

**PRESENTATION AND PERCEPTION: THE EFFECT OF DISCLOSURE
READABILITY ON LENDING DECISIONS**

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By

David Merrick Shook

Lexington, VA

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ABSTRACT

This paper examines the effect readability has on the perceived creditworthiness of borrowers. I find that reduced readability increases the likelihood that borrowers objectively deserving of an unfavorable credit rating will not receive one. I also find that the overall financial health of a borrower with low creditworthiness is viewed more favorably when the nonfinancial information the borrower provides possesses a low degree of readability. Additionally, I determine that when the readability of a borrower's nonfinancial information is relatively low, the self-reported accuracy with which respondents understood the borrower's nonfinancial information decreases. Finally, regarding affect, I find that when participants received materials with a high degree of readability, respondents in conditions involving borrowers with low creditworthiness (as opposed to borrowers with high creditworthiness) reported higher levels of overall positive affect. This greater amount of positive affect was driven by lower levels of negative affect rather than higher levels of positive affect, a phenomenon potentially linked to emotional suppression employed by participants in their role as a loan officer.

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TABLE OF CONTENTS

1. Introduction.....	1
2. Motivation and Hypotheses	6
2.1. Readability of Disclosures	6
2.2. Cognitive and Affective Reactions to Disclosure Readability	10
3. Methods and Research Design.....	14
3.1. Experimental Design.....	14
3.2. Task and Procedure.....	14
4. Results and Discussion	20
4.1. Participants.....	20
4.2. Nominal Credit Ratings	20
4.3. Likelihood of Lending and Perceptions of Trustworthiness.....	22
4.4. Assignment of Favorable Ratings.....	24
4.5. Assessment of Borrower’s Financial Position	27
4.6. Participants’ Perceived Accuracy of Their Assessments.....	30
4.7. Analysis of Affect.....	31
5. Conclusions and Future Research Opportunities	36
Appendices	
Appendix A: Instructions Provided to All Participants (Regardless of Condition)	40
Appendix B: Borrower Information Provided to Participants in the High Readability (HR) and High Creditworthiness (HC) Condition.....	43
Appendix C: Borrower Information Provided to Participants in the High Readability (HR) and Low Creditworthiness (LC) Condition.....	46
Appendix D: Borrower Information Provided to Participants in the Low Readability (LR) and High Creditworthiness (HC) Condition	49
Appendix E: Borrower Information Provided to Participants in the Low Readability (LR) and Low Creditworthiness (LC) Condition	52
Appendix F: Survey Questions for All Participants	55
Bibliography	58

LIST OF TABLES

Table 1. <i>Rating and Likely</i> Scores by Condition.....	21
Table 2. <i>Trustworthy</i> Scores by Condition	23
Table 3. <i>Favorable Rating</i> Scores by Condition	25
Table 4. <i>Assessment</i> Scores by Condition.....	28
Table 5. <i>Accurate</i> Scores by Condition	30
Table 6. <i>Affect</i> Scores by Condition.....	34

LIST OF FIGURES

Figure 1. Graph Depicting <i>Favorable Rating</i> Scores by Condition	26
Figure 2. Graph Depicting <i>Assessment</i> Scores by Condition	29
Figure 3. Graphs Depicting <i>Total Affect</i> and <i>Negative Affect</i> Scores by Condition	35

“It’s not what you look at that matters, it’s what you see.”
-Henry David Thoreau

1. Introduction

This paper examines the effect of readability on the perceived creditworthiness of borrowers. This study inspects how the manner in which information is conveyed and presented impacts the perception and understanding of users of financial disclosures.

Although defined in numerous ways, readability has repeatedly surfaced as an idea linked to the experience a reader has with the information they are presented. In their paper studying reading comprehension, Dale and Chall (1949) conceive a wholistic approach to the notion of readability, defining readability as “the sum total...of all those elements within a given piece of printed material that affect the success which a group of readers have with it” (Dale and Chall 1949, 23), and measuring this “success” through means including a material’s comprehensibility, legibility, and ability to generate interest within an audience. Others define readability in a similar manner, holding that the readability is dictated by how compelling and coherent a piece of writing is (McLaughlin 1969). Comprehensibility and legibility, two intertwined components of readability, refer to the degree of reading comprehension a document enables and the ease with which something is read, respectively (Plucinski, Olsavsky, and Hall 2009). Given that these elements of readability are related to the communicative potential a piece of writing has, which may in turn dictate the perceptions readers develop, these characteristics appear to be among the most central elements of readability.

Readability, through the profound effect it has on users of information, is an aspect of writing that has great importance. The degree of readability of a piece of writing, such as an accounting disclosure, is linked to how well readers are able to process and

understand information, along with the quality of the decisions readers ultimately make (Besuglov and Crasselt 2021). Studies have shown that when accounting disclosures have low levels of readability, the comprehension of readers may be compromised and readers may also rely on other factors, such as the sentiment of the language in the disclosure, to draw conclusions and make judgements (Tan, Wang, and Zhou 2014). Within the financial sector, it is critical that lending institutions comprehensively and objectively screen prospective borrowers in order to minimize the risk of default. Keeping this in mind, the effects readability may have on the level of comprehension reviewers of information achieve, along with the potential for low readability to cause users of information to rely on heuristic clues such as sentiment to form judgements, demonstrate the relevance of readability in any lending environment. Examining readability in the context of creditworthiness contributes to the existing financial intermediation literature focused on the origination of lending arrangements. Analyzing readability is of particular interest within this subject, as other studies have shown that factors related to readability, notably the notion of perception, have been shown to play a role in credit markets. For instance, in analyzing data from peer-to-peer lending sites, studies have found that the lending decisions made by capital providers are affected by perceived levels of trustworthiness (Duarte, Siegel, and Young 2012) and physical attractiveness based on online photos (Ravina 2019). These studies indicate that the perceptions of lenders and, since it dictates the perceptions lenders form, the presentation of information provided by borrowers, are both critical factors to consider within a lending context.

I conduct a between-subjects experiment in which subjects were asked to make decisions regarding lending to a potential borrower. I manipulate both the readability of

accompanying non-financial information and the fictitious borrower's creditworthiness in order to discern the effect readability has on the decisions of lenders. I find that when participants were tasked with assessing the creditworthiness of a borrower with an objectively low degree of creditworthiness based on their assigned credit rating, they provided more favorable credit ratings when provided with nonfinancial information with a lower degree of readability versus a higher degree of readability. While increased readability made it more likely that prospective borrowers with low creditworthiness were assigned an appropriate, lower credit rating, reduced readability increased the likelihood that borrowers objectively deserving of an unfavorable credit rating did not receive one. I also find that readability impacts how participants in the hypothetical role as a loan officer assessed the overall financial position of the prospective borrower. In the loan officer role, participants viewed the financial health of a borrower with lower creditworthiness as better when the materials provided by the prospective borrower had a lower degree of readability compared to when those materials possessed a higher degree of readability. In addition to identifying the impact of readability on the nature of the assessments made by participants, I find that the degree of readability affects the perceptions participants have regarding how accurately they understand the nonfinancial information about the borrower provided to them. When the readability of the borrower's nonfinancial information is relatively low, the self-reported accuracy with which respondents understood the borrower's nonfinancial information decreased, as evidenced by the lower levels of self-reported accuracy in evaluating the borrower's materials.

Lastly, I measure affect after participants have completed the task and I find that when survey respondents received materials with a high degree of readability, participants

in conditions involving borrowers with low creditworthiness (as opposed to borrowers with high creditworthiness) reported higher levels of overall positive affect. The greater amount of positive affect observed in conditions with high readability and low creditworthiness (compared to conditions with high readability and high creditworthiness) was not driven by higher levels of positive affect but instead appeared fueled by lower levels of negative affect. This outcome may have resulted from the fact that, since participants would have been able to easily detect that a borrower's lack of creditworthiness in conditions with a high level of readability and low creditworthiness, they would have been able to easily and objectively conclude that the prospective borrower's loan request should not be fulfilled. Therefore, they may have felt less negative affect toward the borrower since they felt their handling of the situation was appropriate given the borrower simply received the lending decision it deserved. This possible explanation ties to other studies finding that lenders undergo emotional labor as they suppress feeling of empathy toward a borrower with low creditworthiness and instead make an effort to reach an unbiased and objective, emotionally detached decision that helps to achieve the bank's objective of not loaning to customers who may default (Marston, Banks, and Zhang 2017). The suppression of emotion observed in lenders could explain why lower levels of negative affect were reported.

Fundamentally, this paper is concerned with the subject of communication. In analyzing the effects of readability on the perceived creditworthiness of borrowers, I examine how different elements of communication, such as clarity of writing and the presentation of information, ultimately impact how parties respond to the information and ideas being relayed to them.

The rest of the paper is structured as follows. Section 2 describes the motivation behind my study and lays out my formal hypotheses. Section 3 details the methods and research design employed in this study. I present and discuss the results of the experiment in Section 4. Section 5 provides the conclusion and areas for future research.

2. Motivation and Hypotheses

Communication is among the most fundamental mechanisms governing modern society. Individuals and organizations around the world constantly rely on their ability to communicate in order to make decisions, achieve their goals, and navigate the demands of everyday life. Considering communication in a broader sense, the concept of perception is one of the most critical factors governing any form of correspondence. If what a party communicates is not perceived by others as intended, their actions are less meaningful and their goals more difficult to achieve.

The ways in which communication is perceived by others can be described in both cognitive and emotional terms. In the cognitive sense, key questions include whether one's communication was intelligible and whether it was able to be clearly understood by the receiving party. When examining perception through the lens of emotion, the central question is how communication impacts the recipient. For instance, the content or delivery of a piece of communication could make the audience amiable, distrustful, or even angry.

2.1. Readability of Disclosures

The cognitive element of perception is closely tied to how the concept of *readability* is frequently discussed in literature. As defined by Chall (1958) in their paper studying reading comprehension, readability is measured as “the sum total of all those elements within a given piece of printed material that affect the success which a group of readers have with it” (Chall 1958, 7). Among other considerations, such as the speed with which the work is read and how interesting a reader finds it, “success” in this context is measured by the extent to which a reader understands a piece (Chall 1958). Prior studies assessing the readability of different avenues for communicating financial information, such as

annual reports, earnings releases, and even accounting textbooks, have defined readability in a similar manner, finding the readability of a work is largely determined by how understandable the material is to an audience (see Jones and Shoemaker (1994) and Li (2010), among others, for a review of the literature on readability in accounting contexts). Plucinski et al. (2009) notes that readability is linked to the idea of reading comprehension, stating that McLaughlin (1969) defines readability as “the degree to which a class of people finds certain reading matter compelling and comprehensible” (Plucinski et al. 2009, 119). While the concept of readability is linked to how understandable a work is, there is a distinction to note between “readability” and “understandability.” The difference lies in the party controlling these elements of writing. Readability is within the purview of the party constructing the piece of communication. Example of levers that can be used to alter the readability of written information include syllable counts, word count, sentence length, whether there is a logical presentation of ideas, formatting, and the positioning of words or sentences (Jones and Shoemaker 1994). However, readability is text-related while understandability is reader-related (Jones and Shoemaker 1994). While the degree of readability is determined by the party creating a message, understandability is largely dictated by the background and prior knowledge of the reader (Jones and Shoemaker 1994).

Considering that readability is an element of writing controlled by the creator of a work, within a financial reporting context, the question arises as to whether readability is an attribute consciously varied by managers. There are varying perspectives on this subject within the literature. Prior research has concluded that the annual reports of firms with poor performance are more difficult to read than the reports of firms that are performing well, and that “the profits of firms with annual reports that are easier to read are more persistent”

(Li 2008, 244). While several studies have come to this same conclusion, holding that bad news tends to be less readable than good news, there is disagreement as to the implications of this finding. Some believe the lower level of readability possessed by disclosures containing bad news relative to disclosures containing good news indicates firms are opportunistically writing and structuring their disclosures so to obscure negative information from investors (Li 2008). However, a number of other perspectives exist regarding how lower disclosure readability of companies with poor performance should be interpreted. Some hold that firms performing poorly tend to have less readable disclosures as a result of managers utilizing more complex language and providing a greater overall amount of information in the hopes of providing a more informative disclosure that adequately explains why the firm performed unfavorably (Bushee, Gow, and Taylor 2018). Other studies have found that the lower readability of bad news compared to good news is “driven mainly by attempts to write more readable good news reports as opposed to intentional obfuscation of poor performance” (Asay, Libby, and Rennekamp 2018, 380). In an experiment conducted by Asay et al. (2018), experienced managers were told to construct a press release, with one of the factors varied among participants being the nature of the firm’s performance (favorable or unfavorable). After interviewing the managers at the end of the experiment to assess the intentionality of their linguistic choices, the researchers concluded that less readable disclosures being created when performance is bad relative to when performance is good may not be indicative of attempts to obfuscate poor performance, but could instead result from efforts managers make to clarify good news (Asay et al. 2018).

Regardless of the conclusion reached regarding the motives for making disclosures more or less readable, there are several takeaways to consider. First, given that the level of readability can vary under different circumstances, potentially impacted by factors such as a firm's current performance, the actions managers take in constructing disclosures can (either intentionally or unintentionally) impact the degree to which a reader can effectively process information. Put more succinctly, managers can vary the readability of the disclosures they produce. Second, partially demonstrated by the spectrum of perspectives held as to the intentionality of managers in varying the readability of their statements and disclosures, the communications that managers create have the potential to impact readers on an affective level. Concerning the observation that bad news tends to be less readable than good news, academics interpret the intentions of managers in a variety of ways. As discussed, some see their actions as misleading and deceptive, while others hold that lower levels of readability are not a byproduct of actions meant to obfuscate information, but rather are a symptom of the candid attempts of managers to provide greater detail and clarification regarding performance.

Interestingly, the writings a party creates and promulgates have been observed to possess an affective influence on audiences. For instance, the perceived readability of a disclosure can have a significant impact on the feelings they developed for a company. One study found that highly obfuscated information can lead readers to develop negative appraisals of the disclosing party (Markowitz, Kouchaki, Hancock, and Gino 2021). More specifically, high-obfuscation text causes people to perceive the organization to be less moral, less warm, and less trustworthy (Markowitz et al. 2021).

Taken as a whole, the influence that the structure and content of disclosures can have on the perceptions an audience develops is profound. Elements such as word choice, punctuation, and sentence structure are all capable of having a significant impact on readability, thereby impacting both the reader's ability to effectively process and understand information, along with their impressions of the character and trustworthiness of the writer.

Writing, as opposed to speaking, is a unique process; it demands a distinct level of deliberation on the part of the author. In verbal conversations, an audience frequently relies on an author's tone, voice fluctuations, and physical gestures to interpret the entirety of what is being conveyed. However, with written documents, an audience relies solely on elements such as word choice, punctuation, and how ideas are organized within a passage to develop their understanding of the information being conveyed and their feelings toward the content's creator. The degree of readability a document possesses is the result of conscious and subconscious lingual and grammatical choices dictated by what one intends to convey and what is seen as the most effective means of expressing that message. Given the notable cognitive and affective influence that readability can have on an audience, along with the variable nature of this characteristic of writing, it is vital that managers understand the implications of the decisions they make that impact the readability of the messages and documents they promulgate.

2.2. Cognitive and Affective Reactions to Disclosure Readability

The reactions individuals have to information they are presented has been shown to vary with the readability of what is disclosed. In one study, investors were found to have stronger reactions to information contained in disclosures when those disclosures had high

levels of readability compared to when those disclosures had low levels of readability (Rennekamp 2012). This conclusion, which was reached in circumstances involving both good and bad news, was based on the observation that “more readable disclosures [led] to stronger reactions from small investors, so that changes in investors’ valuation judgments [were] more positive when news [was] good and more negative when news [was] bad” (Rennekamp 2012, 1319). Interestingly, the study notes that the concept of processing fluency is largely responsible for this phenomenon. When present in higher levels, processing fluency, defined as an individual’s subjective feeling as to how easy it is to process information, caused those reading the disclosures to develop a heightened impression of the reliability of what they were reading, which in turn led them to react to the information (both good and bad) in a stronger manner. Therefore, while readability did not ultimately have an impact on the perceived credibility of management, it did influence the degree of processing fluency experienced by individuals, and thereby indirectly affected how they responded to the information in the disclosure (Rennekamp 2012). Another study found that investors’ underreaction to the information contained in disclosures tends to be greater for firms whose 10-K filings are more complex (You and Zhang 2009). It was noted that the complexity of accounting disclosures can have an impact on how investors incorporate information into share price, evident in how less complex 10-K filings were associated with little to no market underreaction (You and Zhang 2009).

The findings in the extant literature suggest that individuals tend to react more strongly to more readable material, regardless of the content and nature of the information being conveyed. While the increased magnitude with which readers respond when presented with materials with a high degree of readability does not appear to be driven by

any shift in their attitudes toward management, and instead appears to be a side effect of processing fluency, the reaction exhibited by readers is nonetheless notable.

In a borrower-lender setting, I predict that the reactions that lenders have, as well as the credit decisions lenders make, are similarly influenced by the readability of disclosures provided by the borrower. A lender's processing fluency is reduced when they are interpreting and making decisions based on less readable disclosures. Consequently, a borrower's true creditworthiness is likely to be obscured and less discernible when information is presented in a less readable manner, leading to lenders underreacting to the objective information provided in these less readable disclosures. I formally state my two hypotheses (in alternate form):

H1: Lenders discount negative information when disclosures are less readable.

H2: Lenders more strongly react to positive information when disclosures are more readable.

The variation in how individuals react to information highlights how managers who prepare announcements or financial filings might vary the readability of such disclosures to ensure the most favorable market reaction possible. Given that higher levels of readability have been shown to elicit stronger reactions to information, managers and other providers of information might choose to disclose negative or unfavorable information with a lower degree of readability, as doing so would likely mitigate any negative reactions to the information. Conversely, disclosures created with high readability may serve a manager's interests when that manager reveals information that is positive or favorable. In this case, presenting positive information in a readable manner would better ensure audiences identify and subsequently act on this material.

The implications generalize to providers and recipients of disclosed information within a lending context. Considering the relationship between readability and the reactions an audience has to information, along with the existence of incentives dependent on the nature of the content of disclosures (whether the information is favorable or unfavorable from the perspective of the disclosing party), a borrower can potentially influence the lending decision a creditor ultimately reaches by varying the readability of the accompanying disclosures they provide when seeking out a lending arrangement. A borrower may opt to reduce the readability of any material presented to the lender if the material presents the borrower in a negative light. On the other hand, it would behoove a borrower who is presenting favorable information to make the information as readable as possible to the lender.

3. Methods and Research Design

3.1. Experimental Design

I conduct a 2 x 2 between-subjects experiment in which participants are asked to assume the role of a loan officer at a multinational bank. Participants are instructed that they, as part of the duties of their position, must rate the creditworthiness of a prospective borrower and ultimately decide whether to provide the borrower with the funds requested. In making this determination, they are asked to consider all financial and nonfinancial information available to them.

I manipulate the readability (high vs. low) of the borrower's non-financial information that participants were presented with. I also manipulate the overall creditworthiness (high vs. low) of the prospective borrower by varying the inputs to and the output of a credit rating model, which generated a credit score that was assigned to the prospective borrower. Structuring the procedure in this way allows me to assess how the presentation of information, particularly how readable the information regarding the borrower is, affects the response participants have to an objective measure of creditworthiness assigned to the borrower.

3.2. Task and Procedure

I adapt the task on lending and credit decisions used by Jollineau, Tanlu, and Winn (2014), which requires participants to evaluate the creditworthiness of a potential borrower. Whereas Jollineau et al. (2014) focus on how financial information is used by lenders, I examine how the presentation of nonfinancial information influences how lenders perceive a borrower's creditworthiness.

After reviewing a short introduction that broadly outlines the task at hand, participants were provided with information detailing how they might go about assessing the creditworthiness of a borrower. Participants were also provided with a description of the incentives typically held by the parties to a lending arrangement. Participants are advised that, in seeking capital, borrowers provide financial and nonfinancial information to lending institutions with the ultimate goal of gaining access to funds and doing so on favorable terms (meaning financing is obtained with a lower interest rate). They are told that, conversely, creditors are primarily focused on not lending to parties that may be unable to service their debt through making the required interest and principal payments. Relatedly, participants are instructed how credit ratings in particular relate to the objectives of the other party in a potential lending arrangement.

In constructing the materials that provided background on the firm seeking the loan, along with risk factors the business faced, I selected excerpts from the 10-K's of three publicly traded companies and modified them slightly. My sole intention in making these changes was to construct a single, cohesive narrative regarding the hypothetical firm seeking funds, Merrick & Company. The section of the participant materials detailing how Merrick & Company intended to use the proceeds of a loan was based on a passage from the bond prospectus of a publicly traded company. Together, details regarding the background of the business, the risks the firm faced, and how any financing was intended to be used, comprised the extent of the nonfinancial information about the hypothetical firm with which participants were provided. Once a base version of the materials describing nonfinancial information pertinent to the borrower was established, these materials were adjusted to generate two adaptations of Merrick & Company's nonfinancial information: a

version with a high degree of readability (HR) and version with a low degree of readability (LR).

I constructed the HR version of the materials by rewording phrases within the base materials to be more succinct through constructing more concise sentences consisting of shorter, lower-syllable words. I also changed the formatting of the information in a way intended to make the information easier for participants to absorb. Specifically, with regard to formatting, I underlined and emphasized the headings of the three sections (business profile, risk factors, and use of proceeds) and included a space between the text and heading of each section, italicized each risk factor and included a space between each risk factor and its description, and also presented the hypothetical borrower's planned use of the loan proceeds using bullet points. Ultimately, the materials intended to have a higher degree of readability consisted of a total of 594 words, had an average of 13.8 words per sentence, had a Flesch Reading Ease score of 41.4, and had a Flesch-Kincaid Grade Level of 10.9.¹

Given the already high lingual complexity of the financial disclosures of publicly traded companies, I changed the base materials only slightly when creating the LR version of the materials that participants received. The disclosures contained a sufficiently low level of readability in their original state, so only slight modifications were made to the content of the base materials to ensure the information within these disclosures matched the background of the hypothetical borrower. I further decreased the readability of this version of the materials by increasing the length of several sentences included in the

¹ These readability measures are linear combinations of sentence length and syllable-related measures. The Flesch Reading Ease score gives the text a score between 1 and 100, with higher scores corresponding to a higher degree of readability. The Flesch-Kincaid Grade Level assesses the approximate reading grade level of a text, with greater values of this measure indicating a higher grade level necessary to read the text, and thus implying lower levels of readability.

materials, as well as also changing how the borrower's nonfinancial information was formatted. With regard the formatting, I removed the underlining originally included in the titles of the three sections of the borrower's nonfinancial information and removed spaces between the section titles and the information in each section. Additionally, I removed the italics from each risk factor and eliminated the space originally included between each risk factor and its description, and also enumerated the borrower's intended use of the proceeds within a single sentence instead of showing it as a bulleted list. The materials constructed to have a lower level of readability consisted of a total of 788 words, had an average of 32.8 words per sentence, had a Flesch Reading Ease score of 15.1, and has a Flesch-Kincaid Grade Level of 18.6.

After reviewing the hypothetical borrower's nonfinancial information (with either a high or low level of readability), participants were presented with a number of financial metrics linked to the borrower's creditworthiness. They were then presented with a credit rating model that provided a single credit score for the borrower. This score was based on five variables (outside credit score, number of delinquencies in the past five years, times interest earned, debt to income ratio, and a constant added to the model) that were provided to participants. Two other variables were provided to participants (number of credit checks over the past 6 months and number of credit lines) but were not incorporated into the calculation of the credit score. Once the components of the model and the specific calculations underlying the computation of the output (the credit score) were explained to participants, they were given further information to assist them in interpreting the output of the credit rating model. Specifically, participants were provided a scale that allowed them to convert the output of the model (i.e., the borrower's credit score) to a credit rating.

Assigned credit ratings ranged between 1 and 5, wherein 1 represents the least credit-worthy group of borrowers and 5 represents the most credit-worthy group of borrowers. Each single-digit credit rating from 1 to 5 is also paired with a range of interest rates generally considered to be appropriate for borrowers assigned that rating.

Upon being introduced to the model, participants were told that in assessing the creditworthiness of companies, credit analysts frequently consider the outputs of quantitative models in their analyses. Participants are further instructed that in their hypothetical role as a loan officer, they may utilize or deviate from the model in forming their judgements regarding the borrower's creditworthiness to whatever extent they see fit. However, participants were told that if they do choose to deviate from the model in making their assessment, they will be asked to explain their rationale for doing so. Requesting that respondents explain any deviations from the model was intended to ensure participants did not aimlessly disregard the model when evaluating the prospective borrower's creditworthiness. Since any departures from the model's recommended credit rating would have to be explained, participants would have been more likely to make an effort to understand the model prior to making the decision to deviate from it.

After being briefed about the tools at their disposal for assessing the creditworthiness of the prospective borrower, participants were provided with financial information about Merrick & Company, the company seeking a loan at their bank. Specifically, participants were shown borrower variables and a model output indicative of either a high level of creditworthiness (HC) or a low level of creditworthiness (LC). In the HC version of the materials, Merrick & Company was assigned a model output of 509.5, which is equivalent to a credit rating of 4. Alternatively, in the LC version of the materials,

Merrick & Company was assigned a model output of 340.4, a score that corresponds to a credit rating of 2. The model output used in the HC condition lies just above the border between a credit rating of 3 (assigned for model outputs between 350-499) and a credit rating of 4 (assigned for model outputs between 500-649), while the model output included in the LC condition lies just below the border between a credit rating of 2 (assigned for model outputs between 200-349) and a credit rating of 3 (assigned for model outputs between 350-499). Choosing model outputs close to the borders between the different credit ratings was done with the intention of portraying the prospective borrower as not definitively having high creditworthiness or definitively having low creditworthiness based solely on the model output. This research design choice aims to create a situation whereby participants would be more comfortable shifting their rating up in the HC condition and shifting their rating downward in the LC condition. Finally, I asked participants to answer a series of questions regarding what credit rating they would assign to the borrower, whether they would lend funds to the borrower (and if so, at what interest rate), and other questions regarding their perceptions of Merrick & Company.

A copy of the materials is provided in the Appendices.

4. Results and Discussion

4.1. Participants

Participants in the experiment were drawn from two primary groups: undergraduate students studying finance at a small liberal arts college, and individuals meeting certain finance and account proficiency requirements procured from the Amazon Mechanical Turk (MTurk) crowdsourcing marketplace. There were a total of 246 respondents across all conditions, and data from a total of 208 respondents were used in the final sample.²

4.2. Nominal Credit Ratings

Participants were asked to provide their own judgment of an appropriate credit rating (*Rating*) for the borrower, Merrick & Company, given their impression of the business based upon the materials presented to them, which included both financial and nonfinancial information related to the prospective borrower. The possible values for *Rating* spanned from 1 to 5, with 1 indicating the lowest level of creditworthiness and 5 indicating the highest level of creditworthiness. Results for *Rating* are presented in Table 1.

As expected, creditworthiness had a statistically significant impact on the values for *Rating* participants reported ($F = 116.15$, two-tailed p -value = 0.000). In conditions with HC, participants assigned a mean value for *Rating* of 3.55. Alternatively, in those conditions with LC, participants assigned a mean value for *Rating* of 2.44.

² I deleted responses from participants who did not complete the survey instrument (11) and those who spent less than 3 minutes on study (27). The final sample consisted of 11 undergraduate students and 197 MTurk respondents. The results are qualitatively similar when the 11 undergraduate student responses are omitted from the analysis.

TABLE 1
Rating and Likely Scores by Condition

Panel A: Descriptive Statistics

	Dependent Variable: <i>Rating</i>			Dependent Variable: <i>Likely</i>		
	Creditworthiness		<u>Row Means</u>	Creditworthiness		<u>Row Means</u>
	<u>High</u>	<u>Low</u>		<u>High</u>	<u>Low</u>	
<u>Readability</u> High	3.59 (0.71) n = 55	2.37 (0.73) n = 55	2.98 (0.95) n = 110	3.95 (0.80) n = 55	3.29 (1.12) n = 55	3.62 (1.02) n = 110
Low	3.50 (0.75) n = 46	2.52 (0.73) n = 52	2.98 (0.88) n = 98	3.78 (1.01) n = 46	3.33 (1.04) n = 52	3.54 (1.05) n = 98
<u>Column Means</u>	3.55 (0.73) n=101	2.44 (0.73) n = 107		3.87 (6.97) n=101	3.31 (7.70) n = 107	

Panel B: ANOVA

<u>Source</u>	Dependent Variable: <i>Rating</i>				Dependent Variable: <i>Likely</i>			
	<u>df</u>	<u>MS</u>	<u>F-Stat</u>	<u>p-value</u>	<u>df</u>	<u>MS</u>	<u>F-Stat</u>	<u>p-value</u>
Readability	1	0.04	0.08	0.783	1	0.21	0.21	0.648
Creditworthiness	1	62.21	116.25	0.000***	1	15.94	15.98	0.000***
Readability x Creditworthiness	1	0.75	1.40	0.239	1	0.51	0.51	0.475
Residual	204	0.54			204	49.82		

*** p<0.01, ** p<0.05, * p<0.1

These results are anticipated, given borrowers with lower creditworthiness (who have been assigned a credit rating of 2 based on the credit rating model provided to participants) would be expected to receive lower credit ratings relative to those borrowers with high creditworthiness (who have been assigned a credit rating of 4 based on the credit rating model provided to participants). Interestingly, however, there were no significant statistical differences in the interest rates (not tabulated) participants elected to charge across all conditions.

4.3. Likelihood of Lending and Perceptions of Trustworthiness

Participants were asked to indicate the likelihood that they would approve a loan to the hypothetical borrower at the interest rate they specified earlier in the survey. Responses to this question were captured in the variable *Likely*, whose possible values range from 1 to 5, with 1 being extremely unlikely and 5 being extremely likely. Table 1 presents the results for the *Likely* variable. As one might expect, creditworthiness had a statistically significant impact on this variable ($F = 15.98$, $p\text{-value} = 0.0001$). In the HC condition, participants were much more likely to lend to the hypothetical borrower at the rate they specified earlier than participants in the LC condition were (mean value for *Likely* of 3.87 for HC and 3.31 for LC). This observation is unsurprising, given that participants in their hypothetical role as a loan officer would be expected to express a greater willingness to extend credit to borrowers with higher levels of creditworthiness. Participants were also asked to indicate how trustworthy they found the management of Merrick & Company, who were noted as the creators of the nonfinancial disclosures participants received. Responses to this question were captured in the variable *Trustworthy*, whose possible values ranged from 1 to 5 with 1 being very untrustworthy and 5 being very trustworthy.

As presented in Table 2, Creditworthiness had a statistically significant impact on *Trustworthy* ($F = 12.45$, $p\text{-value} = 0.001$). While conditions with HC had a mean *Trustworthy* score of 4.05, conditions with LC had a lower mean score of 3.70. These results indicate that participants generally viewed borrowers with lower levels of creditworthiness as being less trustworthy relative to borrowers with higher levels of creditworthiness.

TABLE 2
Trustworthy Scores by Condition

Panel A: Descriptive Statistics

Dependent Variable: <i>Trustworthy</i>			
Creditworthiness			
<u>Readability</u>	<u>High</u>	<u>Low</u>	<u>Row Means</u>
High	4.07 <i>(0.57)</i> n = 55	3.76 <i>(0.77)</i> n = 55	3.92 <i>(0.69)</i> n = 110
Low	4.02 <i>(0.61)</i> n = 46	3.63 <i>(0.84)</i> n = 52	3.82 <i>(0.76)</i> n = 98
<u>Column Means</u>	4.05 <i>(0.59)</i> n = 101	3.70 <i>(0.80)</i> n = 107	

Panel B: ANOVA

Dependent Variable: <i>Trustworthy</i>				
<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F-Stat</u>	<u>p-value</u>
Readability	1	0.42	0.83	0.363
Creditworthiness	1	6.27	12.47	0.001***
Readability x Creditworthiness	1	0.79	0.16	0.693
Residual	204	0.50		

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Given that the aforementioned results conform with expectations, they illustrate that the experimental manipulations were effective. That is, these results indicate participants reacted as expected to the differences in creditworthiness among conditions

(varied between HC and LC conditions) and also responded to the differences in the presentation of the borrower's financial and nonfinancial information among conditions (varied between HR and LR conditions).

4.4. Assignment of Favorable Ratings

To determine the interaction effects of readability and borrower creditworthiness on participants' lending decisions, I considered whether participants viewed the borrower's creditworthiness as either favorable or unfavorable relative to the observable, objective measures of creditworthiness specific to each borrower (i.e., the credit scores from the model provided). The *Favorable Rating* indicator variable was assigned a value of 1 if the participants kept or upgraded the already high credit rating of the HC borrower, or if they upgraded the low credit rating of the LC borrower, as either of these actions would be viewed as favorable from the perspective of the borrower. Conversely, the *Favorable Rating* indicator would take on a value of 0 if participants downgraded the credit rating of the HC borrower or kept the already low rating assigned to the LC borrower, as either of these actions would be viewed as unfavorable from the perspective of the borrower. In other words, for the LC condition, favorable ratings were considered to be those within the 3 to 5 range, while for the HC condition, favorable ratings were considered to be credit ratings of 4 or 5. For conditions with LC, unfavorable ratings were considered to be those with a rating of 1 or 2, while for conditions with HC, unfavorable ratings were credit ratings within the range of 1 to 3.

Table 3 provides the results for *Favorable Rating* by condition, and these findings are graphically depicted in Figure 1.

TABLE 3
Favorable Rating Scores by Condition

Panel A: Descriptive Statistics

Dependent Variable: <i>Favorable Rating</i>			
Creditworthiness			
<u>Readability</u>	<u>High</u>	<u>Low</u>	<u>Row Means</u>
High	0.62 (0.49) n = 55	0.25 (0.44) n = 55	0.44 (0.50) n = 110
Low	0.57 (0.50) n = 46	0.46 (0.50) n = 52	0.51 (0.50) n = 98
<u>Column Means</u>	0.59 (0.49) n = 101	0.35 (0.48) n = 107	

Panel B: ANOVA

Dependent Variable: <i>Favorable Rating</i>				
<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F-Stat</u>	<u>p-value</u>
Readability	1	0.307	1.31	0.253
Creditworthiness	1	2.824	12.09	0.001***
Readability x Creditworthiness	1	0.874	3.75	0.055*
Residual	204	0.234		

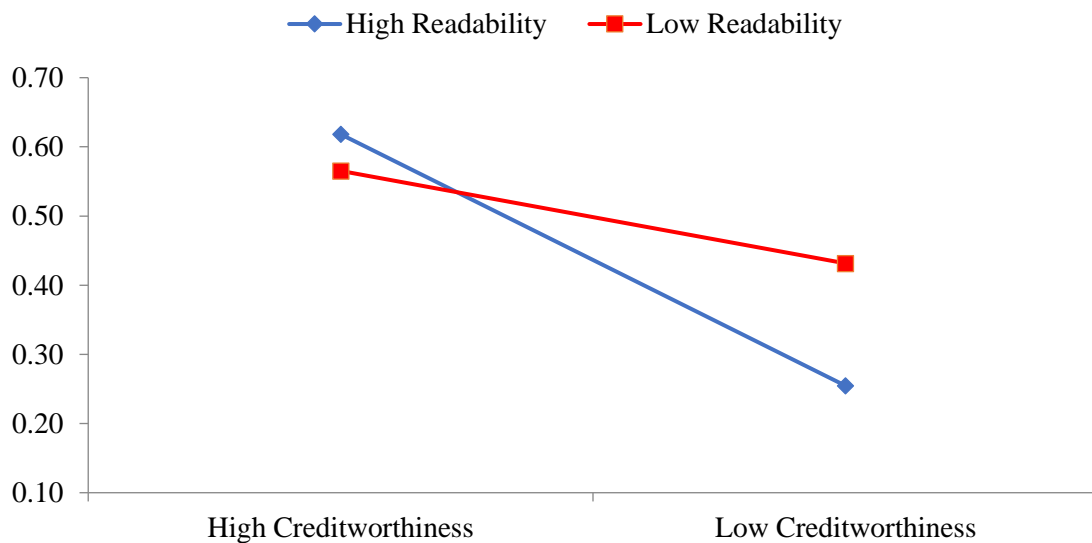
*** p<0.01, ** p<0.05, * p<0.1

I find a statistically significant main effect of creditworthiness on *Favorable Rating*. The mean value for *Favorable Rating* for all participants in the HC condition was 0.59, while the mean value of *Favorable Rating* for all participants within the LC condition was 0.36 (F = 12.09, two-tailed p-value = 0.001). This result illustrates that respondents more frequently assigned favorable ratings when the borrower's credit rating indicated a high level creditworthiness compared to when the borrower's credit rating indicated a low level of creditworthiness.

Furthermore, there is a marginally significant interaction effect between creditworthiness and readability on *Favorable Rating* (F = 3.74, two-tailed p-value =

0.055). This result indicates the effect readability has on *Favorable Rating* differs between the HC and LC conditions. Particularly, in the HC condition, the degree of readability of the participant materials does not have a notable effect on *Favorable Rating*, evident in how the values for *Favorable Rating* does not vary considerably between the HR and LR conditions (mean *Favorable Rating* 0.62 for HR and 0.57 for LR). Based on these findings, I do not find empirical evidence supporting Hypothesis 2.

FIGURE 1
Graph Depicting *Favorable Rating* Scores by Condition



However, in conditions with LC, the value for *Favorable Rating* differed considerably depending upon whether LC was paired with HR or LR. When LC was paired with LR, significantly higher values for *Favorable Rating* were observed compared to when LC was paired with HR (mean *Favorable Rating* 0.43 for LR and 0.25 for HR). This observation is key as it indicates that when participants assessed the creditworthiness of a borrower with an objectively low degree of creditworthiness (based on the credit scores from the model provided), they provided more favorable credit ratings when provided with nonfinancial information with a lower degree of readability compared to when they were

provided with nonfinancial information with a higher degree of readability. Increased readability made it more likely that prospective borrowers with low creditworthiness were assigned an appropriate, lower credit rating. Conversely, consistent with Hypothesis 1, reduced readability increased the likelihood that borrowers objectively deserving of a lower credit rating did not receive one, and instead received a more favorable rating. While the scores assigned to the borrower theoretically should have been the same, as all LC conditions contained the same quantitative measure of the borrower's creditworthiness, the degree of readability of the borrower's nonfinancial information affected the perceptions of participants in a manner that inhibited them from assigning the appropriate ratings in conditions with LR.

4.5. Assessment of Borrower's Financial Position

Participants were also asked to provide their assessment of the hypothetical borrower's overall financial position. The variable tied to this question, *Assessment*, was assigned a value from 1 to 5 based on how participants assessed the borrower's financial position, with 5 being a very strong financial position. As presented in Table 4 and Figure 2, there was a statistically significant difference in *Assessment* between conditions with HC and conditions with LC ($F = 17.47$, two-tailed p -value = 0.000). Creditworthiness has a notable impact on *Assessment* as conditions with HC had a much higher mean value for *Assessment* compared to conditions with LC (mean *Assessment* of 3.71 for HC and 3.19 LC). This result indicates that the experimental manipulation of creditworthiness was effective, as it is reasonable for participants to view the overall financial standing of borrowers with higher credit ratings as more favorable than that of borrowers with lower credit ratings. There is also a marginally significant main effect for readability, with more

readable disclosures showing slightly lower *Assessment* scores ($F = 2.98$, two-tailed p -value = 0.086).

TABLE 4
Assessment Scores by Condition

Panel A: Descriptive Statistics

		Dependent Variable: <i>Assessment</i>		
		Creditworthiness		
<u>Readability</u>		High	Low	<u>Row Means</u>
High		3.71 (0.76) n = 55	2.98 (0.91) n = 55	3.35 (0.91) n = 110
Low		3.72 (0.96) n = 46	3.40 (0.96) n = 52	3.55 (0.96) n = 98
<u>Column Means</u>		3.71 (0.85) n = 101	3.19 (0.95) n = 107	

Panel B: ANOVA

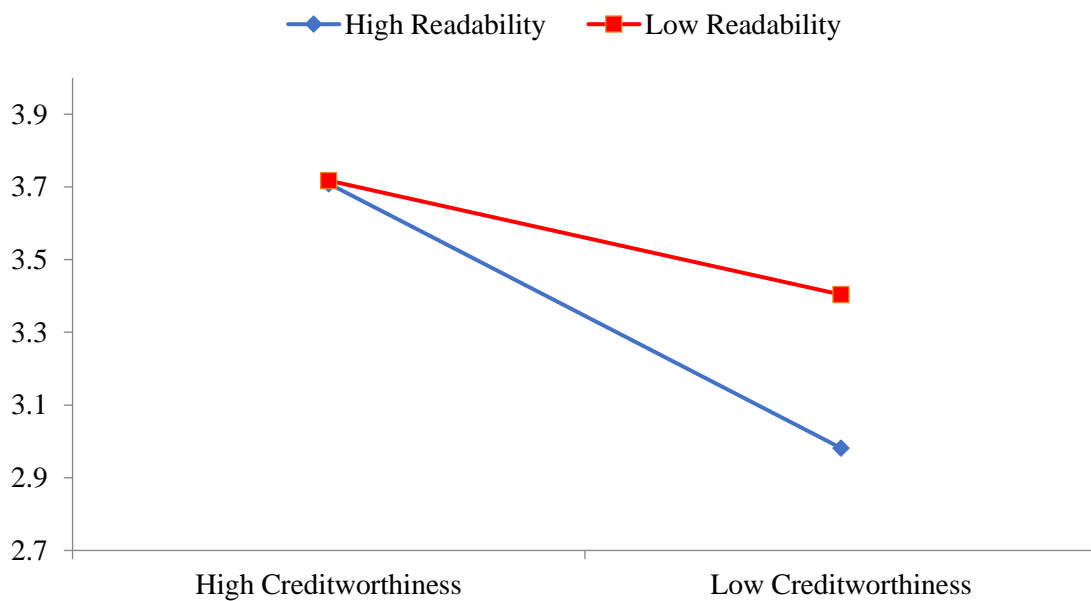
		Dependent Variable: <i>Assessment</i>			
<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F-Stat</u>	<u>p-value</u>	
Readability	1	2.395	2.98	0.086*	
Creditworthiness	1	14.008	17.47	0.000***	
Readability x Creditworthiness	1	2.213	2.75	0.099*	
Residual	204	0.805			

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

While this result was expected, a much more interesting outcome can be observed upon examining how readability and creditworthiness interact with one another. Since the interaction term for *Assessment* is marginally significant ($F = 2.75$, two-tailed p -value = 0.099), readability's impact on *Assessment* in conditions with HC differs from the effect it has on *Assessment* in conditions with LC. While conditions with HC reported nearly identical values for *Assessment* regardless of the readability of the materials (mean *Assessment* of 3.71 for HR/HC condition and 3.72 for LR/HC condition), the value for

Assessment reported in conditions with LC varied notably depending upon whether the disclosures were more or less readable. While the HR/LC condition had a mean *Assessment* of 2.98, when the readability of the borrower’s nonfinancial information was lowered in the LR/LC condition, participants assigned much higher values for *Assessment* (mean assessment of 3.40 for LR/LC). These results indicate that despite being provided with the same measure of creditworthiness in both conditions with LC (the credit scores from the model provided), participants in the LR/LC condition assessed the financial position of the borrower as being stronger compared to participants in the HR/LC condition. This observation suggests that in their role as a loan officer, participants viewed the financial health of a borrower with lower creditworthiness as better when the materials the prospective borrower provided had a lower degree of readability compared to when those materials possessed a higher degree of readability. Similar to the results for *Favorable Rating*, the findings for *Assessment* are consistent with Hypothesis 1.

FIGURE 2
Graph Depicting *Assessment* Scores by Condition



4.6. Participants' Perceived Accuracy of Their Assessments

Respondents were asked to indicate how accurately they felt they understood the nonfinancial information pertaining to Merrick & Company. I measure participant responses using the variable *Accurate*. In calculating this variable, responses of participants were assigned values from 1 to 5, with 5 being extremely accurate and 1 being not accurate at all. Participant responses by condition and statistical tests are reported in Table 5.

TABLE 5
Accurate Scores by Condition

Panel A: Descriptive Statistics

Dependent Variable: <i>Assessment</i>			
Creditworthiness			
<u>Readability</u>	<u>High</u>	<u>Low</u>	<u>Row Means</u>
High	3.69 (0.79) n = 55	3.63 (0.73) n = 55	3.66 (0.76) n = 110
Low	3.51 (0.79) n = 45	3.41 (0.67) n = 51	3.46 (0.72) n = 96
<u>Column Means</u>	3.61 (0.85) n = 101	3.53 (0.95) n = 107	

Panel B: ANOVA

Dependent Variable: <i>Assessment</i>				
<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F-Stat</u>	<u>p-value</u>
Readability	1	2.091	3.77	0.054*
Creditworthiness	1	0.303	0.55	0.461
Readability x Creditworthiness	1	0.026	0.05	0.830
Residual	202	0.555		

*** p<0.01, ** p<0.05, * p<0.1

The effect of readability on *Accurate* was marginally significant (F = 3.77, two-tailed p-value = 0.054). When readability was varied between conditions with HR and LR, the level of self-reported accuracy with which respondents understood the borrower's

nonfinancial information was significantly lower in conditions with LR than it was in conditions with HR (mean value for *Accurate* of 3.46 for all conditions with LR and 3.66 for all conditions with HR). These results indicate that the readability of the borrower's nonfinancial information impacted the perceptions participants developed regarding the accuracy with which they understood the information the borrower provided to them. When the readability of the borrower's information decreased, the accuracy with which respondents felt that they understood the nonfinancial information pertaining to Merrick & Company decreased, as evidenced by lower levels of self-reported accuracy in evaluating the materials provided by the borrower.

4.7. Analysis of Affect

Research has shown that readability impacts affect. Thus, in addition to examining participants' judgments of a borrower's creditworthiness, I also explored how readability and their performance of the task jointly influenced affect. At the end of the study, I measured participant affect using the Positive and Negative Affect Schedule (PANAS) derived from Watson, Clark, and Tellegen (1988). The PANAS scale asks individuals to rate the extent to which participants feel twenty different emotions (such as anger, hostility, anxiety, and pride) using a 5-point Likert scale. For each term linked to either positive or negative affect, participants chose from one of five options (does not describe my feelings, slightly describes my feelings, moderately describes my feelings, mostly describes my feelings, and clearly describes my feelings) to describe the extent to which they felt each of the emotions listed. Each of the five choices were assigned values from 1 to 5, with 5 denoting "clearly describes my emotions." The sum of the values for all terms associated with positive affect and the sum of the values for the words associated with negative affect

were each used to create the variables *PosAffect* and *NegAffect*, respectively. *NegAffect* scores were scored negatively and therefore took on values of -1 through -5, with -5 denoting higher negative affect. To create a single variable that indicated overall affect, *PosAffect* and *NegAffect* scores were added together to get the *TotAffect* variable. *TotAffect* provides a single measure of participant affect at the end of the experiment, wherein a higher score indicates more positive affect.

Results of statistical tests on *TotAffect*, *PosAffect*, and *NegAffect* are presented in Table 6. See Figure 3 for graphs of scores for both *TotAffect* and *NegAffect*.

Readability and creditworthiness have an interaction effect on *TotAffect* ($F = 6.02$, two-tailed p -value = 0.015). The presence of a statistically significant interaction term indicates that the impact readability has on *TotAffect* differs between conditions with HC and conditions with LC. This result is particularly interesting, as the way in which the values for *TotAffect* vary seems unintuitive at first. While the HR/HC condition (mean *TotAffect* equal to 13.98) might have been expected to have the highest measures for *TotAffect*, as this condition presents participants with the profile of a favorable borrower in a highly readable way, it was actually the HR/LC conditions that reported higher values for *TotAffect* (mean *TotAffect* of 23.40). These results indicate that when survey respondents received materials with a high degree of readability, it was actually those conditions involving borrowers with low creditworthiness (as opposed to borrowers with high creditworthiness) where the highest values for *TotAffect* were observed. Analyzing the components of *TotAffect*, *PosAffect* and *NegAffect*, it becomes evident that the higher values for *TotAffect* observed in the HR/LC condition were not driven by higher levels of positive affect, but are instead attributable to lower levels of negative affect. While

measures of *PosAffect* for conditions incorporating high readability were relatively similar across conditions with HC and LC (mean values for *PosAffect* of 35.45 and 32.92, respectively), *NegAffect* was notably higher in the high readability condition with HC than with the high readability conditions with LC (mean *NegAffect* of -26.72 for HR/HC and -14.38 for HR/LC).

One potential explanation for this outcome is that given that the HR/LC condition includes borrower information that indicates low creditworthiness and contains a high level of readability, participants likely would have been able to easily detect that the borrower possessed low creditworthiness and subsequently would have easily been able to make the decision to not loan funds to the prospective borrower. Having been able to accurately identify the borrower's low creditworthiness and to appropriately act on that finding, it is possible participants ultimately felt less negative affect toward the borrower since they believed their own handling of the situation was appropriate and the borrower simply received the objective lending decision it deserved. This potential explanation for the overall more positive affect toward borrowers observed within the HR/LC condition could relate to other research studying the emotional component of the decisions made by creditors. Existing literature suggests lenders undergo emotional labor as they suppress feeling of empathy toward a borrower with low creditworthiness and instead make an effort to make an unbiased and objective, emotionally detached decision that helps to achieve the bank's objective of not lending to customers who may default (Marston et al. 2017). The suppression of emotion observed in lenders could explain why lower levels of negative affect were reported.

TABLE 6
Affect Scores by Condition

Panel A: Descriptive Statistics

	Dependent Variable: <i>TotalAffect</i>			Dependent Variable: <i>PositiveAffect</i>			Dependent Variable: <i>NegativeAffect</i>		
	Creditworthiness		Row Means	Creditworthiness		Row Means	Creditworthiness		Row Means
	High	Low		High	Low		High	Low	
<u>Readability</u>									
High	13.98 (9.82) n = 53	23.40 (14.66) n = 52	18.65 (13.26) n = 105	35.45 (9.16) n = 55	32.92 (10.42) n = 53	34.21 (9.54) n = 108	-26.72 (12.89) n = 53	-14.48 (8.38) n = 52	-20.66 (12.46) n = 105
Low	13.93 (12.30) n = 44	14.68 (12.53) n = 50	14.33 (12.36) n = 94	36.95 (7.96) n = 44	36.65 (9.38) n = 51	36.25 (8.73) n = 95	-28.17 (13.07) n = 46	-26.34 (14.16) n = 50	-27.22 (13.61) n = 106
<u>Column Means</u>	13.96 (10.96) n = 97	19.13 (14.28) n = 102		36.12 (8.64) n = 99	34.26 (9.97) n = 104		-27.39 (12.93) n = 99	-20.29 (12.97) n = 102	

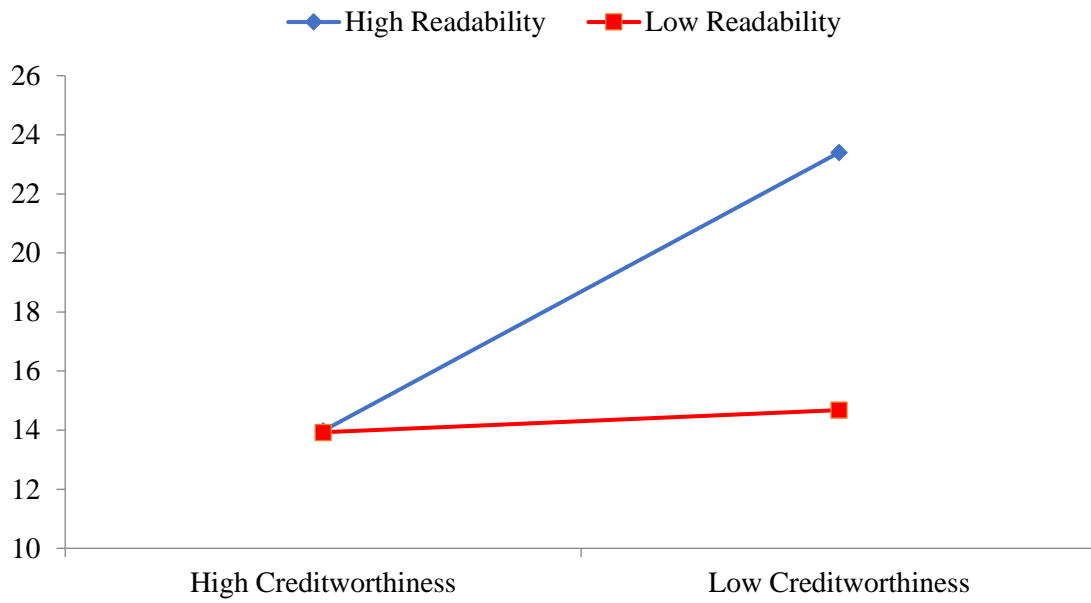
Panel B: ANOVA

Source	Dependent Variable: <i>TotalAffect</i>				Dependent Variable: <i>PositiveAffect</i>				Dependent Variable: <i>NegativeAffect</i>			
	df	MS	F-Stat	p-value	df	MS	F-Stat	p-value	df	MS	F-Stat	p-value
Readability	1	952.3	6.16	0.014***	1	224.6	2.58	0.110	1	2,221.0	14.71	0.000***
Creditworthiness	1	1,279.9	8.27	0.005***	1	185.5	2.13	0.146	1	2,479.6	16.43	0.000***
Readability x Creditworthiness	1	931.0	6.02	0.015**	1	18.8	0.22	0.642	1	1,355.3	8.98	0.003***
Residual	195	154.7			199	86.9			197	150.9		

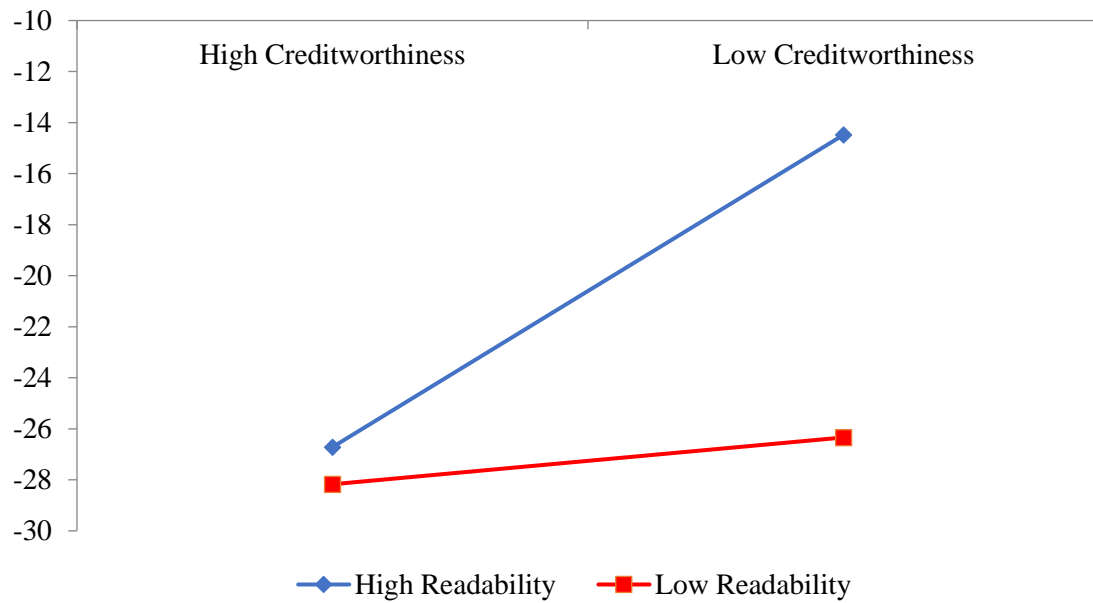
*** p<0.01, ** p<0.05, * p<0.1

FIGURE 3
Graphs Depicting *Total Affect* and *Negative Affect* Scores by Condition

Panel A: Total Affect



Panel B: Negative Affect



5. Conclusion and Future Research Opportunities

This study examines the impact readability has on the perceived creditworthiness of borrowers. I analyze the effect readability has on participants' lending decisions by varying the readability of a borrower's nonfinancial information, while at the same time providing participants with an objective measure of creditworthiness (high creditworthiness vs. low creditworthiness) for that borrower (i.e., an output from a quantitative credit rating model). I ask participants to assume the role of a loan officer of a bank. In completing the duties of this position, participants are instructed to rate the creditworthiness of a potential borrower (Merrick & Company) and to ultimately decide whether the borrower ought to receive the funds requested. I find that when the borrower was presented as having an objectively low degree of creditworthiness based on the output of a quantitative credit rating model, participants assigned more favorable credit ratings when the information they received regarding the borrower possessed a lower degree of readability. While increased readability made it more likely that prospective borrowers with low creditworthiness were assigned an appropriate, lower credit rating, reduced readability increased the likelihood that borrowers objectively deserving of an unfavorable credit rating did not receive one. I also find that readability affects how respondents, in their role as a loan officer, perceived the overall financial condition of the borrower. Participants viewed the financial health of a borrower with lower creditworthiness as more favorable when the materials provided by the prospective borrower had a low degree of readability compared to when the materials provided possessed a high degree of readability.

In addition to identifying how readability impacts the nature of the assessments participants made regarding the borrower, I find that the degree of readability affects the perceptions participants have regarding how accurately they understand the borrower's nonfinancial information provided to them. When the readability of the borrower's nonfinancial information is relatively low, the self-reported accuracy with which respondents understood the borrower's nonfinancial information decreased.

Lastly, regarding the affect of participants, I find that when survey respondents received materials with a high degree of readability, participants in conditions involving borrowers with low creditworthiness reported higher levels of overall positive affect. Interestingly, the difference in affect observed in conditions with high readability and low creditworthiness (relative to the other three experimental conditions) was driven by lower levels of negative affect as opposed to higher levels of positive affect. One possible explanation for this is that since the condition with lower levels of negative affect contained high readability and low creditworthiness, participants would have more easily been able to identify that the prospective borrower possessed a low degree of creditworthiness. Because of this, participants would have been able to confidently conclude that the borrower's request for funding should not be approved. Therefore, participants may have felt lower levels of negative affect since they believed they succeeded in their role as loan officer (since it would not be in the best interests of the bank to lend to a borrower with low creditworthiness) and simply made the correct objective decision, one that the borrower deserved. This potential explanation ties to other studies finding that lenders undergo emotional labor in suppressing feelings of empathy toward borrowers with low creditworthiness, instead making an effort to make an unbiased, emotionally detached

decision that helps to achieve the bank's objective of not loaning to customers who may default (Marston et al. 2017).

Broadly speaking, this study examines how readability impacts the perceptions an audience develops based on information it is presented. I examine readability within a lending context, specifically focusing on how it impacts the perceived creditworthiness of borrowers. Future research might consider separately evaluating components of readability, such as the presentation and comprehensibility of the information. Such analysis could provide valuable insight regarding the degrees to which each of the various elements of readability specifically drive the overall level of readability a piece of writing possesses, along with how audiences react to changes in each of those particular elements of readability. Furthermore, future studies could analyze the impact readability has on perception, but do so in a manner that measures participants' affect at multiple points throughout the experiment. In this study, affect was measured exclusively at the end of the experiment. However, measuring participants' affect at several points during the study, including immediately after they are exposed to the materials whose readability is being varied, could provide interesting and more specific insights regarding the emotional impact the degree of readability may have on participants.

APPENDICES

APPENDIX A

Instructions Provided to All Participants (Regardless of Condition)

Instructions

You are to assume the role of a loan officer at a multinational bank. You are tasked with rating a potential borrower's creditworthiness and ultimately deciding whether to lend funds to the business entity. As a loan officer, your task is to analyze potential borrowers' financial and non-financial information and to estimate their risk of default on the loan.

The following pages contain information to help you in your task. This information is not intended to be fully representative of what would be available to you if you were actually employed as a loan officer. Nevertheless, please base your judgments only on the information provided. There are no "correct" answers.

In a traditional loan, prospective borrowers provide financial and non-financial information to a bank, with the intention of borrowing money under favorable terms. Borrowers hope to secure funding at the lowest interest rate possible, while the bank is largely concerned with not loaning to borrowers that will default. This is because the bank only earns interest when a borrower does not default on the loan. Considering these factors, an *accurate* credit rating helps the bank to achieve its goal, while a *higher* credit rating helps the borrowers to achieve their goal. Accurate credit ratings allow banks to make an informed decision about whether to lend money and if so, at what interest rate. Higher credit ratings allow borrowers to secure a lower interest rate.

<NEXT PAGE>

Credit analysts often use quantitative models to help them develop a credit rating judgment. As a loan officer you are provided with the model below, which can be used as a starting point for credit rating decisions. The model is computed by multiplying certain data items by statistically derived weights (shown on the far-right column of the next page). Positive weights increase the model's score; negative weights decrease the model's score. **You may use this model to make your credit rating judgments or deviate from the model as you see fit.** If you deviate from the model, you will be asked to provide explanations for why you deviated from the model. Note that all borrower variables were available in creating the model, but the model was restricted to a few items for simplicity.

Borrower Variables	Variable Definition	Used in the Provided Model?	Weight (coefficient) in the Model
Use of Proceeds	The borrower's reported reason for seeking a loan.	No	
Outside Credit Score	The borrower's credit score based on past transactions and past lending arrangements, where higher numbers reflect a more credit-worthy borrower. The minimum score is 500; the maximum is 990.	Yes	2.2
Number of Delinquencies in the past 7 years	The number of loans for which the borrower has had late payments over the past 7 years.	Yes	-1.4
Number of Credit Checks in the past 6 months	The number of times (in the past 6 months) a bank requested the borrower's credit profile from a credit rating agency.	No	
Total Credit Lines	The total number of lines of credit that a borrower has. A line of credit is a lending arrangement where a borrower can access funds at any point in time up to a certain prespecified amount.	No	
Income / Interest Expense (Times Interest Earned)	The borrower's annual income divided by their annual interest payment, where a higher number indicates a borrower is better equipped to make the required payments on their debt.	Yes	19.2
Debt / Income Ratio	The borrower's total outstanding loan balance divided by their total income, where a higher number indicates a higher proportion of debt.	Yes	-34.4
Constant Added to the Model	This number does not vary by borrower; it is included to get the most predictive model possible.	Yes	-1,195

MODEL

$$\begin{aligned}
 & -1,195 + (2.2 * \text{Outside Credit Score}) + (-1.4 * \text{Number of Delinquencies Past 7 years}) + \\
 & (19.2 * \text{Income/Interest Expense}) + (-34.4 * \text{Debt / Income Ratio}) \\
 & = \text{Model Output}
 \end{aligned}$$

Using the scale below, the model's output for any borrower can be translated into a credit rating between **1** and **5**, where 1 represents the least credit-worthy group of borrowers and 5 represents the most credit-worthy group of borrowers.

CREDIT RATING SCALE

Rating Model's Output Range	Credit Rating	Range of Interest Rates for a Borrower with this Credit Rating
199 or below	1	15% - 30%
200 – 349	2	13% - 25%
350 – 499	3	11% - 20%
500 – 649	4	9% - 16%
650 or above	5	5% - 13%

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The next few pages describe information for **Merrick & Company**, who is seeking a loan at your bank.

<NEXT PAGE>

APPENDIX B

Borrower Information Provided to Participants in the High Readability (HR) and High Creditworthiness (HC) Condition

BUSINESS PROFILE

Merrick & Company (“Merrick” or the “Company” or “we”) operates in the retail space in the U.S. The company has many storefronts across the county, at which it sells a variety of outdoor recreational goods. Merrick is a leading global manufacturer that offer sells branded outdoor recreation products for fishing, paddling, hiking, and camping. The company’s well-known brands have achieved success due to innovation, effective marketing, and product quality. Our mission is to make products that perform well and are durable, no matter where life takes our customers. By always delivering high-performing products, we have developed a loyal customer base made up of people from all walks of life. Our relationship with our customers continues to improve due to the new and creative products we introduce and our varied branding activities. We believe we can keep growing by continuing to make reliable and high-performing products and by creating positive and convenient shopping experiences for our customers.

The following two pages will detail risk factors associated with Merrick & Company along with how the business plans to utilize the funds from the loan it has requested.

<NEXT PAGE>

RISK FACTORS

General economic conditions could harm our performance.

How well Merrick does could be impacted by changes in overall economic conditions. Reductions in the amount of money consumers have to spend on nonessential goods, shifts towards consumers giving more business to our competitors, and shifts towards consumers buying more of the products that we make less of a profit on could all lead to the company having less favorable financial results.

Our marketing initiatives may not provide expected results.

The company’s future success depends on its ability to have effective marketing programs. It is possible that we will not correctly identify and quickly respond to changes in consumer preferences, which could cause our marketing initiatives to be ineffective. Without the proper marketing programs, the company may not be able to grow and could suffer financially.

We may not be able to increase sales at our existing stores.

A number of factors could cause the sales at our current store locations to not meet our expectations. The sales at our existing locations could decrease moving forward.

We may not be able to open and operate new stores in the way we expect, which could harm our financial performance.

An important part of our strategy is to increase the total number of our locations by opening new stores. If we are unable to meet our goals for store openings, our sales, profitability, and cash flow could be negatively impacted in a significant way.

If we are unable to attract and retain qualified employees, or the costs of paying workers increases, our financial performance could be negatively affected.

If Merrick wants to maintain and continue expanding its store locations, the company needs to be able to attract and retain a growing number of qualified team members. If we are unable to find and keep qualified employees, or labor costs significantly increase, our financial performance could be harmed.

<NEXT PAGE>

USE OF PROCEEDS

We will use the funds from this loan for a variety of general purposes, some of which may include the following:

- Investment in our existing or future store locations.
- Repayment of obligations that have matured.
- Reducing outstanding debt.
- Increasing working capital.
- Covering research and development expenses.
- Increasing the overall liquidity of the corporation.
- Investment in securities.
- Payments to take advantage of supplier discounts.

<NEXT PAGE>

The table below shows the aforementioned credit rating model with Merrick & Company's information.

		Model Weights
Outside Credit Score	760	2.2
Number of Delinquencies in the past 7 years	0	-1.4
Number of Credit Checks in the past 6 months	1	
Total Credit Lines	13	
Income / Interest Expense (Times Interest Earned)	1.98	19.2
Debt / Income Ratio (Percentage also given in parentheses)	0.16 (16%)	-34.4
Constant Added to the Model		-1,195

Based on the model described earlier, Merrick & Company's score is **509.5**. For your reference, the model is provided below.

MODEL

$$\begin{aligned}
 & -1,195 + (2.2 * \text{Outside Credit Score}) + (-1.4 * \text{Number of Delinquencies Past 7 years}) + \\
 & (19.2 * \text{Income/Interest Expense}) + (-34.4 * \text{Debt / Income Ratio}) \\
 & = \text{Model Output}
 \end{aligned}$$

<NEXT PAGE>

APPENDIX C

Borrower Information Provided to Participants in the High Readability (HR) and Low Creditworthiness (LC) Condition

BUSINESS PROFILE

Merrick & Company (“Merrick” or the “Company” or “we”) operates in the retail space in the U.S. The company has many storefronts across the county, at which it sells a variety of outdoor recreational goods. Merrick is a leading global manufacturer that offer sells branded outdoor recreation products for fishing, paddling, hiking, and camping. The company’s well-known brands have achieved success due to innovation, effective marketing, and product quality. Our mission is to make products that perform well and are durable, no matter where life takes our customers. By always delivering high-performing products, we have developed a loyal customer base made up of people from all walks of life. Our relationship with our customers continues to improve due to the new and creative products we introduce and our varied branding activities. We believe we can keep growing by continuing to make reliable and high-performing products and by creating positive and convenient shopping experiences for our customers.

The following two pages will detail risk factors associated with Merrick & Company along with how the business plans to utilize the funds from the loan it has requested.

<NEXT PAGE>

RISK FACTORS

General economic conditions could harm our performance.

How well Merrick does could be impacted by changes in overall economic conditions. Reductions in the amount of money consumers have to spend on nonessential goods, shifts towards consumers giving more business to our competitors, and shifts towards consumers buying more of the products that we make less of a profit on could all lead to the company having less favorable financial results.

Our marketing initiatives may not provide expected results.

The company’s future success depends on its ability to have effective marketing programs. It is possible that we will not correctly identify and quickly respond to changes in consumer preferences, which could cause our marketing initiatives to be ineffective. Without the proper marketing programs, the company may not be able to grow and could suffer financially.

We may not be able to increase sales at our existing stores.

A number of factors could cause the sales at our current store locations to not meet our expectations. The sales at our existing locations could decrease moving forward.

We may not be able to open and operate new stores in the way we expect, which could harm our financial performance.

An important part of our strategy is to increase the total number of our locations by opening new stores. If we are unable to meet our goals for store openings, our sales, profitability, and cash flow could be negatively impacted in a significant way.

If we are unable to attract and retain qualified employees, or the costs of paying workers increases, our financial performance could be negatively affected.

If Merrick wants to maintain and continue expanding its store locations, the company needs to be able to attract and retain a growing number of qualified team members. If we are unable to find and keep qualified employees, or labor costs significantly increase, our financial performance could be harmed.

<NEXT PAGE>

USE OF PROCEEDS

We will use the funds from this loan for a variety of general purposes, some of which may include the following:

- Investment in our existing or future store locations.
- Repayment of obligations that have matured.
- Reducing outstanding debt.
- Increasing working capital.
- Covering research and development expenses.
- Increasing the overall liquidity of the corporation.
- Investment in securities.
- Payments to take advantage of supplier discounts.

<NEXT PAGE>

The table below shows the aforementioned credit rating model with Merrick & Company's information.

		Model Weights
Outside Credit Score	700	2.2
Number of Delinquencies in the past 7 years	24	-1.4
Number of Credit Checks in the past 6 months	0	
Total Credit Lines	41	
Income / Interest Expense (Times Interest Earned)	2.10	19.2
Debt / Income Ratio (Percentage also given in parentheses)	0.33 (33%)	-34.4
Constant Added to the Model		-1,195

Based on the model described earlier, Merrick & Company's score is **340.4**. For your reference, the model is provided below.

MODEL

$$\begin{aligned}
 & -1,195 + (2.2 * \text{Outside Credit Score}) + (-1.4 * \text{Number of Delinquencies Past 7 years}) + \\
 & (19.2 * \text{Income/Interest Expense}) + (-34.4 * \text{Debt / Income Ratio}) \\
 & = \text{Model Output}
 \end{aligned}$$

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APPENDIX D

Borrower Information Provided to Participants in the Low Readability (LR) and High Creditworthiness (HC) Condition

Business Profile

Merrick & Company (“Merrick” or the “Company” or “we”) is a business currently operating in the retail space in the United States. The company has a number of storefronts across the county, at which it sells a wide variety of outdoor recreational goods; Merrick is also known as a leading global manufacturer and marketer of branded seasonal, outdoor recreation products used primarily for fishing from a boat, diving, paddling, hiking, and camping. The Company’s portfolio of well-known consumer brands has attained leading market positions due to continuous innovation, marketing excellence, product performance, and quality; such characteristics are linked to the company’s mission to ensure that each product Merrick sells delivers exceptional performance and durability in any environment, whether in the remote wilderness, at the beach, or anywhere else life takes our customers. By consistently delivering high-performing products, we have built a following of engaged brand loyalists throughout the United States, ranging from serious outdoor enthusiasts to individuals who simply value products of uncompromising quality and design. Our relationship with customers continues to thrive and deepen as a result of our innovative new product introductions, expansion and enhancement of our existing product families, and multifaceted branding activities, and we will continue to fuel the growth of our business by being the most dependable supplier of relevant products and services for the outdoor lifestyle of our consumers, creating customer loyalty through personalized experiences, and providing convenience that our customers expect at any time, anywhere, and in any way they choose.

The following two pages will detail risk factors associated with Merrick & Company along with how the business plans to utilize the funds from the loan it has requested.

<NEXT PAGE>

Risk Factors

General economic conditions may adversely affect our financial performance. Our results of operations may be sensitive to changes in overall economic conditions. A general reduction in the level of discretionary spending, shifts in consumer discretionary spending to our competitors, or shifts in discretionary spending to less profitable products sold by us could result in lower net sales, slower inventory turnover, greater markdowns on inventory, and a reduction in profitability due to lower margins.

Our merchandising and marketing initiatives may not provide expected results. The company's future success is contingent upon its ability to develop and execute merchandising initiatives with effective marketing programs. However, our merchandising initiatives and marketing programs may not deliver expected results, and there is no assurance that we will correctly identify and respond in a timely manner to evolving trends and consumer preferences and expectations. Failure in the aforementioned areas could inhibit the company's ability to grow and harm its financial condition.

We may be unable to increase sales at our existing stores. A number of factors could cause the comparable store sales results at our existing stores to differ materially from prior periods and from expectations. Past comparable store sales are not an indication of future results, and there can be no assurance that our comparable store sales will not decrease in the future.

Failure to open and manage new stores in the number and manner currently contemplated could adversely affect our financial performance. An integral part of our business strategy includes the expansion of our store base through new store openings. If we are unable to implement this strategy, our ability to increase our sales, profitability, and cash flow could be impaired significantly. To the extent that we are unable to open new stores in the manner we anticipate (due to, among other reasons, site approval or unforeseen delays in construction), our sales growth may be impeded.

Our failure to attract and retain qualified team members, increases in wage, and labor costs, and changes in laws and other labor issues could adversely affect our financial performance.

Our ability to maintain and continue expanding operations depends on our ability to attract and retain a large and growing number of qualified team members. If we are unable to locate, attract or retain qualified personnel, or if costs of labor or related costs increase significantly, our financial performance could be adversely affected.

<NEXT PAGE>

Use of Proceeds

We will contribute the net proceeds that we receive from this loan to our general funds that will be available for general corporate purposes, including, but not limited to, the following: investment in our existing or future store locations, repayment of obligations that have matured, reducing outstanding debt, increasing working capital, covering research and development expenses, increasing the overall liquidity of the corporation, investment in securities, and payments to take advantage of supplier discounts.

<NEXT PAGE>

The table below shows the aforementioned credit rating model with Merrick & Company's information.

		Model Weights
Outside Credit Score	760	2.2
Number of Delinquencies in the past 7 years	0	-1.4
Number of Credit Checks in the past 6 months	1	
Total Credit Lines	13	
Income / Interest Expense (Times Interest Earned)	1.98	19.2
Debt / Income Ratio (Percentage also given in parentheses)	0.16 (16%)	-34.4
Constant Added to the Model		-1,195

Based on the model described earlier, Merrick & Company's score is **509.5**. For your reference, the model is provided below.

MODEL

$$\begin{aligned}
 & -1,195 + (2.2 * \text{Outside Credit Score}) + (-1.4 * \text{Number of Delinquencies Past 7 years}) + \\
 & (19.2 * \text{Income/Interest Expense}) + (-34.4 * \text{Debt / Income Ratio}) \\
 & = \text{Model Output}
 \end{aligned}$$

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APPENDIX E

Borrower Information Provided to Participants in the Low Readability (LR) and Low Creditworthiness (LC) Condition

Business Profile

Merrick & Company (“Merrick” or the “Company” or “we”) is a business currently operating in the retail space in the United States. The company has a number of storefronts across the county, at which it sells a wide variety of outdoor recreational goods; Merrick is also known as a leading global manufacturer and marketer of branded seasonal, outdoor recreation products used primarily for fishing from a boat, diving, paddling, hiking, and camping. The Company’s portfolio of well-known consumer brands has attained leading market positions due to continuous innovation, marketing excellence, product performance, and quality; such characteristics are linked to the company’s mission to ensure that each product Merrick sells delivers exceptional performance and durability in any environment, whether in the remote wilderness, at the beach, or anywhere else life takes our customers. By consistently delivering high-performing products, we have built a following of engaged brand loyalists throughout the United States, ranging from serious outdoor enthusiasts to individuals who simply value products of uncompromising quality and design. Our relationship with customers continues to thrive and deepen as a result of our innovative new product introductions, expansion and enhancement of our existing product families, and multifaceted branding activities, and we will continue to fuel the growth of our business by being the most dependable supplier of relevant products and services for the outdoor lifestyle of our consumers, creating customer loyalty through personalized experiences, and providing convenience that our customers expect at any time, anywhere, and in any way they choose.

The following two pages will detail risk factors associated with Merrick & Company along with how the business plans to utilize the funds from the loan it has requested.

<NEXT PAGE>

Risk Factors

General economic conditions may adversely affect our financial performance. Our results of operations may be sensitive to changes in overall economic conditions. A general reduction in the level of discretionary spending, shifts in consumer discretionary spending to our competitors, or shifts in discretionary spending to less profitable products sold by us could result in lower net sales, slower inventory turnover, greater markdowns on inventory, and a reduction in profitability due to lower margins.

Our merchandising and marketing initiatives may not provide expected results.

The company's future success is contingent upon its ability to develop and execute merchandising initiatives with effective marketing programs. However, our merchandising initiatives and marketing programs may not deliver expected results, and there is no assurance that we will correctly identify and respond in a timely manner to evolving trends and consumer preferences and expectations. Failure in the aforementioned areas could inhibit the company's ability to grow and harm its financial condition.

We may be unable to increase sales at our existing stores.

A number of factors could cause the comparable store sales results at our existing stores to differ materially from prior periods and from expectations. Past comparable store sales are not an indication of future results, and there can be no assurance that our comparable store sales will not decrease in the future.

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<NEXT PAGE>

Use of Proceeds

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<NEXT PAGE>

The table below shows the aforementioned credit rating model with Merrick & Company's information.

		Model Weights
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Total Credit Lines	41	
Income / Interest Expense (Times Interest Earned)	2.10	19.2
Debt / Income Ratio (Percentage also given in parentheses)	0.33 (33%)	-34.4
Constant Added to the Model		-1,195

Based on the model described earlier, Merrick & Company's score is **340.4**. For your reference, the model is provided below.

MODEL

$$\begin{aligned}
 & -1,195 + (2.2 * \text{Outside Credit Score}) + (-1.4 * \text{Number of Delinquencies Past 7 years}) + \\
 & (19.2 * \text{Income/Interest Expense}) + (-34.4 * \text{Debt / Income Ratio}) \\
 & = \text{Model Output}
 \end{aligned}$$

APPENDIX F

Survey Questions for All Participants

What credit rating would you assign to this borrower? For your convenience, the Credit Rating Scale provided earlier is copied here. Additionally, recall that Merrick & Company's score computed based on the credit rating model was **509.5 (High Creditworthiness) / 340.4 (Low Creditworthiness)**. **[Answer Choices: 1-5 Scale]**

CREDIT RATING SCALE

Rating Model's Output Range	Credit Rating	Range of Interest Rates for a Borrower with this Credit Rating
199 or below	1	15% - 30%
200 – 349	2	13% - 25%
350 – 499	3	11% - 20%
500 – 649	4	9% - 16%
650 or above	5	5% - 13%

If your rating differed from the model's prediction, please explain how you changed the model to arrive at your rating. For example, did you add or delete any variables? Did you change the weight on any variables? **[Open-ended]**

What is your best estimate of the interest rate at which this loan will be funded? **[Answer Choices: 0%-40%]**

If you were the lending officer at a bank, how likely would you be to approve a \$1,000,000 loan to Merrick at the interest rate you specified above? **[Answer Choices: Extremely likely, Somewhat likely, Neither likely nor unlikely, Somewhat unlikely, Extremely unlikely]**

<NEXT PAGE>

How accurately do you feel you were able to understand the nonfinancial information pertaining to Merrick? **[Answer Choices: Extremely accurately, Very accurately, Moderately accurately, Slightly accurately, Not accurately at all]**

<NEXT PAGE>

How trustworthy do you find Merrick's management, who provided the information about the company? **[Answer Choices: Very trustworthy,**

Trustworthy, Neither trustworthy nor untrustworthy, Untrustworthy, Very untrustworthy]

<NEXT PAGE>

What is your overall assessment of Merrick's financial position? **[Answer Choices: Very strong financial position, Strong financial position, Neither a strong nor a weak financial position, Weak financial position, Very weak financial position]**

<NEXT PAGE>

What is your perceived credibility of the nonfinancial information pertaining to Merrick? **[Answer Choices: Very credible, Credible, Neither credible nor unreliable, unreliable, very unreliable]**

<NEXT PAGE>

How confident do you feel that you accurately assessed Merrick's creditworthiness? **[Answer Choices: Very confident, Confident, Neither confident nor unconfident, Unconfident, Very unconfident]**

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The following scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. Indicate to what extent you feel this way right now, that is, at the present moment. **[Answer Choices: does not describe my feelings, slightly describes my feelings, moderately describes my feelings, mostly describes my feelings, and clearly describes my feelings]**

Interested
Distressed
Excited
Upset
Strong
Guilty
Scared
Hostile
Enthusiastic
Proud
Irritable
Alert
Ashamed
Inspired
Nervous
Determined
Attentive
Jittery

Active
Afraid

<NEXT PAGE>

What is your comfort level in accounting/finance? [**Answer Choices: Very comfortable, Comfortable, Neither comfortable nor uncomfortable, Uncomfortable, Very uncomfortable**]

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What is your gender? [**Answer Choices: Male, Female, Other**]

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