general risk factors. I test H3 and H4 by comparing, within the *Categorized Present* condition, the risk assessments between the *Extra Risks Present* condition and the *Extra Risks Absent* condition, and whether this comparison differs when a bulleted or numbered summary is provided to potential investors.

Extra Risks is manipulated only within the *Categorized Present* condition because this is the only condition in which it is proposed that investors' risk perceptions of a company will increase. Essentially, management may try to attenuate the increase in investors' risk perceptions of its company that the required categorization of the company's risk factors is expected to bring. One easy way that management may attempt to do this is to include more general risks in the "General Risks" subsection. Because firm-specific risks are less salient in the *Categorized Absent* condition, there is no incentive for management to strategically add more risks to this condition; prospective investors may have significantly less ability to tell the firm-specific risks apart from the general risks, causing them to increase their risk perceptions because

they are primarily focused on the overall increase in the total number of risks and not on the differences between the risk types.

Appendix B shows that, when a summary disclosure or extra general risk factors are not included, the risk factor section provided to study participants contains two pages, with five risk factors per page. However, the inclusion of either a summary disclosure or extra general risk factors each adds another page to the risk factor section. Every condition in the study is presented in Appendix F.

RESULTS

Manipulation Checks

In order to see whether participants were aware of the particular conditions to which they were randomly assigned, I asked them three manipulation check questions, one for each of the study's main manipulations. The questions were asked after participants viewed the risk factor statement and answered the dependent variable questions. In general, participants were fairly successful at correctly identifying the manipulations they received. The *Categorized* manipulation check had the highest success rate at 72.2%, followed by the *Summary* manipulation check at 71.6%, and then the *Extra Risks* manipulation check at 63.6%.⁵ Although the success rates are not ideal, I keep the observations with failed manipulation checks in the sample as dropping the failed observations would mean getting rid of a significant portion of the sample. Also, leaving the failed manipulation check observations in the sample would make it more difficult to find the predicted results, so any observed significant results that confirm the study's hypotheses would only help to strengthen my case.

⁵ The "Yes" or "No" manipulation check questions for the *Categorized*, *Summary*, and *Extra Risks* manipulations, respectively, are: "*In the previous task, the risk factor disclosure was separated into two risk categories (general and firm-specific).*"; "*In the previous task, a list of risk factors was shown before the full description of each risk.*"; "*In the previous task, only two pages of risk factor (not including any summary list) descriptions were provided.*"

Nevertheless, the “Robustness Analysis” sub-section performs further analyses that removes the failed manipulation check observations.

Sample Description

The full sample consists of 360 observations. Following prior research that uses the online crowdsourcing platform Mturk, I remove observations that do not contribute to high-quality data. From the full sample, I remove observations where participants have one year or less of investment experience as these participants would have had very little experience using risk factor sections in any actual stock-related decision-making context. Also, as the average time spent on the study was approximately 20 minutes, I remove observation where participants completed the entire study in under four minutes, as these participants would not have had sufficient time to fully comprehend the study and thoughtfully answer the questions.⁶ Removing the 13 observations where participants have’ one year or less of investment experience brings the sample down to 347 observations. Dropping an additional 10 observations where the participant took less than four minutes to take the study provides a final sample size of 337 observations.

Table 1 presents the descriptive statistics of the demographics for the final sample. Across all conditions, 67% of the participants are male. *College* is an ordinal variable describing a participant’s highest educational level where *college*=0 for participants with no college experience, 1 for participants with some college experience, 2 for

⁶Given that humans read at an average rate of 238 words per minute (Brysbaert 2019), and that *Categorized Absent*, *Summary Absent*, *Extra Risk Factors Absent*, the shortest length condition, contains about 3,000 words, participants should have spent at least 12 minutes to complete the study. I use four minutes, or less than one-third of this average, as a cut-off point, because having the ability to read, process, and answer the questions at more than three times this rate is not very likely. As it is, the actual average time spent by participants on the shortest condition was just under 16 minutes, equivalent to about 190 words per minute. Also, the participants who finished the study under four minutes had lower manipulation check percentages (60%, 30%, and 60% for the *Categorized*, *Summary*, and *Extra Risks* manipulations, respectively) compared to the manipulation check percentages of those who finished the study in four minutes and above (73%, 73%, and 64% for the *Categorized*, *Summary*, and *Extra Risks* manipulations, respectively). Results are similar and significant if no drop criteria are used or just one is used.

participants with an Associate's Degree, 3 for participants with a Bachelor's Degree, 4 for participants with a Master's Degree, and 5 for participants with a Doctorate. The average college level that participants have achieved appears to be a Bachelor's Degree, as all the conditions have values of around 3 for *college*. Finally, *yearsworkingexperience* is above 10 and *yearsinvestmentexperience* is above 7 years across all conditions. The respectable *yearsinvestmentexperience* average is evidence of a suitable pool of participants for a study involving financial statements.

Summary Statistics

Table 2 displays descriptive statistics for the 9 conditions of the study, but focuses primarily on the dependent variable, *Company Riskiness*. As can be seen, both *Categorized Present* treatments without a summary have *Company Riskiness* means that are greater than the mean of the *Categorized Absent* treatment. This is in line with H1, which predicts that separating general risks from specific risks increases risk perceptions. Also, the *Categorized Present, Bulleted Summary Present* conditions have lower *Company Riskiness* means than the *Categorized Present, Summary Absent* conditions, in support of H2, which predicts this reduction of risk perceptions when a summary is added. Figure 1 gives further insight into this effect, showing that the inclusion of a *Bulleted Summary* helps tame the steep upward slope that would otherwise occur in the *Categorized Present* condition. However, the *Categorized Present, Numbered Summary Present* condition has a higher *Company Riskiness* mean than the *Categorized Present, Summary Absent* condition within *Extra Risks Absent*. This is contrary to H2 and can be viewed in Figure 2.

As for H3, the descriptive statistics show that the mean of *Company Riskiness* for the *Categorized Present, Summary Absent, Extra Risks Present* condition is greater than the mean of *Company Riskiness* for the *Categorized Present, Summary Absent, Extra Risks Absent* condition. This would not cause the null hypothesis of H3, which

predicts no decrease in risk perceptions due to the dilution effect of extra risks, to be rejected. In fact, there appears to be an increase in risk perceptions. However, the mean of *Company Riskiness* for the *Summary Present, Extra Risks Present* condition is less than the mean of *Company Riskiness* for the *Summary Absent, Extra Risks Present* condition for both the *Bulleted* and *Numbered Summaries*, showing that increasing the number of general risk factors within a categorized risk factor section reduces risk perceptions when a summary is included, albeit more for a *Bulleted Summary*. This is in support of H4. Since both the *Numbered* and *Bulleted Summaries* present similar results, a graphical depiction of the effects of the *Extra Risks* manipulation and its interaction with the combined *Summary* manipulation is shown in Figure 3.

Tests of Hypotheses

I use contrast tests to examine the hypotheses because contrast tests allow for more focused hypotheses tests than the omnibus tests of ANOVAs. Table 3 presents the results of H1, which analyzes the effect of categorization in the *Summary Absent* condition, and the results of H2, which compares the effect of categorization in the *Summary Absent* condition with that of the *Summary Present* condition. While Table 3 aggregates the results of H2 for the combined *Bulleted Summary Present* and *Numbered Summary Present* formats, Tables 4 and 5 separately present the results of H2 for the different *Summary* formats. Table 6 presents the main results of the formal tests for H3 and H4. Panel A of each table displays the ANOVA results and Panel B, and Panel C display the tests of hypotheses based off the ANOVA results. P-values are based on one-tailed statistics for directional predictions and two-tailed statistics otherwise.

Table 3 presents the results of H1 and H2 together because both hypotheses involve the effect of categorization on the dependent variable. The primary test of H1 (Table 3, Panel B) uses a contrast with weights of -1 and +1 for potential investors when a

Summary is absent in the *Categorized Absent* and *Categorized Present* conditions, respectively. H1 predicts an increase in risk perceptions for the effect of *Categorized* when summary is absent. The contrast test in Panel B confirms the hypothesis (7.19 vs. 6.58, $t = 1.48$, $p = 0.07$, Table 3, Panel B).⁷ The interaction in the ANOVA ($F = 2.53$, $p = 0.06$, Table 3, Panel A) supports H2 by telling us that including a *Summary* disclosure in the risk factor section will attenuate the effect of increased risk perceptions caused by categorization. This result is further verified by the contrast test in Panel C, which shows a significant difference in *Company Riskiness* means when no summary is present (7.19 vs. 6.58, $t = 1.48$, $p = 0.07$, Table 3, Panel C) and an insignificant difference in *Company Riskiness* means once a *Summary* is added (6.86 vs. 6.57, $t = 1.02$, $p = 0.31$, Table 3, Panel C).

As a further test of H2, I separate the above analyses by *Summary* type. Table 4 presents the results for the *Bulleted Summary* style. Even though ANOVA in Panel A shows marginal significance for the interaction of *Categorized* and *Bulleted Summary* ($F = 2.53$, $p = 0.06$, Table 4, Panel A), the contrast test results for the interaction show a significant difference in *Company Riskiness* means when no summary is present (7.19 vs. 6.58, $t = 1.46$, $p = 0.07$, Table 4, Panel B) and an insignificant difference in *Company Riskiness* means once a *Bulleted Summary* is added (6.50 vs. 6.82, $t = -0.78$, $p = 0.44$, Table 4, Panel B). This supports H2, which predicts that a *Bulleted Summary* added to the risk factor section attenuates the increased means of *Company Riskiness* caused by categorization.

⁷ I analyze *Risk Factor Riskiness* and *Risk Factor Importance*, derived from two 11-point scale questions: “How much of a risk is this risk factor to the company?”, where 0 = “Not risky at all” and 10 = “Very risky.”; “How important is this risk factor to the company?”, with values based on an 11-point scale, where 0 = “Not important at all” and 10 = “Very important”. I sum values of each variable for the specific risk factors and the first five general risk factors. Mean comparisons of *Risk Factor Riskiness/Risk Factor Importance* suggest specific risk factors are perceived to be riskier/more important than general risk factors (37.88 vs. 33.66, $t = 5.98$, $p = 0.00$; 37.11 vs. 32.24, $t = 6.22$, $p = 0.00$). Results are consistent with firm-specific risk factors being deemed less distant and, therefore, more risky/important than general risk factors.

A visual inspection of Figure 2 shows a pattern different than what theory predicts for H2 for a *Numbered Summary*. The ANOVA in Panel A tells us that the interaction effect of *Categorized* and *Numbered Summary* is statistically insignificant ($F = .25$, $p = 0.31$, Table 5, Panel A). This inconsistency is reflected in the contrast test results of Panel B; although the *Company Riskiness* mean is higher for the *Categorized Present* condition than for the *Categorized Absent* condition when there is no *Summary* (7.18 vs. 6.58, $t = 1.52$, $p = 0.07$, Table 5, Panel B), the *Company Riskiness* mean is also higher for the *Categorized Present* condition when a *Numbered Summary* is present (7.21 vs. 6.33, $t = 2.27$, $p = 0.02$, Table 5, Panel B). Thus, H2 is not supported for a *Numbered Summary*, as results do not show the predicted insignificance between the two conditions when a *Numbered Summary* is included.

An explanation for why categorization still increases risk perceptions in the presence of a *Numbered Summary* could be that, when a *Numbered Summary* is included, potential investors become fixated on the numbered risk factors that are displayed in the summary at the top of both the *Categorized Absent* and *Categorized Present* conditions. In the *Categorized Absent* condition, the top-listed risk factors of the summary are a mixture of both specific and general risks. However, in the *Categorized Present* condition, the top-five displayed risk factors are now only firm-specific, and thus appear riskier than the mixture of risk types shown in the *Categorized Absent* condition.

Overall, we see that the addition of a *Bulleted Summary* produces results that are consistent with the study's theory, namely that providing a *Summary* attenuates the effect of categorizing risk factors. However, using a *Numbered Summary* in the risk factor section will not attenuate the effect of categorizing risk factors. The *Bulleted Summary* results are likely not the SEC's desired outcome as investors would be assigning less risk to a company when a *Bulleted Summary* is included. Instead, this is

the *Summary* type managers would prefer to utilize. The *Numbered Summary* results, on the other hand, are consistent with the SEC's desire to make investors more aware of firm-specific risk factors, as risk perceptions were not attenuated when a numbered risk factor summary was included in the risk factor section.

Table 6 presents the results of H3 and H4 together because both hypotheses involve the effect of *Extra Risks* on the dependent variable. The analyses are presented for the collapsed *Bulleted Summary* and *Numbered Summary* conditions, as the conditions produce similar results⁸. Panel A of Table 6 displays the results of an ANOVA for observations only within the *Categorized Present* conditions, since this is what is warranted for H3 and H4. The results show no significant difference ($t = 0.32$, $p = 0.75$, Table 6, Panel B) between the means of *Company Riskiness* for the values of the *Extra Risks* manipulation when a *Summary* is absent. In other words, these results show that potential investors who view *Extra Risks Present* risk factor statements do not have significantly lower risk perceptions than potential investors who view *Extra Risks Absent* risk factor statements. Thus, the null of H3 cannot be rejected. The insignificant interaction effect ($F = 0.14$, $p = 0.35$, Table 6, Panel A) and the insignificant effect of *Extra Risks* in both *Summary Present* and *Summary Absent* conditions ($t = 0.32$, $p = 0.75$; $t = -0.20$, $p = 0.42$, Table 6, Panel C) suggest that H4 is not supported.

Supplementary Analysis

This section explores valuation implications of investors' *Company Riskiness* assessments and a possible alternative driver of the results. It also conducts analyses without the manipulation check failure observations.

⁸ The formal contrast test result for the main effect of *Extra Risks* is insignificant for the *Bulleted Summary* sample ($t = 0.06$, $p = 0.95$) as well as for the *Numbered Summary* sample ($t = 0.24$, $p = 0.81$). The formal contrast test for the interaction effect of *Extra Risks* and *Summary* is also not significant for the *Bulleted Summary* ($t = 0.95$, $p = 0.17$) and *Numbered Summary* formats ($t = -0.32$, $p = 0.37$).

Risk Perception's Valuation Assessment Effects

This paper considers how two risk factor statement changes that are mandated by the Regulation S-K modernization influence prospective investors' perceptions of company riskiness. The main analyses use the dependent variable *Company Riskiness* to directly observe investors' reactions. However, it would also be interesting to understand how risk perceptions translate into actual valuation judgments of a company. Thus, this study also measures how participants judge the future financial trajectory of a company based on their particular conditions by asking them to state, on an 11-point scale, “How likely will the firm incur a future material loss due to the risk factors?”, where 0 = “Material loss not at all likely” and 10 = “Material loss very likely.” Although this *Future Material Loss Likelihood* variable is less directly related to the theoretical framework of the study, it should be positively related to prospective investors' risk perception judgements.⁹ Table 7 presents an ANCOVA test that analyzes *Future Material Loss Likelihood* on *Company Riskiness*, while controlling for *Categorized*, *Summary*, and their interaction. The results show that *Future Material Loss Likelihood* is significantly related to *Company Riskiness* ($F = 222.38$, $p < 0.001$, Table 7, Panel A). Performing the same test separately for the *Bulleted Summary* and *Numbered Summary* conditions also produces significant relationships ($F = 168.03$, $p < 0.001$, Table 7, Panel B; $F = 157.44$, $p < 0.001$, Table 7, Panel C).

Analyses of Readability

The SEC regulation intends to improve investor risk assessment of companies by mandating that the companies provide a more structured risk factor disclosure. This section examines whether readability is affected by the new structural change and whether the main results are affected by readability.

⁹ Results are also significant if *Future Material Loss Likelihood* is used as a dependent variable for the main analysis.

The main analysis shows that the presence of a *Bulleted Summary* within a *Categorized Present* risk factor section reduces risk perceptions, while a *Numbered Summary* within a *Categorized Present* risk factor section has no effect on risk perceptions. To confirm that any improvement to risk factor section readability does not drive the results, I perform tests using three readability measurements: *Easy-Plan*, *Easy-Read*, and *Easy-Navigate*. Each variable pertains to a separate question, for which participants rate their agreement using a 7-point scale (0 = “Strongly disagree”, 7 = “Strongly agree”): “It was easy for me to plan my time in reading the risk factor disclosure”, “The risk disclosure was easy to read”, and “The risk disclosure was easy to navigate.” Table 8 displays the means of these three measures across all conditions.

Mean comparisons show that categorization does not improve *Easy-Plan*, *Easy-Read*, and *Easy-Navigate* when a *Summary* is absent (4.86 vs 4.89, $t = 0.10$, $p = 0.46$; 4.64 vs 4.44, $t = -0.66$, $p = 0.26$; 4.64 vs 4.83, $t = 0.69$, $p = 0.25$). Similarly, categorization does not improve any of the three readability measures when a *Bulleted Summary* is present (4.61 vs 4.61, $t = 0.02$, $p = 0.49$; 4.55 vs 4.69, $t = 0.51$, $p = 0.30$; 4.32 vs 4.58, $t = 0.85$, $p = 0.20$). However, I do find that categorization improves *Easy Navigate*, *Easy Read*, and *Easy Plan* when a *Numbered Summary* is present (4.10 vs 4.76, $t = 2.33$, $p = 0.01$; 4.44 vs 4.97, $t = 2.12$, $p = 0.02$; 4.44 vs 4.89, $t = 1.85$, $p = 0.03$).

Although readability is improved for all three measures when a *Numbered Summary* is present, my main results are not affected by the readability of risk factor statements. Specifically, I replicate the main results in Tables 4 and 5 by controlling for all three readability measures and I find that, similar to the main results, the interaction between *Categorized* and *Numbered Summary*, and the main effect of *Categorized* in the comparison between *No Summary* and *Numbered Summary*, are still significant ($F = 2.16$, $p = 0.07$; $F = 7.01$, $p = 0.01$). Thus, controlling for the readability measures does

not change the main results. As categorization increases risk perception for the *No Summary* condition and the *Numbered Summary* condition in the main results, readability is unlikely to explain these results.

Finally, in order to see how long participants actually read the separate *Categorized* risk factor subsections, the times, in minutes, that participants in the *Categorized* conditions spent separately reading the firm-specific and general risk factor pages were recorded as the participants completed the experiment. The mean times for each risk factor type were then compared between *Summary* conditions. These results tell us that a *Bulleted Summary* reduces the time participants spend reading both the specific risk factors (0.86 vs. 0.98, $t = -3.39$, $p < 0.00$) and the general risk factors (0.51 vs. 0.68, $t = -7.84$, $p < 0.00$). However, a *Numbered Summary* does not reduce the time participants spend reading the specific risk factors (1.00 vs 0.99, $t = 0.70$, $p = 0.24$), but it does reduce the time they spend reading general risk factors (0.71 vs 0.74, $t = 2.71$, $p < 0.00$). The failure of a *Numbered Summary* to reduce the time spent reading specific risk factors may be due to potential investors fixating on them because they appear to be ranked at the top of the risk factor section. This would give the investors the impression that the firm-specific risk factors are important and worthy of further investigation, which can further explain the lack of risk perception attenuation in the *Numbered Summary* conditions shown in the main results.

Robustness Analyses

As previously mentioned, some participants failed the manipulation checks. Acknowledging that the success rates are not ideal, this section excludes the observations of the participants who failed the manipulation checks to see whether the results still hold. Specifically, I separately drop the *Categorized* manipulation check failures for the H1 and H2 analysis and drop the *Extra Risks* manipulation check

failures for the H3 and H4 analysis, as each manipulation is particularly relevant for their respective hypotheses.¹⁰

Testing H1 and H2 by Excluding Participants who Failed on the Categorized Manipulation

After removing the failed *Categorized* manipulation check observations for the H1 and H2 analyses, the manipulation failure-free results are similar to the main results. The formal ANOVA contrast tests tell us that the means of *Company Riskiness* are significantly different for the values of the *Categorized* manipulation ($t = 1.90$, $p = 0.03$) and that the means are attenuated once a summary statement is included in the risk factor section ($t = 2.24$, $p = 0.01$), boosting support for H1 and H2, respectively. Further validation is provided by the contrast that separates the results by *Summary* condition, telling us that risk perceptions are significantly higher for the *Categorized Present* condition than the *Categorized Absent* condition when there is no summary (7.29 vs. 6.18, $t = 2.24$, $p = 0.01$), but that no such significance exists when a summary is included (6.79 vs. 6.73, $t = 0.16$, $p = 0.87$).

Testing H3 and H4 by Excluding Participants who Failed on the Extra Risks Manipulation

Removing the failed *Extra Risks* manipulation check observations produces results that are mostly insignificant, but stronger than the main results and consistent with H3 null rejection and H4. The formal ANOVA contrast tests tell us that the means of *Company Riskiness* are not significantly different for the values of the *Extra Risks* manipulation within the *Categorized Present* condition ($t = -1.24$, $p = 0.11$). Observing the interaction between *Extra Risks* and *Summary* shows us that having a summary does not make a significant impact on the difference of *Company Riskiness* means

¹⁰ The *Summary* manipulation check failures were not removed because doing so would result in a significant decrease in the number of observations (61 observations for the H1 and H2 analysis and 51 observations for the H3 and H4 analysis). This means that only about half of the results would be usable so it was best to limit the manipulation failure removals to only the differentiating manipulations of the two sets of hypotheses. Similarly, the results were consolidated across *Summary* types due to the loss of observations that occurred when excluding the manipulation check failures.

between the *Extra Risks Present* and *Extra Risks Absent* conditions ($t = .29, p = 0.39$). However, the contrast that separates the results by *Summary* condition shows that the mean *Company Riskiness* assessments are insignificantly different between the *Extra Risks Present* condition and the *Extra Risks Absent* condition when there is no summary (7.00 vs. 7.05, $t = -0.07, p = 0.94$), but that risk perceptions are significantly lower for the *Extra Risks Present* condition than for the *Extra Risks Absent* condition when a summary is included (6.45 vs. 7.31, $t = -2.19, p = 0.03$).

Essentially, including a summary in a risk factor section with more general risks has the ability to make potential investors feel a company is less risky than when no summary is included and when extra general risks are absent, especially when investors are aware that they have more risks to read. This is consistent with H4, which predicts that having extra general risks in a categorized risk factor section will decrease risk perceptions when a summary is provided.

CONCLUSION

The SEC's Regulation S-K modernization is intended to be a suitable answer to the lack of relevance that has seemingly been plaguing the annual report's risk factor section in recent years. The risk factor section lacked a greatly defined, uniform structure, but the Regulation S-K modernization aims to solve this by outlining stricter guidelines for mandatory implementation in companies' future risk factor sections. The two guidelines from the Regulation S-K modernization that are explored in this paper are the categorization of risk factors according to whether they are firm-specific risks or general risks and the inclusion of a summary if the risk factor section surpasses 15 pages.

This study implements an experimental design to observe whether two mandated format changes to the annual report risk factor section affect investors' risks

perceptions of a company for which they are considering purchasing stock. The study's experiment also examines a possible strategic management response to the SEC's updated regulation, namely that, in an attempt to attenuate the predicted increase in risk perceptions caused by risk factor categorization, management may choose to include additional general risks in the risk factor section to dilute the average perception of *Company Riskiness*.

Prior findings show that firm-specific risk factors are more relevant to investors than general risk factors (Bao & Datta 2014; Hope et al. 2016), but I provide evidence that the placement a *Bulleted Summary* in the risk factor section is enough to attenuate investors' increased perceptions of *Company Riskiness* caused by having firm-specific risks and general risks under separate headlines, with firm-specific risks on top. However, placing a *Numbered Summary* in the risk factor section is not enough to attenuate increased perceptions of *Company Riskiness*. Also, consistent with Fanning et al. (2014), robustness analysis suggests that management's strategic and discretionary inclusion of more general risk factors within a categorized risk factor section will significantly dilute risk perceptions when a summary is included in the risk factor section.

In addition to the incorporation of general risks, a *Bulleted Summary* in a risk factor section that is 15 pages or less becomes a discretionary tool that management can use to manipulate investors' *Company Riskiness* perceptions. Since it is likely that the SEC's intention for the *Summary* disclosure was for it to increase investors' awareness of a company's firm-specific risk factors, the regulatory body needs to be aware that this effect is outweighed by the dilution effect caused by the visibility of all risk factors in one concise and compact space. The SEC also needs to consider any strategic response by company management that may undermine their effort to regain risk factor section relevance. Finally, investors should be aware of the effects that

merely rearranging or restating risks, whether mandated or discretionary, can have on their risk perceptions and decision-making abilities.

Limitations of this study include the sample of participants used to generate the results. I recruited and filtered participants using Mturk, but conducting the study with MBA students, or even seasoned financial professionals, might be more applicable. My analysis also did not test for every updated risk factor section change in the Regulation S-K modernization update. I focus on the structural and format changes and do not explore the several content changes included in the update. Also, although I compare summary conditions that include fewer general risks to those that receive more general risks, I do not have a condition where the summary has no general risks that I can compare with the conditions where the general risks are included. Finally, I observe only two true discretionary strategies that management may implement in order to attenuate the likely increase in potential investors' risk perceptions caused by the update's categorization requirement.

Future research might explore the other Regulation S-K modernization requirements, particularly those that affect the content of the risk factor section. Future research might also explore other discretionary mitigation strategies that are within the confines of the newly updated rules. In this study, I observe a setting where I discover that risk perceptions are higher for firm-specific risks than for general risks. If possible, future research may wish to keep severity levels comparable among firm-specific and general risks to tease out the effect of risk factor relevance. Similarly, this study does not indicate to participants how likely the risks are to be realized, but if investors were equipped with this knowledge, either via the company or outside sources, it would be interesting to discover how the investors' risk perceptions might change. This study counterbalanced risk factors within the firm-specific and risk general sections in order to reduce any effect risk factor ordering, but future research

might wish to look into how strategic risk factor ordering, based on risk factor severity, probability, or another factor, might influence investor choices. Finally, future studies may wish to include risk factor sections of varied lengths to see whether the length of a risk factor description plays a role in risk perceptions.

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TABLE 1

Demographics Descriptive Statistics

	Condition Type ^a									Total
	Categorized Present; Bulleted Summary Present;	Categorized Present; Numbered Summary Present;	Categorized Present; Summary Absent;	Categorized Present; Bulleted Summary Present;	Categorized Present; Numbered Summary Present;	Categorized Present; Summary Absent;	Categorized Absent; Bulleted Summary Present;	Categorized Absent; Numbered Summary Present;	Categorized Absent; Summary Absent;	
	Extra Risks Present	Extra Risks Present	Extra Risks Present	Extra Risks Absent	Extra Risks Absent	Extra Risks Absent	Extra Risks Absent	Extra Risks Absent	Extra Risks Absent	
	Present	Present	Present	Absent	Absent	Absent	Absent	Absent	Absent	
male ^b	0.68 (0.47) [38]	0.5 (0.51) [36]	0.69 (0.47) [39]	0.69 (0.47) [36]	0.74 (0.45) [38]	0.56 (0.50) [36]	0.76 (0.43) [38]	0.74 (0.44) [39]	0.61 (0.49) [36]	0.67 (0.47) [336]
college	3.16 (0.97) [38]	2.97 (0.96) [37]	3.08 (0.78) [38]	2.86 (1.05) [36]	2.97 (1.17) [38]	3.03 (0.84) [36]	2.84 (1.08) [38]	3.26 (1.14) [39]	3.08 (0.73) [36]	3.03 (0.98) [336]
yearsworkingexperience	10.95 (7.45) [38]	15.05 (11.61) [37]	13.36 (11.30) [39]	16.53 (12.74) [36]	13.29 (10.04) [38]	14.14 (10.91) [36]	18.29 (14.78) [38]	13.36 (11.53) [39]	11.75 (10.09) [36]	14.07 (11.39) [337]
yearsinvestmentexperience	8.66 (11.24) [38]	10.59 (11.03) [37]	8.72 (9.89) [39]	10.17 (9.01) [36]	8.34 (7.58) [38]	8.31 (9.42) [36]	7.87 (7.66) [38]	7.33 (7.84) [39]	7.42 (7.03) [36]	8.59 (9.04) [337]

^aThe study's conditions are variations of the values of the three main manipulations of the study. *Categorized*=1 if the risk factor section is divided into general and specific risk factor sections and 0 if there is no such categorization. *Summary*=1 if the risk factor section contains a bulleted or numbered summary of risk factors before they are explained in more detail and 0 if there is no such summary. *Extra Risks*=1 if the risk factor section contains 5 more general risk factors and 0 if there are no extra general risk factors.

^bMeans, (standard deviations), and [n] are presented, by condition type, for various participant demographic variables. *Male*=1 for participants who are male and 0 for participants who are female. *College* is a participant's highest level of education where 0=participants with No College, 1 for participants with Some College, 2 for participants with an Associate's Degree, 3 for participants with a Bachelor's Degree, 4 for participants with a Master's Degree, and 5 for participants with a Doctorate. *Yearsworkingexperience* and *yearsinvestmentexperience* are the number of years a participant has worked and the number of years he or she has invested or traded stocks, bonds, options, futures, or forex, respectively

TABLE 2

Company Risk Assessments

Descriptive Statistics^a

		<i>Categorized Absent</i>	<i>Categorized Present</i>	
			<i>Extra Risks Absent</i>	<i>Extra Risks Present</i>
<i>Summary Absent</i>		6.58 (2.18) [36]	7.08 (1.61) [36]	7.26 (2.07) [39]
<i>Summary Present</i>	<i>Bulleted Summary</i>	6.82 (2.15) [38]	6.56 (1.81) [36]	6.45 (2.30) [38]
	<i>Numbered Summary</i>	6.33 (2.04) [39]	7.21 (1.96) [38]	7.22 (1.87) [37]

^aMeans, (standard deviations), and [n] are presented, by condition type, for the *Company Riskiness* dependent variable. *Company Riskiness* is measured by participant response, on an 11-point scale, to the following question: "How risky do you consider the company to be?". 0 = "Not risky at all" and 10 = "Very risky."

TABLE 3

Tests of Hypotheses 1 & 2 for *Company Riskiness* DV (*Bulleted and Numbered Summary combined vs. No Summary*)

Company Risk Assessments

Panel A: ANOVA Analysis

Source	Sum of Squares	df	Mean Square	F	p-value^a
Model	19.57	3	6.52	1.58	0.10
<i>Categorized</i>	1.02	1	1.02	0.25	0.31
<i>Summary</i>	2.55	1	2.55	0.62	0.22
<i>Categorized x Summary</i>	10.44	1	10.44	2.53	0.06
Error	904.35	333	4.13		

Panel B: Hypothesis 1

Separating risk factors into firm-specific and general risk factor sub-sections in the absence of summary results in a higher assessment of firm risk by potential investors.

T Statistic	p- value^b
1.48	0.07

Panel C: H2 Breakdown by *Summary* Type

	t	p-value^c
With <i>Summary Present</i>	1.02	0.31
With <i>Summary Absent</i>	1.48	0.07

^aHypothesis is tested using an ANOVA. Given the directional expectations suggested by the theory and hypothesis, all panels have one-tailed tests.

^bH1 is tested using contrast weights of -1 and +1 for potential investors in the *Categorized Absent* and *Categorized Present* conditions, respectively.

^cH2 is analyzed with a contrast that breaks down the *Categorized* manipulation by *Summary* condition.

TABLE 4

**Tests of Hypotheses 2 (*Bulleted Summary* vs *Summary Absent*)
for *Company Riskiness* DV**

Company Risk Assessments

Panel A: ANOVA Analysis

Source	Sum of Squares	df	Mean Square	F	p-value^a
Model	19.57	3	6.52	1.58	0.10
<i>Categorized</i>	1.02	1	1.02	0.25	0.31
<i>Summary</i>	2.55	1	2.55	0.62	0.22
<i>Categorized x Summary</i>	10.44	1	10.44	2.53	0.06
Error	904.35	219	4.13		

Panel B: H2 Breakdown by *Summary* Type

	t	p-value^b
With <i>Bulleted Summary Present</i>	-0.78	0.44
With <i>Summary Absent</i>	1.46	0.07

^aHypothesis is tested using an ANOVA. Given the directional expectations suggested by the theory and hypothesis, all panels have one-tailed tests.

^bH2 is analyzed with a contrast that breaks down the *Categorized* manipulation by *Bulleted Summary* condition.

TABLE 5

**Tests of Hypotheses 2 (*Numbered Summary* vs *Summary Absent*)
for *Company Riskiness* DV**

Company Risk Assessments

Panel A: ANOVA Analysis

Source	Sum of Squares	df	Mean Square	F	p-value ^a
Model	29.07	3	9.69	2.52	0.03
<i>Categorized</i>	27.47	1	27.47	7.15	0.00
<i>Summary</i>	0.62	1	0.62	0.16	0.34
<i>Categorized</i> x <i>Summary</i>	0.96	1	0.96	0.25	0.31
Error	849.39	221	3.84		

Panel B: H2 Breakdown by *Summary* Type

	t	p-value ^b
With <i>Numbered Summary Present</i>	2.27	0.02
With <i>Summary Absent</i>	1.52	0.07

^aHypothesis is tested using an ANOVA. Given the directional expectations suggested by the theory and hypothesis, all panels have one-tailed tests.

^bH2 is further analyzed with a contrast that breaks down the *Categorized* manipulation by *Numbered Summary* condition.

TABLE 6

Tests of Hypotheses Involving *Extra Risks* (H3 & H4) for *Company Riskiness* DV

Company Risk Assessments

Panel A: ANOVA Analysis

Source	Sum of Squares	df	Mean Square	F	p-value ^a
Model	5.91	3	1.97	0.51	0.34
<i>Extra Risks</i>	0.08	1	0.08	0.02	0.44
<i>Summary</i>	5.25	1	5.25	1.35	0.12
<i>Extra Risks</i> x <i>Summary</i>	0.55	1	0.55	0.14	0.35
Error	852.87	220	3.88		

Panel B: Hypothesis 3

Adding more general risks to categorized risk factor sections, in the absence of summary, will not decrease investor risk perceptions.

Test Statistic	p-value ^b
0.32	0.75

Panel C: H4 Breakdown by *Summary* Type

	t	p-value ^c
With <i>Summary Present</i>	-0.20	0.42
With <i>Summary Absent</i>	0.32	0.75

^aBoth hypotheses were tested using ANOVA. Given the directional expectations suggested by the theory and hypotheses, tests for H3 are two-tailed and tests for H4 are one-tailed.

^bH3 is tested using contrast weights of -1 and +1 for potential investors in the *Extra Risks Absent* and *Extra Risks Present* conditions, respectively.

^cH4 is analyzed with a contrast that breaks down the *Extra Risks* manipulation by *Summary* type.

TABLE 7

Effect of Risk Perception on *Future Material Loss Likelihood* Assessments

Panel A: Aggregated

Analysis of Covariance

Source	Sum of Squares	df	Mean Square	F	p-value ^a
Model	627.03	4	156.76	56.95	0.00
<i>Company Riskiness</i> (covariate)	612.11	1	612.11	222.38	0.00
<i>Categorized</i>	0.07	1	0.07	0.03	0.87
<i>Summary</i>	6.62	1	6.62	2.40	0.12
<i>Categorized</i> x <i>Summary</i>	6.96	1	6.96	2.53	0.11
Error	913.83	332	2.75		

Panel B: Bulleted Summary vs. No Summary

Analysis of Covariance

Source	Sum of Squares	df	Mean Square	F	p-value ^a
Model	501.76	4	125.44	44.1	0.00
<i>Company Riskiness</i> (covariate)	477.95	1	477.95	168.03	0.00
<i>Categorized</i>	0.05	1	0.05	0.02	0.45
<i>Summary</i>	7.24	1	7.24	2.54	0.06
<i>Categorized</i> x <i>Summary</i>	6.23	1	6.23	2.19	0.07
Error	620.09	218	2.84		

Panel C: Numbered Summary vs. No Summary

Analysis of Covariance

Source	Sum of Squares	df	Mean Square	F	p-value ^a
Model	388.37	4	97.09	41.43	0.00
<i>Company Riskiness</i> (covariate)	369.01	1	369.01	157.44	0.00
<i>Categorized</i>	0.47	1	0.47	0.20	0.33
<i>Summary</i>	3.48	1	3.48	1.48	0.11
<i>Categorized</i> x <i>Summary</i>	3.59	1	3.59	1.53	0.11
Error	515.63	220	2.34		

^aTested using an ANOVA. Given the directional expectations suggested by the theory and hypothesis, all panels have one-tailed tests.

TABLE 8

*Readability Assessments***Descriptive Statistics^a****Panel A: Easy-Navigate**

		<i>Categorized Absent</i>	<i>Categorized Present</i>	
			<i>Extra Risks Absent</i>	<i>Extra Risks Present</i>
<i>Summary Absent</i>		4.64	4.83	4.77
		1.42	0.94	1.2
		[36]	[36]	[39]
<i>Summary Present</i>	<i>Bulleted Summary</i>	4.32	4.58	4.89
		1.38	1.34	1.11
		[38]	4.89	[38]
	<i>Numbered Summary</i>	4.44	4.89	4.73
		1.21	0.95	1.3
		[39]	[38]	[37]

Panel B: *Easy-Read*

		<i>Categorized Absent</i>	<i>Categorized Present</i>	
			<i>Extra Risks Absent</i>	<i>Extra Risks Present</i>
<i>Summary Absent</i>		4.64	4.44	4.92
		1.22	1.27	0.98
		[36]	[36]	[39]
<i>Summary Present</i>	<i>Bulleted Summary</i>	4.55	4.69	4.82
		1.25	1.12	1.16
		[38]	[36]	[38]
	<i>Numbered Summary</i>	4.44	4.97	4.86
		1.07	1.15	1.06
		[39]	[38]	[37]

Panel C: *Easy-Plan*

		<i>Categorized Absent</i>	<i>Categorized Present</i>	
			<i>Extra Risks Absent</i>	<i>Extra Risks Present</i>
<i>Summary Absent</i>		4.86	4.89	4.79
		1.22	1.14	1.06
		[36]	[36]	[39]
<i>Summary Present</i>	<i>Bulleted Summary</i>	4.61	4.61	4.79
		1.5	1.18	1.26
		[38]	[36]	[38]
	<i>Numbered Summary</i>	4.1	4.76	4.65
		1.37	1.1	1.38
		[39]	[38]	[37]

^aMeans, (standard deviations), and [n] are presented, by condition type, for the *Readability* measurements. *Easy-Plan*, *Easy-Read*, and *Easy-Navigate*. Each variable pertains to a separate question, for which participants rate their agreement using a 7-point scale (0 = “Strongly disagree”, 7 = “Strongly agree”): “It was easy for me to plan my time in reading the risk factor disclosure”, “The risk disclosure was easy to read”, and “The risk disclosure was easy to navigate.”

FIGURE 1

The Effects of Categorization and *Bulleted Summary* on Participants' Risk Perceptions

FIGURE 2

The Effects of Categorization and *Numbered Summary* on Participants' Risk Perceptions

FIGURE 3

The Effects of *Extra Risks* and *Summary* on Participants' Risk Perceptions

APPENDIX A

Variable Definitions

Panel A: Summary of Experimental Conditions for H1 & H2

		<i>Categorized Absent</i>	<i>Categorized Present</i>	
			<i>Extra Risks Absent</i>	<i>Extra Risks Present</i>
<i>Summary Absent</i>		A	B	C
<i>Summary Present</i>	<i>Bulleted Summary</i>	D	E	F
	<i>Numbered Summary</i>	G	H	I

Panel B: Summary of Experimental Conditions for H3 & H4

		<i>Categorized Present</i>	
		<i>Extra Risks Absent</i>	<i>Extra Risks Present</i>
<i>Summary Absent</i>		J	K
<i>Summary Present</i>		L	M

Note:

- H1: $(A+D)/2 < (B+E)/2$
- H2: $(B - A) > (E - D)$
- H3: $(J + L)/2$ vs. $(K + M)/2$
- H4: $(K - J) > (M - L)$
- I also explore the effect of a numbered summary, which is to see if $(B - A)$ is greater than $(H - G)$.

Panel C: Independent Variables

Categorized - manipulation that breaks the risk factor section into two sub-sections, where firm-specific risks (risks that are directly relevant to the company) are located in a sub-section above general risks (risks that are indirectly relevant to the company), which are under a separate heading.

Categorized Absent - The risk factor section IS NOT categorized.

Categorized Present - The risk factor section IS categorized.

Summary - manipulation that includes a brief summary disclosure at the beginning of the risk factor section.

Summary Absent - The risk factor section DOES NOT include a summary disclosure.

Summary Present - The risk factor section DOES include a summary disclosure.

Bulleted Summary Present - The risk factor section includes a summary disclosure where the brief risk factor summaries are delineated in a bullet-point format.

Numbered Summary Present - The risk factor section includes a summary disclosure where the brief risk factor summaries are delineated in a numbered format.

Extra Risks - manipulation that includes five extra general risk factors at the end of the *Categorized Present* risk factor sections.

Extra Risks Absent - The risk factor section DOES NOT include five extra general risk factors at the end of the *Categorized Present* risk factor sections.

Extra Risks Present - The risk factor section DOES include five extra general risk factors at the end of the *Categorized Present* risk factor sections.

Panel D: Dependent Variable

Company Riskiness - Variable that is measured by the following question for how participants judge the current riskiness of the company: “*How risky do you consider the company to be?*” Measured on 11-point scale, where 0 = “Not risky at all” and 10 = “Very risky.”

Panel E: Alternative Dependent Variable

Future Material Loss Likelihood - Variable that is measured by the following question for how participants judge the future financial trajectory of the company: “*How likely will the firm incur a future material loss due to the risk factors?*” Measured on 11-point scale, where 0 = “Material loss not at all likely” and 10 = “Material loss very likely.”

APPENDIX B

Page Layouts of Conditions

Panel A: Summary Absent conditions

<i>Summary Absent</i>		<i>Categorized Present, Extra Risks Absent</i>	<i>Categorized Present, Extra Risks Present</i>	<i>Categorized Absent</i>
	Page 1 (Body 1)	<p>Item 1A. Risk Factors</p> <p>The Company may experience financial losses or other damages from the following:</p> <p>Risks Specific to Our Company [Extended Description of 5 Specific Risk Factors (Body)]</p>	<p>Item 1A. Risk Factors</p> <p>The Company may experience financial losses or other damages from the following:</p> <p>Risks Specific to Our Company [Extended Description of 5 Specific Risk Factors (Body)]</p>	<p>Item 1A. Risk Factors</p> <p>The Company may experience financial losses or other damages from the following:</p> <p>[Extended Description of 5 Mixed Risk Factors (Body)]</p>
	Page 2 (Body 2)	<p>General Risks [Extended Description of 5 General Risk Factors (Body)]</p>	<p>General Risks [Extended Description of 5 General Risk Factors (Body)]</p>	<p>[Extended Description of 5 Mixed Risk Factors (Body)]</p>
	Page 3 (Body 3)		<p>General Risks [Extended Description of 5 General Risk Factors (Body)]</p>	

Page Layouts of Conditions

Panel B: Summary Present conditions

		<i>Categorized Present, Extra Risks Absent</i>	<i>Categorized Present, Extra Risks Present</i>	<i>Categorized Absent</i>
<i>Summary Present</i>	Page 1 (Summary)	Item 1A. Risk Factors Risk Factor Summary The Company may experience financial losses or other damages from the following: Risks Specific to Our Company [Brief list of 5 Specific Risk Factors] General Risks [Brief list of 5 General Risk Factors]	Item 1A. Risk Factors Risk Factor Summary The Company may experience financial losses or other damages from the following: Risks Specific to Our Company [Brief list of 5 Specific Risk Factors] General Risks [Brief list of 5 General Risk Factors]	Item 1A. Risk Factors Risk Factor Summary The Company may experience financial losses or other damages from the following: [Brief list of 10 Mixed Risk Factors]
	Page 2 (Body 1)	Risks Specific to Our Company [Extended Description of 5 Specific Risk Factors (Body)]	Risks Specific to Our Company [Extended Description of 5 Specific Risk Factors (Body)]	[Extended Description of 5 Mixed Risk Factors (Body)]
	Page 3 (Body 2)	General Risks [Extended Description of 5 General Risk Factors (Body)]	General Risks [Extended Description of 5 General Risk Factors (Body)]	[Extended Description of 5 Mixed Risk Factors (Body)]
	Page 4 (Body 3)		General Risks [Extended Description of 5 General Risk Factors (Body)]	

APPENDIX C

Instructions

Your Task

Assume you are a potential investor in Quirk Inc.'s stock.

The Securities and Exchange Commission (SEC) requires that companies disclose, within a risk factor section at the beginning (Item 1A) of their annual Form 10-K filings, “the most significant factors that make an investment (in your stock) speculative or risky”.

On the next page, you will be shown background information for the company Quirk Inc. This information will be followed by the risk factor section from Quirk's most recent publicly available annual report.

After reading the background information and risk factor section, you will be instructed to answer some follow up questions.

APPENDIX D

Background Information

Quirk Inc. is a US publicly listed company that designs and sells a series of mobile entertainment tablets. These tablets allow users to play games, surf the Internet, watch movies, read books, and more while on the go.

The company's products are designed at Quirk's headquarters in San Diego, California. Manufacturing is then outsourced to contract manufacturers in China, India, and Vietnam.

Quirk adopts an online retail model with no physical store presence. Its tablets are sold and shipped worldwide directly through its website and other online retailers.

Quirk's tablets run on Queue, a proprietary operating system developed by the company. Third-party software (e.g. games, messengers, navigation, and word processing apps) can be downloaded to enhance the functionality of these tablets.

The third-party software is developed by independent developers, who may sell the software to customers for a fee. Quirk receives a 40% commission for software sold through its online Queue Store. Tablet users can access the Queue Store by tapping an icon on their devices.

The annual revenue (US\$80 million) breakdown, by corporate division, for the most recent financial year is:

- 65% from the sale of tablets (Hardware)
- 32% from commissions earned through the Queue Store (Software)
- 3% from the sale of batteries, cables, cases (Accessories)

Compared to its competitors, most of Quirk's assets are intangibles, in the form of intellectual property, brand value, and human capital. Quirk invests heavily in intellectual property (designs and patents) development, relying on talented software programmers and hardware designers to differentiate its products from those of its competitors.

The global tablet market is competitive. Quirk faces intense competition from tablet companies located in Asia, where costs are generally lower and intellectual property protection is weak.

What a typical tablet looks like

APPENDIX E

Pre-Screening

Before you start this survey, we would like to ask you a few questions to determine whether you belong to the target audience we are interested in for this study.

Is English your native language? (Yes; No)

How many years of full-time work experience do you have?

Have you ever directly bought or sold an individual company's common stock or debt securities? If yes, approximately how many times? (No, never; Yes, 1 - 10 times; Yes, 11 - 30 times; Yes, More than 30 times)

Do you plan to invest in an individual company's common stock or debt securities in the next five years? (Yes; No)

How would you assess your overall financial knowledge? (7-point Likert scale: 1 = Very Low; 4 = Moderate; 7 = Very high)

Dependent Variable Questions

- 1) How risky do you consider the company to be? (11-point Likert scale: 0 = Not risky at all; 5 = Fairly risky; 10 = Very risky)
- 2) How likely will the firm incur a future material loss due to the risk factors? (11-point Likert scale: 0 = Material loss not at all likely; 5 = Material loss fairly likely; 10 = Material loss very likely)
- 3) Please explain your responses to the previous two questions. _____

Follow-Up Questions

- 1) In the previous task, **a list** of risk factors was shown **before** the full description of each risk: (True; False)
- 2) In the previous task, the risk factor disclosure was **separated** into two risk categories (general and firm-specific): (True; False)
- 3) In the previous task, **only two** pages of risk factor (not including any summary list) descriptions were provided: (True; False)
- 4) Write down all the risk factors you can remember.
- 5) What things did you consider when making your risk assessment choices? Briefly list a few points:
- 6) Place the slider on the number 7.
- 7) To what extent would the firm's earnings in the future be affected by these risk factors? (11-point Likert scale: 0 = Future earnings not affected at all; 5 = Future earnings moderately affected; 10 = Future earnings greatly affected)
- 8) Please indicate the extent to which you agree with the following statements: (7-point Likert scale: 1 = Strongly disagree; 4 = Neither agree nor disagree; 7 = Strongly agree)
 - a) I find the risk factor disclosure easy to understand.
 - b) The company is strongly affected by risks that are pertaining solely to the company.
 - c) The company is strongly affected by risks that can apply to many firms.
 - d) I spent more time on risk factors that are pertaining solely to the company than risk factors that can apply to other firms as well.
 - e) The structure of the disclosure is clear.
 - f) It was easy for me to plan my time in reading the risk factor disclosure.
 - g) I did not pay attention to the risk factors that are listed in the back end.
 - h) There are a lot of risk factors that were disclosed by the company.
 - i) The risk disclosure was easy to read.
 - j) There are many important risks in the disclosure.
 - k) There are many minor risks the company is facing.
 - l) The risk disclosure was easy to navigate.
- 9) _____ of the risks in the disclosure are important. (None; Few; Several; All)
- 10) _____ of the risks in the disclosure are minor. (None; Few; Several; All)

Additional Follow-Up Questions

Please answer the following three questions for each of the risk factors listed below:

- 1) Is this a general or company-specific risk? (general risk; company specific risk)
- 2) How important is this risk factor to the company? (11-point Likert scale: 0 = Not important at all; 5 = Fairly important; 10 = Very important)
- 3) How much of a risk is this risk factor to the company? (11-point Likert scale: 0 = Not risky at all; 5 = Fairly risky; 10 = Very risky)

Risk Factor: The Company may be unable to compete effectively on price due to the cost of developing and maintaining its own operating systems.

Risk Factor: The Company's reliance on overseas partners may result in business or reputational damage if component and product manufacturing or logistics experience issues.

Risk Factor: There may be unauthorized use of confidential intellectual property by contractors, leading to significant financial and operational losses.

Risk Factor: The Company's future performance depends in part on third-party software developers' digital content, which may not be available on commercially reasonable terms or at all.

Risk Factor: To remain competitive and stimulate customer demand, the Company must successfully compete without a traditional retail store presence.

Risk Factor: Global and regional economic conditions could materially adversely affect the Company's business.

Risk Factor: The Company's business may be impacted by natural disasters.

Risk Factor: The Company's quarterly revenue and operating results are subject to fluctuation.

Risk Factor: The Company's business may be impacted by public health issues, warfare, or terrorist attacks.

Risk Factor: The Company's international operations are subject to laws and regulations.

Risk Factor: The Company's stock price is subject to volatility.

Risk Factor: The Company's financial performance is subject to risks associated with changes in the value of the U.S. dollar relative to local currencies.

Risk Factor: The Company could be subject to changes in its tax rates, the adoption of new U.S. or international tax legislation, or exposure to additional tax liabilities.

Risk Factor: The Company is exposed to credit risk and collectability risk on its accounts.

Risk Factor: The Company is exposed to fluctuations in the financial market.

Demographic Questions

- a) What is your gender?
- b) What is your highest level of education? (No College; Some College; Associates Degree; Bachelors Degree; Masters Degree; Doctorate)
- c) Quirk is a company that sells tablet devices. (True; False)
- d) What is your familiarity with financial statements? (10-point Likert scale: 0 = Not familiar at all; 5 =Moderately familiar; 10 = Very familiar)
- e) How many years of investment or trading experience (e.g. stocks, options, bonds, forex, futures) do you have in total?
- f) What is your major area/specialization of educational study? (Accounting; Business (Non-Accounting); Non-Business; Not Applicable)
- g) How many years of working experience do you have in total?
- h) Your current or most recent working experience is most closely related to (Tick all that apply): (Risk management/regulatory compliance; Auditing; Tax; Accounting; Finance, banking, or investment; Sales or marketing; General management; Human Resources; Other)

APPENDIX F

Conditions

[Categorized Absent, Summary Absent, Extra Risks Absent]

Item 1A. Risk Factors

The Company may experience financial losses or other damages from the following:

The Company's future performance depends in part on third-party software developers' digital content, which may not be available on commercially reasonable terms or at all.

The Company depends on the continued development of innovative software applications by third-party developers to add functionality to its tablets. However, third-party developers may not wish to continue developing software for the Company's platform. If developers focus on competing platforms, the quality and availability of software for the Company's tablets may suffer.

The Company's business may be impacted by public health issues, warfare, or terrorist attacks.

Should major public safety issues arise, the Company could be adversely affected by more stringent employee travel restrictions, additional limitations in freight services, governmental actions limiting the movement of products between regions, delays in production ramps of new products, and disruptions in the operations of the Company's suppliers and contract manufacturers.

The Company may be unable to compete effectively on price due to the cost of developing and maintaining own operating systems.

The Company's tablets run on Queue, the Company's own operating system. The Company faces competition from other tablet manufacturers that use freely available, open-source operating systems. These competitors do not incur the costs needed to develop and maintain their own operating systems. Thus, they may be able to offer better prices to consumers.

The Company's business may be impacted by natural disasters.

Many of the operations of the Company, its suppliers, and manufacturers are in areas where earthquakes and other natural disasters may occur. Global climate change could result in more frequent and intense natural disasters, which could create delays and operating inefficiencies and make it difficult for the Company to deliver products to its customers. The Company could lose significant revenue and experience significant expenditures in order to resume operations.

The Company's reliance on overseas partners may result in business or reputational damage if component and product manufacturing or logistics experience issues.

All of the Company's tablets are manufactured by a few contract manufacturers located in China, India, and Vietnam. The Company has also outsourced much of its transportation and logistics management. This reduces the Company's control over production and distribution processes.

Global and regional economic conditions could materially adversely affect the Company's business.

International macroeconomic conditions, including inflation, recession, changes to fiscal and monetary policy, and higher interest rates could adversely affect demand for the Company's products. Decreases in income or asset values, increases in fuel and other energy prices, increases in healthcare costs, and other economic changes could also adversely affect consumer spending.

There may be unauthorized use of confidential intellectual property by contractors, leading to significant financial and operational losses.

The Company's tablet manufacturing process is outsourced to a few contract manufacturers in China, India, and Vietnam. The necessary communication of detailed product designs, plans, and specifications to these manufacturers may compromise the Company's intellectual property.

The Company's international operations are subject to laws and regulations.

The Company derives most of its revenue internationally. Compliance with applicable, especially new, U.S. and foreign laws and regulations, such as import and export requirements, anti-corruption laws, data privacy and data localization requirements, environmental laws, labor laws, and anti-competition regulations, increases costs. Any violation by the Company's employees or contractors could adversely affect the Company's brand, growth, and business.

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[Categorized Absent, Bulleted Summary Present, Extra Risks Absent]

Item 1A. Risk Factors

Risk Factor Summary

The Company may experience financial losses or other damages from the following:

- third-party digital content unavailability
- public health issues, warfare, or terrorist attacks
- inability to compete effectively on price due to cost of developing own operating systems
- natural disasters
- overseas partners' component and product manufacturing or logistics issues
- adverse global and regional economic conditions
- unauthorized intellectual property usage
- international laws and regulations violations
- inability to compete effectively without retail stores
- quarterly revenue and operating results fluctuation

Risks Factor Section

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2. public health issues, warfare, or terrorist attacks
3. inability to compete effectively on price due to cost of developing own operating systems
4. natural disasters
5. overseas partners' component and product manufacturing or logistics issues
6. adverse global and regional economic conditions
7. unauthorized intellectual property usage
8. international laws and regulations violations
9. inability to compete effectively without retail stores
10. quarterly revenue and operating results fluctuation

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The Company is exposed to fluctuations in the financial market.

The Company's investments in financial assets can be negatively affected by risks in the financial markets, including liquidity, credit deterioration, economic conditions, political risk, sovereign risk, interest rate fluctuations, or other factors. As a result, the value and liquidity of the Company's investments may fluctuate substantially. This could result in significant realized losses.

The Company could be subject to changes in its tax rates, the adoption of new U.S. or international tax legislation, or exposure to additional tax liabilities.

The Company is subject to taxes in the U.S. and internationally. Due to economic and political conditions, tax rates in various countries may be subject to significant changes. The Company's effective tax rates could be impacted by changes in the mix of earnings in countries with differing statutory tax rates, changes in the valuation of deferred tax assets and liabilities, or changes in tax laws or their interpretation. The Company is also subject to audits by tax authorities.

The Company's financial performance is subject to risks associated with changes in the value of the U.S. dollar relative to local currencies.

The Company's product margins in foreign countries could be adversely affected by currency exchange rate fluctuations. The strengthening of foreign currencies relative to the U.S. dollar may increase the Company's cost of components, while the weakening of foreign currencies adversely affects the U.S. dollar value of the Company's foreign currency. If the Company consequently raises international product prices, product demand may decrease.

The Company's stock price is subject to volatility.

The Company's stock price may experience substantial price volatility. The Company, the technology industry, and the stock market as a whole, have experienced extreme stock price and volume fluctuations. If the Company fails to meet expectations related to future growth and profitability, its stock price may decline significantly, which could have an adverse impact on investor confidence and employee retention.

The Company is exposed to credit risk and collectability risk on its accounts.

The Company's outstanding receivables expose it to credit and collectability risk, which is higher in certain international markets. There is no assurance such procedures to monitor and limit credit risk will effectively limit its credit risk and avoid losses.

[Categorized Present, Bulleted Summary Present, Extra Risks Absent]

Item 1A. Risk Factors

Risk Factor Summary

The Company may experience financial losses or other damages from the following:

Risks Specific to Our Company

- third-party digital content unavailability
- inability to compete effectively on price due to cost of developing own operating systems
- overseas partners' component and product manufacturing or logistics issues
- unauthorized intellectual property usage
- inability to compete effectively without retail stores

General Risks

- public health issues, warfare, or terrorist attacks
- natural disasters
- adverse global and regional economic conditions
- international laws and regulations violations
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Risks Factor Section

Risks Specific to Our Company

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Risks Specific to Our Company

1. third-party digital content unavailability
2. inability to compete effectively on price due to cost of developing own operating systems
3. overseas partners' component and product manufacturing or logistics issues
4. unauthorized intellectual property usage
5. inability to compete effectively without retail stores

General Risks

1. public health issues, warfare, or terrorist attacks
2. natural disasters
3. adverse global and regional economic conditions
4. international laws and regulations violations
5. quarterly revenue and operating results fluctuation

Risks Factor Section

Risks Specific to Our Company

The Company's future performance depends in part on third-party software developers' digital content, which may not be available on commercially reasonable terms or at all.

The Company depends on the continued development of innovative software applications by third-party developers to add functionality to its tablets. However, third-party developers may not wish to continue developing software for the Company's platform. If developers focus on competing platforms, the quality and availability of software for the Company's tablets may suffer.

The Company may be unable to compete effectively on price due to the cost of developing and maintaining own operating systems.

The Company's tablets run on Queue, the Company's own operating system. The Company faces competition from other tablet manufacturers that use freely available, open-source operating systems. These competitors do not incur the costs needed to develop and maintain their own operating systems. Thus, they may be able to offer better prices to consumers.

The Company's reliance on overseas partners may result in business or reputational damage if component and product manufacturing or logistics experience issues.

All of the Company's tablets are manufactured by a few contract manufacturers located in China, India, and Vietnam. The Company has also outsourced much of its transportation and logistics management. This reduces the Company's control over production and distribution processes.

There may be unauthorized use of confidential intellectual property by contractors, leading to significant financial and operational losses.

The Company's tablet manufacturing process is outsourced to a few contract manufacturers in China, India, and Vietnam. The necessary communication of detailed product designs, plans, and specifications to these manufacturers may compromise the Company's intellectual property.

To remain competitive and stimulate customer demand, the Company must successfully compete without a traditional retail store presence.

The Company adopts an online retail model and sells its tablets solely over the Internet. The Company lacks the retail presence of many of its major competitors, which have physical retail stores in various locations. This may make it relatively easier for customers to try out and buy competitor products.

General Risks

The Company's business may be impacted by public health issues, warfare, or terrorist attacks.

Should major public safety issues arise, the Company could be adversely affected by more stringent employee travel restrictions, additional limitations in freight services, governmental actions limiting the movement of products between regions, delays in production ramps of new products, and disruptions in the operations of the Company's suppliers and contract manufacturers.

The Company's business may be impacted by natural disasters.

Many of the operations of the Company, its suppliers, and manufacturers are in areas where earthquakes and other natural disasters may occur. Global climate change could result in more frequent and intense natural disasters, which could create delays and operating inefficiencies and make it difficult for the Company to deliver products to its customers. The Company could lose significant revenue and experience significant expenditures in order to resume operations.

Global and regional economic conditions could materially adversely affect the Company's business.

International macroeconomic conditions, including inflation, recession, changes to fiscal and monetary policy, and higher interest rates could adversely affect demand for the Company's products. Decreases in income or asset values, increases in fuel and other energy prices, increases in healthcare costs, and other economic changes could also adversely affect consumer spending.

The Company's international operations are subject to laws and regulations.

The Company derives most of its revenue internationally. Compliance with applicable, especially new, U.S. and foreign laws and regulations, such as import and export requirements, anti-corruption laws, data privacy and data localization requirements, environmental laws, labor laws, and anti-competition regulations, increases costs. Any violation by the Company's employees or contractors could adversely affect the Company's brand, growth, and business.

The Company's quarterly revenue and operating results are subject to fluctuation.

The Company's profit margins vary across its products, services, geographic segments, and distribution channels. The Company's financial results may be adversely impacted due to shifts in the geographic or channel mix of the Company's sales, component cost increases, or the introduction of new products, including new products with higher cost structures.

[Categorized Present, Bulleted Summary Present, Extra Risks Present]

Item 1A. Risk Factors

Risk Factor Summary

The Company may experience financial losses or other damages from the following:

Risks Specific to Our Company

- third-party digital content unavailability
- inability to compete effectively on price due to cost of developing own operating systems
- overseas partners' component and product manufacturing or logistics issues
- unauthorized intellectual property usage
- inability to compete effectively without retail stores

General Risks

- public health issues, warfare, or terrorist attacks
- natural disasters
- adverse global and regional economic conditions
- international laws and regulations violations
- quarterly revenue and operating results fluctuation
- financial market fluctuations
- tax rate changes, adoption of new U.S. or international tax laws, or exposure to more tax liabilities
- currency rate changes
- stock price volatility
- receivable credit risk

Risks Factor Section

Risks Specific to Our Company

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The Company is exposed to fluctuations in the financial market.

The Company's investments in financial assets can be negatively affected by risks in the financial markets, including liquidity, credit deterioration, economic conditions, political risk, sovereign risk, interest rate fluctuations, or other factors. As a result, the value and liquidity of the Company's investments may fluctuate substantially. This could result in significant realized losses.

The Company could be subject to changes in its tax rates, the adoption of new U.S. or international tax legislation, or exposure to additional tax liabilities.

The Company is subject to taxes in the U.S. and internationally. Due to economic and political conditions, tax rates in various countries may be subject to significant changes. The Company's effective tax rates could be impacted by changes in the mix of earnings in countries with differing statutory tax rates, changes in the valuation of deferred tax assets and liabilities, or changes in tax laws or their interpretation. The Company is also subject to audits by tax authorities.

The Company's financial performance is subject to risks associated with changes in the value of the U.S. dollar relative to local currencies.

The Company's product margins in foreign countries could be adversely affected by currency exchange rate fluctuations. The strengthening of foreign currencies relative to the U.S. dollar may increase the Company's cost of components, while the weakening of foreign currencies adversely affects the U.S. dollar value of the Company's foreign currency. If the Company consequently raises international product prices, product demand may decrease.

The Company's stock price is subject to volatility.

The Company's stock price may experience substantial price volatility. The Company, the technology industry, and the stock market as a whole, have experienced extreme stock price and volume fluctuations. If the Company fails to meet expectations related to future growth and profitability, its stock price may decline significantly, which could have an adverse impact on investor confidence and employee retention.

The Company is exposed to credit risk and collectability risk on its accounts.

The Company's outstanding receivables expose it to credit and collectability risk, which is higher in certain international markets. There is no assurance such procedures to monitor and limit credit risk will effectively limit its credit risk and avoid losses.

[Categorized Present, Numbered Summary Present, Extra Risks Present]

Item 1A. Risk Factors

Risk Factor Summary

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6. financial market fluctuations
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8. currency rate changes
9. stock price volatility
10. receivable credit risk

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